







Fulmar & Auk North Topsides, Subsea Facilities and Pipelines Decommissioning Programmes

October 2020

DOCUMENT CONTROL

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	Name	Signature	Date
Prepared by	Kilian Palop		29.10.20
Checked by	Robbie Dunbar-Smith		29.10.20
Reviewed By	Teresa Munro		30.10.20
Approved by	Luis Batalla		02/11/2020

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Terms and Abbreviations

Abbreviation	Explanation
A	Alpha
AD	Advanced Drilling
BAT	Best Available Technique
BEIS	Department for Business, Energy and Industrial Strategy
CA	Comparative Assessment
CoP	Cessation of Production
DP	Decommissioning Programme
EA	Environmental Appraisal
EHC	Electro-Hydraulic Control
EL	Elevation

Abbreviation	Explanation
ELSBM	Exposed Location Single Buoy Mooring
ENE	East North East
ENVID	Environmental Issues Identification
ERW	Extended Reach Well
ES	Environmental Statement
ESP	Electric Submersible Pumps
EU	European Union
FPAL	First Point Assessment Limited
FSU	Floating Storage Unit
HLV	Heavy Lift Vessel
HS&E	Health Safety & Environment
HSE	Health and Safety Executive
km	Kilometre
m	Metres
m ³	Cubic Metre
MAT	Master Application Template
MSBL	Mean Sea Bed Level
MSF	Module Support Frame
N/A	Not Applicable
NORM	Naturally Occurring Radioactive Material
NRV	Non Return Valve
NW	North West
O&G UK	Oil & Gas UK
ODU	Offshore Decommissioning Unit
OEM	Oil Export Module
OGA	Oil and Gas Authority
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	Oslo-Paris Convention
PL	Pipe Line (as in PL Number)
PLQ	Permanent Living Quarters

Abbreviation	Explanation
PON	Petroleum Operations Notice
PWA	Pipeline Works Authorisation
SALM	Single Anchor Leg Mooring
SAT	Subsidiary Application Template
SCAP	Supply Chain Action Plan
SE	South East
SEPA	Scottish Environmental Protection Agency
SFF	Scottish Fishermen's Federation
SLV	Single Lift Vessel
SSIV	Subsea Isolation Valve
SSW	South South West
STL	Submerged Turret Loading
Te	Tonnes
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
WGS84	World Geodetic System 1984
WSW	West South West

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Number	Section	Description
1	8	Partner Letters of Support
2	Appendix B	Statutory Consultees Correspondence

1 EXECUTIVE SUMMARY

1.1 Combined Decommissioning Programmes

This document contains the combined Decommissioning Programmes (DPs) for the installations and pipelines associated with the Fulmar and Auk North fields, as follows:

1. Fulmar Section 29 Notices:
 - Fulmar A fixed steel drilling and production platform, Fulmar AD fixed steel wellhead jacket/template including without limitation all associated subsea equipment. ^{Notes 1 2 & 3}
 - Associated Pipelines, Flowlines, Umbilicals and Power Cables.
2. Fulmar Oil Export System Section 29 Notices:
 - Old and new Single Anchor Leg Mooring (SALM) Bases ^{Note 4}.
 - Associated Pipelines.
3. Auk North Section 29 Notices:
 - All subsea equipment including the manifold associated with the Auk North field. ^{Note 5}
 - Associated Pipelines, Flowlines, Umbilicals and Power Cables.

Notes:

1. Fulmar A and Fulmar AD Jackets are the subject of separate Decommissioning Programmes.
2. The Halley ERWs drilled from Fulmar are not subject to a Section 29 Notice, however, they are included within the decommissioning scope of Fulmar.
3. The associated subsea equipment includes protection structures (Fulmar SSIV, PL208 NRV, SALM Tee piece and Fulmar igloo).
4. The SALM bases are included in the Fulmar SALM Decommissioning Programme which was approved in 1998. As no re-use opportunities have been identified, they will be removed along with the remaining Fulmar field infrastructure as per the approved Decommissioning Programme.
5. The subsea equipment includes integrated wellhead protection structures and manifolds.
6. A Decommissioning Programme specifically for preparation work scopes associated with Fulmar, Auk North has been submitted to OPRED (See Appendix C).

1.2 Requirement for Decommissioning Programmes

Installations:

In accordance with the Petroleum Act 1998, the Section 29 notice holders of the Fulmar and Auk North installations (see Table 1-2) are applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for decommissioning the installations detailed in Section 2.1 and 2.2 of these programmes, (see also section 8 Partner Letter of Support).

Pipelines:

In accordance with the Petroleum Act 1998, the Section 29 notice holders of the Fulmar and Auk North pipelines (see Table 1-4) are applying to OPRED to obtain approval for decommissioning the pipelines detailed in Section 2.3 of these programmes, (see also section 8 Partner Letter of Support).

In conjunction with public, stakeholder and regulatory consultation, the DPs are submitted in compliance with national and international regulations and OPRED guidelines.

1.3 Introduction

The Fulmar complex, comprising the main Fulmar Alpha platform and the bridge-linked Advanced Drilling (AD) wellhead jacket, is a fixed offshore drilling, production and accommodation Installation, located in Blocks 30/16 and 30/11b of the Central Sector of the North Sea. The Installation stands in 83m of water approximately 350km east of Dundee.

Development of the Fulmar and Halley fields began in 1978 with first oil produced from the AD wellhead jacket to the Floating Storage Unit (FSU) in February 1982, followed by first oil from Fulmar Alpha in May 1982. Fulmar Alpha currently has 36 well slots and Fulmar AD has 6 well slots. A Cessation of Production Application was approved by the Oil and Gas Authority (OGA) 8th October 2018. However, Fulmar Platform will continue operating as an export hub for Auk and Clyde production until they reach cessation of production or by-pass Fulmar.

Fulmar Alpha imports metered oil from Clyde/Orion and Auk Alpha. The oil imports are combined within the oil export module (OEM) before being metered and exported via a subsea pipeline to the ConocoPhillips operated Norpipe system for onward processing at Teesside. Fulmar Alpha also receives conditioned metered Clyde gas for export via the St. Fergus pipeline.

The Auk North reservoir is located approximately 10.5 km southwest of the Fulmar Alpha platform and was developed as a subsea tie-back to the Fulmar Alpha platform. The development was produced from 4 wells each utilizing dual Electric Submersible Pumps (ESP), which are tied back to the Auk North subsea manifold and onto the Fulmar Alpha platform via an electro hydraulic control umbilical, flowline and conductor / riser arrangement. Cessation of Production for the Auk North field was included within the Fulmar Cessation of Production Application.

Within the Fulmar Field are two redundant single anchor leg mooring (SALM) bases that supported the original oil export route from Fulmar Alpha via shuttle tanker. The SALM Bases were included within the previously approved Fulmar Oil Export Decommissioning Programme indicating that they will remain *in situ* to allow for potential re-use. The programme also stated that should no further use be identified the SALM Bases will be decommissioned at the same time as the other facilities in the Fulmar Fields.

Following public, stakeholder and regulatory consultation, these DPs are submitted in full compliance with OPRED guidelines.

The DPs explain the principles of the removal activities and are supported by a Comparative Assessment for the subsea infrastructure and an Environmental Appraisal (EA).

1.4 Overview of Installations/Pipelines Being Decommissioned

1.4.1 Installations

Table 1-1 Installations Being Decommissioned			
Fields:	Fulmar & Auk North	Production Type (Oil/Gas/Condensate)	Oil / Gas
Water Depth (m)	83	UKCS blocks	30/16 and 30/11b
Surface Installations			
Number	Type	Topsides Weight (Te)	Jacket Weight (Te)
2	Production Platform	23,583 ^{Note 1}	N/A
	Wellhead Platform	282 + 220 (Bridge)	N/A
Subsea Installations		Number of Wells	
Number	Type	Platform	Subsea
4	Integrated Wellhead Protection Structures (Auk North)	Fulmar 'A' & Fulmar AD ^{Note 2} 37	Auk North 4
2	Manifolds (Auk North)		
4	Protection Structures (Fulmar SSIV, PL208 NRV, SALM Tee-Piece and Fulmar Igloo)		
2	SALM Bases (Fulmar)		
Drill Cuttings Pile		Distance to Median	Distance from nearest UK coastline
Number of Piles	Total Estimated volume (m³)	km	km
N/A	N/A	N/A	N/A

Notes

1. Dry weight
2. The Fulmar 'A' and Fulmar AD installations have 42 well slots in total (36 and 6 respectively), of which 5 are empty slots. 35 wells on Fulmar Field and 2 wells from the Halley Field.

Table 1-2 Installations Section 29 Notice Holder Details		
Fulmar Alpha and AD		
Current Owner	Registration Number	Equity Interest (%)
Repsol Sinopec North Sea Limited	01061863	100%
Exited Parties	Registration Number	Equity Interest (%)
Repsol Sinopec Resources UK Limited	00825828	-
Shell U.K. Limited	00140141	-
Esso Exploration and Production UK Limited	00207426	-
Hess Limited	00807346	-
Fulmar Oil Export System / SALM Bases		
Current Owner	Registration Number	Equity Interest (%)
Repsol Sinopec North Sea Limited	01061863	100%
Exited Parties	Registration Number	Equity Interest (%)
Repsol Sinopec Resources UK Limited	00825828	-
Shell U.K. Limited	00140141	-
Esso Exploration and Production UK Limited	00207426	-
Hess Limited	00807346	-
Auk North		
Current Owner	Registration Number	Equity Interest (%)
Repsol Sinopec Resources UK Limited	00825828	100%
Repsol S.A.	ESA78374725	-

1.4.2 Pipelines, Umbilicals and Power Cables

Table 1-3 Fulmar and Auk North Pipelines Being Decommissioned

Number of Pipelines	7	(See Table 2-3)
Number of Umbilicals	3	(See Table 2-3)
Number of Power Cables	1	(See Table 2-3)

Table 1-4 Pipelines Section 29 Notice Holder Details

Pipeline Number	Section 29 Notice Holder	Registration Number	Equity Interest (%)
PL208 ^{Note 1}	<i>Current Owners</i>		
	Repsol Sinopec North Sea Limited ^{Note 2}	01061863	100%
	<i>Exited Parties</i>		
	Repsol Sinopec Resources UK Limited	00825828	-
	Shell U.K. Limited	00140141	-
	Esso Exploration and Production UK Limited	00207426	-
PL1315 PL1316 PLU4472 PLU4473	<i>Current Owners</i>		
	Repsol Sinopec North Sea Limited	01061863	100%
	<i>Exited Parties</i>		
	Repsol Sinopec Resources UK Limited	00825828	-
	Shell U.K. Limited	00140141	-
	Esso Exploration and Production UK Limited	00207426	-
	Hess Limited	00807346	-
PL63 PL648 PL648A	<i>Current Owners</i>		
	Repsol Sinopec North Sea Limited	01061863	100%
	<i>Exited Parties</i>		
	Repsol Sinopec Resources UK Limited	00825828	-
	Shell U.K. Limited	00140141	-
	Esso Exploration and Production UK Limited	00207426	-
	Hess Limited	00807346	-
	Amoco (U.K.) Exploration Company LLC	SF000790	-
	Amoco U.K. Petroleum Limited	00799710	-

Table 1-4 Pipelines Section 29 Notice Holder Details			
Pipeline Number	Section 29 Notice Holder	Registration Number	Equity Interest (%)
PL2651	<i>Current Owner</i>		
PLU2652	Repsol Sinopec Resources UK Limited	00825828	100%
PLU2653		ESA78374725	-

Notes

1. The terminating tie-in for PL208 is on Fulmar A topsides. However, for the purposes of this DP this pipeline will end at the riser tie-in flange. The riser section of PL208 shall be decommissioned as part of the Fulmar Sub-structure DP.
2. PL208 is 100% owned by Repsol Sinopec North Sea Limited up to the downstream face of the downstream flange of the FV15 subsea valve to the St. Fergus Terminal. Downstream of this point is not part of this combined Decommissioning Programme.
3. The current owners are listed in Tables 1-2 to 1-4. Where there is a reference to Repsol Sinopec Resources UK Limited in the text of this Decommissioning Programme this should be read as referring to Repsol Sinopec Resources UK Limited in relation to Auk North and Repsol Sinopec North Sea Limited in relation to Fulmar.

1.5 Summary of Proposed Decommissioning Programmes

Table 1-5: Summary of Decommissioning Programmes

Selected Option	Reason for Selection	Proposed Decommissioning Solution
1. Topsides		
Fulmar A: Complete removal, onshore dismantling, recycling and disposal	Complies with requirements of OSPAR Decision 98/3 for complete removal and maximises recycling of materials	Remove the topsides and transport ashore for dismantling. Cleaned equipment refurbished for re-use where possible. Equipment which cannot be re-used will be recycled or other disposal routes as appropriate.
Fulmar AD: Complete removal, onshore dismantling, recycling and disposal	Complies with requirements of OSPAR Decision 98/3 for complete removal and maximises recycling of materials	Remove the topsides and transport ashore for dismantling. Cleaned equipment refurbished for re-use where possible. Equipment which cannot be re-used will be recycled or other disposal routes as appropriate.
2. Substructures		
N/A	N/A	N/A
3. Subsea Installations		
Manifolds 1 x Auk North Manifold 1 x Auk North Well N4 Manifold Complete removal, onshore dismantling, re-use, recycling and disposal.	To comply with OSPAR requirements leaving unobstructed seabed. Removes a potential obstruction to fishing operations and maximises recycling of materials.	Removal to shore for disposal, re-use and recycling.
1 x Template Complete removal, onshore dismantling, re-use, recycling and disposal.	To comply with OSPAR requirements leaving unobstructed seabed. Removes a potential obstruction to fishing operations and maximises recycling of materials.	Removal to shore for disposal, re-use and recycling.
Protection Structures 1 x Fulmar SSIV 1 x PL208 NRV 1 x SALM Tee Piece 1 x Fulmar Igloo Complete removal, onshore dismantling, re-use, recycling and disposal.	To comply with OSPAR requirements leaving unobstructed seabed. Removes a potential obstruction to fishing operations and maximises recycling of materials.	Removal to shore for disposal, re-use and recycling.
2 x SALM Bases Complete removal, onshore dismantling, re-use, recycling and disposal.	To comply with OSPAR requirements leaving unobstructed seabed. Removes a potential obstruction to fishing operations and maximises recycling of materials.	Removal to shore for disposal, re-use and recycling.
4 x Integrated Wellhead Protection Structures (Auk North): Complete removal, onshore dismantling, re-use, recycling and disposal.	To comply with OSPAR requirements leaving unobstructed seabed. Removes a potential obstruction to fishing operations and maximises recycling of materials.	Removal to shore for disposal, re-use and recycling.
4. Pipelines, Flowlines & Umbilicals		

Table 1-5: Summary of Decommissioning Programmes

Selected Option	Reason for Selection	Proposed Decommissioning Solution
20" Gas Export PL208: Decommission <i>in situ</i> and remediate any exposed sections.	Pipeline is rock covered and historical review indicates stable pipeline condition. Based on the CA evaluation, leave <i>in situ</i> has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.	The rock covered sections of the pipeline will be decommissioned <i>in situ</i> . The pipeline ends will be cut, recovered and returned to shore for recycling.
16" Oil Pipeline PL63: Rock cover exposures.	The pipeline is partially trenched and buried, with spanning in locations. Based on the CA evaluation, rock cover of exposures has been assessed as the overall preferred option not including the Economic criterion and was the most preferred option against the Technical criterion.	The tie-in spools and trench transition sections of the pipeline shall be cut, recovered and returned to shore for recycling. The exposed and insufficiently covered remaining sections of pipe shall be rock covered.
16" Oil Pipeline PL648 (Including PL648A): Rock cover exposures.	The pipeline is partially trenched and buried, with spanning in locations. Based on the CA evaluation, rock cover of exposures has been assessed as the overall preferred option not including the Economic criterion and was the most preferred option against the Technical criterion.	The tie-in spools and trench transition sections of the pipeline shall be cut, recovered and returned to shore for recycling, including PL648A. The exposed and insufficiently covered remaining sections of pipe shall be rock covered.
24" Oil Pipeline PL1315: Trench and Bury.	The pipeline is fully exposed with the exception of 4 pipeline crossings which are covered by rock placement or mattresses, with spanning in locations. Based on the CA evaluation, trench and bury has been assessed as the overall preferred option and was the most preferred option against the Safety criterion.	The pipeline will be trenched and buried and subsequently decommissioned <i>in situ</i> . Should technical difficulties arise that prevent this from being achieved then leave <i>in situ</i> with selective rock cover would be considered the fall back option.

Table 1-5: Summary of Decommissioning Programmes

Selected Option	Reason for Selection	Proposed Decommissioning Solution
4.5" Fuel Gas Pipeline PL1316: Decommission <i>in situ</i> and remediate any exposed sections.	Pipeline is rock covered and historical review indicates stable pipeline condition. Based on the CA evaluation, leave <i>in situ</i> has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.	The rock covered sections of the pipeline will be decommissioned <i>in situ</i> . The pipeline ends and exposed section will be cut, recovered and returned to shore for recycling.
SSIV Umbilical PLU4472: Decommission <i>in situ</i> and remediate any exposed sections.	Pipeline is rock covered and historical review indicates stable pipeline condition. Based on the CA evaluation, leave <i>in situ</i> has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.	The rock covered sections of the pipeline will be decommissioned <i>in situ</i> . The pipeline ends and exposed section will be cut, recovered and returned to shore for recycling.
Fulmar SSIV (Oil Export) to NRV Control Umbilical PLU4473: Decommission <i>in situ</i> and remediate any exposed sections.	Pipeline is rock covered and historical review indicates stable pipeline condition. Based on the CA evaluation, leave <i>in situ</i> has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.	The rock covered sections of the pipeline will be decommissioned <i>in situ</i> . The pipeline ends and exposed section will be cut, recovered and returned to shore for recycling.
8" Production Pipeline PL2651: Decommission <i>in situ</i> and remediate any exposed sections.	Pipeline is buried at 0.6m below seabed and historical review indicates stable pipeline condition. Based on the CA evaluation, leave <i>in situ</i> has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.	The trenched and buried sections of the pipeline will be decommissioned <i>in situ</i> . The pipeline ends will be cut, recovered and returned to shore for recycling.
Auk North Power Cable PLU2652: Decommission <i>in situ</i> and remediate any exposed sections.	Power Cable is buried at 0.6m below seabed and historical review indicates stable condition. Based on the CA evaluation, leave <i>in situ</i> has been assessed as the most preferred option against the Safety, Technical and Economic criteria.	The trenched and buried sections of the power cable will be decommissioned <i>in situ</i> . The power cable ends will be cut, recovered and returned to shore for recycling.

Table 1-5: Summary of Decommissioning Programmes

Selected Option	Reason for Selection	Proposed Decommissioning Solution
Auk North EHC Umbilical PLU2653: Decommission <i>in situ</i> and remediate any exposed sections.	EHC Control Umbilical is buried at 0.6m below seabed and historical review indicates stable condition. Based on the CA evaluation, leave <i>in situ</i> has been assessed as the most preferred option against the Safety, Technical and Economic criteria.	The trenched and buried sections of the EHC Control Umbilical will be decommissioned <i>in situ</i> . The EHC Control Umbilical ends will be cut, recovered and returned to shore for recycling.
5. Wells		
Wells will be plugged and abandoned to Repsol Sinopec Resources UK Limited standards which comply with HSE "Offshore Installations and Wells (Design and Construction, etc) Regulations 1996" and align with Oil and Gas UK Well Decommissioning Guidelines (Issue 6, June 2018)	Meets the OPRED and HSE regulatory requirements	The Fulmar Alpha, Fulmar AD and Auk North Wells will be plugged and abandoned from surface installations – options for this work will be identified and proposed. A Master Application Template (MAT) and the supporting Subsidiary Application Template (SAT) will be submitted in support of activities carried out. A PON 5 will also be submitted to OGA for application to abandon wells. Additionally, the planned work will be reviewed by a well examiner to Repsol Sinopec Resources UK Limited standards then submitted to the HSE for review.
6. Drill Cuttings		
N/A	N/A	N/A
7. Interdependencies		
Pipeline decommissioning will be conducted following cessation of production of the Auk and Clyde facilities using Fulmar as a hub for export and isolation from any remaining live infrastructure and shall therefore not affect any other facilities.		

1.5.1 Timing of Removals

Fulmar A and AD Topsides

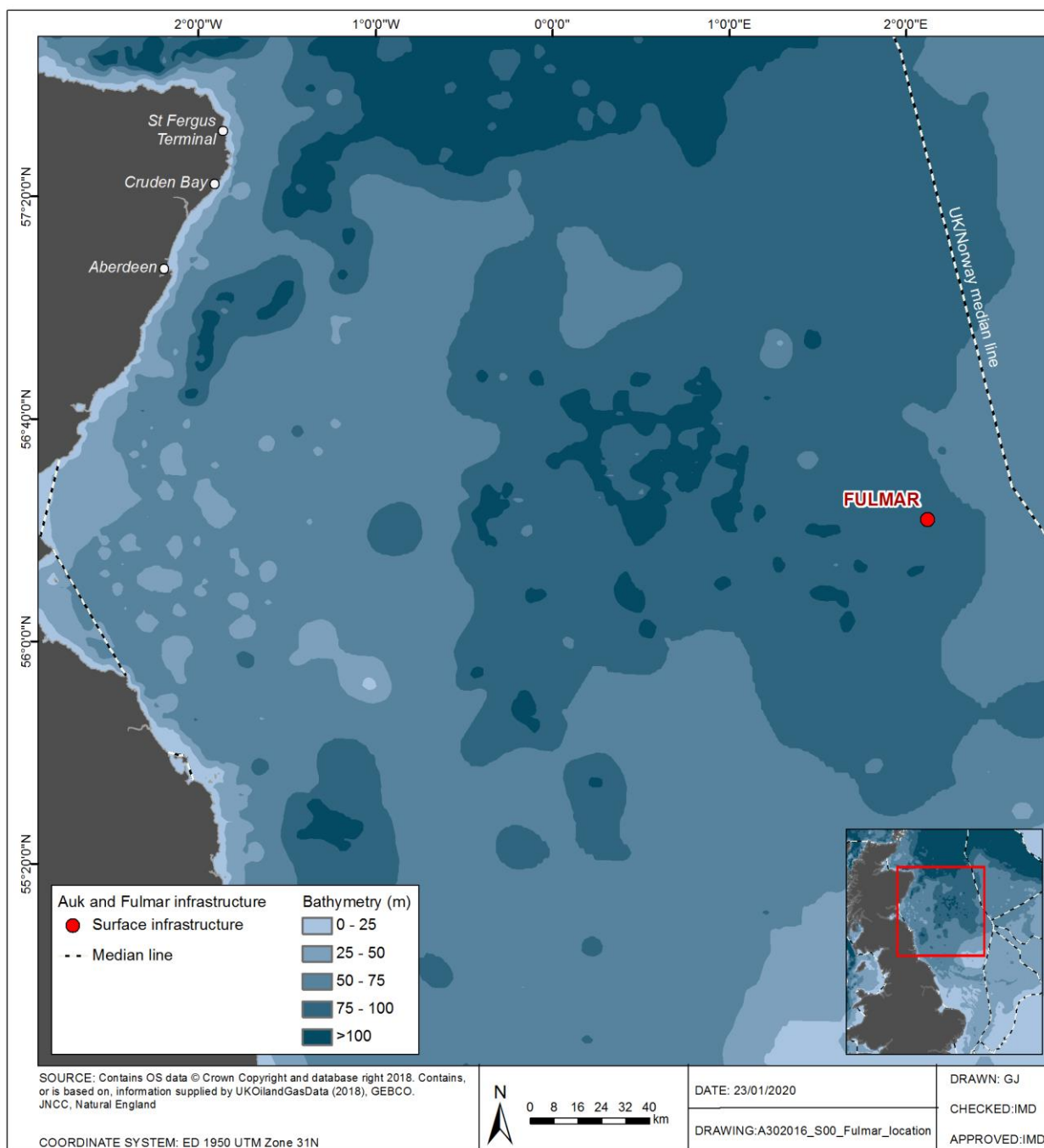
Subject to market availability of cost effective removal services, the topsides will be decommissioned following Fulmar export hub cessation of operations and permanent down-manning of the platform.

Fulmar Area and Auk North Subsea Infrastructure

Subject to market availability of cost effective removal services, the Fulmar Area and Auk North subsea infrastructure will be decommissioned following permanent plugging and abandonment of Auk North subsea wells and Fulmar export hub cessation of operations.

1.6 Field Location Including Field Layout and Adjacent Facilities

Figure 1.1: Field Locations in UKCS ^{Note 1}



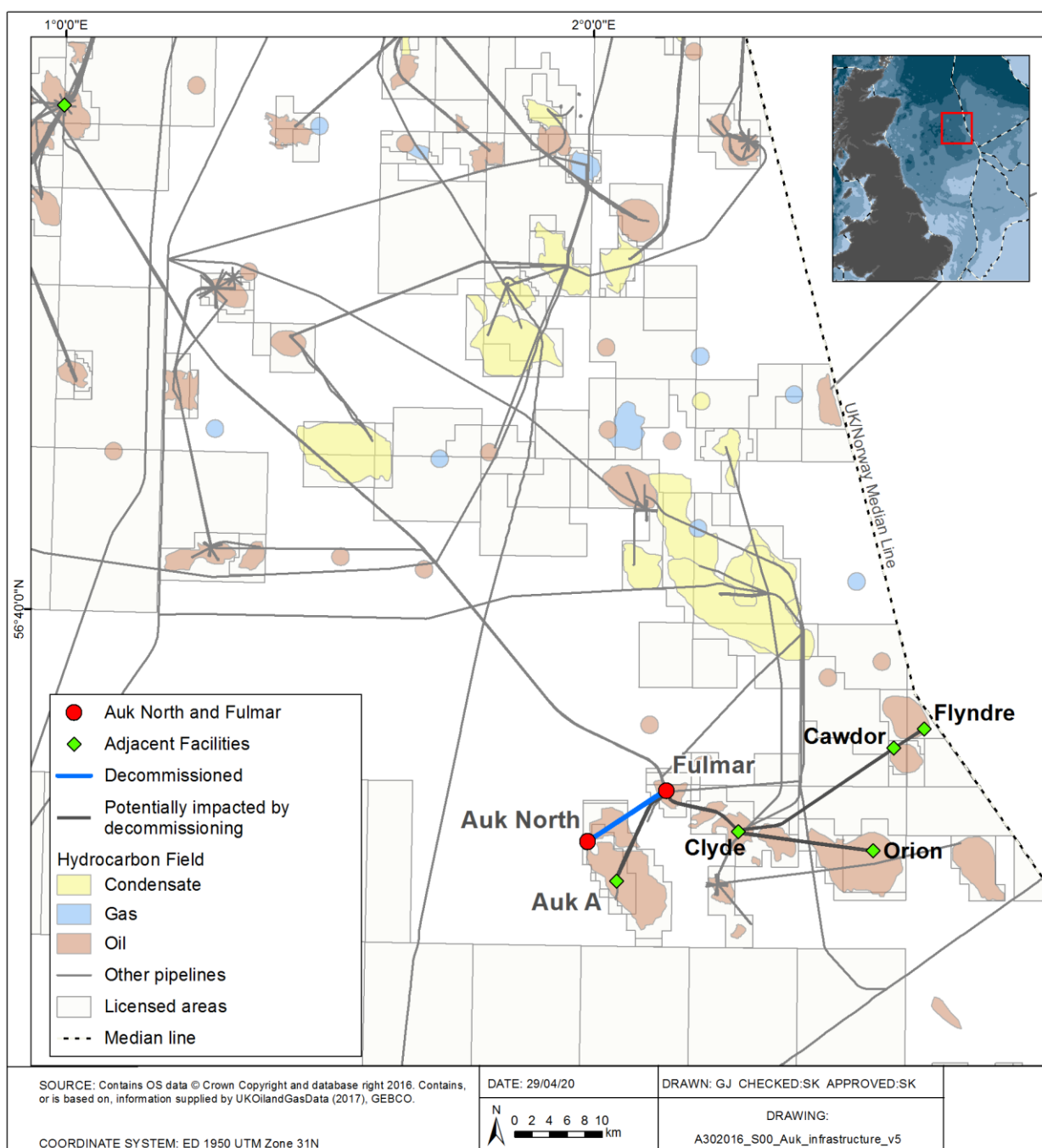
Note:

1. The Halley Field is drilled from Fulmar A.

Table 1-6: Adjacent Facilities					
Owner	Name	Type	Distance/Direction	Information	Status
Repsol Sinopec Resources UK Limited	Orion	Subsea Tieback	25km WSW	Production to Fulmar Alpha via Clyde Platform.	Operational
Repsol Sinopec Zeta Limited Petrogas NEO UK Limited Total E&P Norge AS Petrolia NOCO AS	Flyndre	Subsea Tieback	30km ENE	Production to Fulmar Alpha via Cawdor and Clyde Platform	Operational
Petrogas NEO UK Limited Repsol Sinopec Resources UK Limited Repsol Sinopec North Sea Limited	Cawdor	Subsea Tieback	28km ENE	Production to Fulmar Alpha via Clyde Platform	Operational
Total Oil UK Limited	PL1632	12" Pipeline	Crossing located approx. 13.2km east of Fulmar AD	Rock covered crossing, PL1632 crossing over PL1315	Out of Use
Tampnet	Clyde – Judy	Fibre Optic Cable	Crossing located approx. 9km east of Fulmar AD	Fibre optic cable crossing over PL1315. Mattresses draped over PL1315.	Operational
Repsol Sinopec Resources UK Limited	PL296	16" Pipeline	10km from Clyde Platform and ties in to Fulmar A. Crossing located approx. 90m E of Fulmar AD.	Oil export line from Clyde to Fulmar A. Crosses PL1315, PL1316, PLU4472 and PLU4473 near the Fulmar AD platform.	Operational
Repsol Sinopec Resources UK Limited	PL297	16" Pipeline	10km pipeline from Clyde Platform. Ties in to Fulmar A. Crossing located approx. 70m east of Fulmar AD.	Gas export line from Clyde to Fulmar A. Crosses PL1315, PL1316, PLU4472 and PLU4473 near the Fulmar AD platform.	Operational
Repsol Sinopec Resources UK Limited	PL38	10" Pipeline	2.1km pipeline from Auk A to site of ELSBM (removed).	Oil export from Auk A to ELSBM (removed).	Out of Use
Repsol Sinopec Resources UK Limited	PLU4471	Power Cable	12.56km cable from Fulmar A to Auk A. Running.	Power cable from Fulmar A to Auk A.	Operational.

Table 1-6: Adjacent Facilities					
Owner	Name	Type	Distance/Direction	Information	Status
			Running SW towards Auk A.		
Shell U.K. Limited Esso Exploration and Production UK Limited	PL208	20" Pipeline	290km pipeline from Fulmar to St. Fergus.	Oil export to St. Fergus terminal. Ownership changes from Repsol Sinopec North Sea Limited to Shell downstream of FV15.	Operational
Shell U.K. Limited Esso Exploration and Production UK Limited	PL763	16" Pipeline	107km pipeline from Gannet. Now by-passes Fulmar A to the NW.	Oil export pipeline from Gannet to the Judy Spur Northern Wye.	Operational
Repsol Sinopec Resources UK Limited	PL378	8" Pipeline	Local to Fulmar (approx. 80 metres)	Crossings with PLU2652 and PLU2653 local to Fulmar Platform.	Operational
Impacts of Decommissioning Proposals					
None of the adjacent facilities listed above are affected by this decommissioning programme. However, the operators of these installations will be contacted to investigate any benefits and cost savings available through co-operation and alignment of decommissioning activities.					

Figure 1.3: Adjacent Facilities



1.7 Industrial Implications

It is Repsol Sinopec Resources UK Limited's intention to develop a contracting strategy that will result in an efficient and cost effective execution of the decommissioning works. Repsol Sinopec Resources UK Limited will also try to combine Fulmar and Auk North decommissioning activities with other developments or decommissioning activities to reduce mobilisation costs should the opportunity arise. The decommissioning schedule is extended to allow flexibility for when decommissioning operations are carried out and completed.

Repsol Sinopec Resources UK Limited will demonstrate this intention by:

- > Publishing information on the decommissioning project and timelines on its decommissioning website;
- > Working closely with the Oil and Gas Authority (OGA) and other industry bodies in engagement sessions with the decommissioning supply chain on issues relating to these DPs and timelines, including engaging directly with disposal yards that serve the North Sea;
- > Utilising the FPAL database as a source for establishing tender lists for contracts/purchases;
- > All removal scopes, including the onshore disposal scope, will be competitively tendered.
- > Aligning supply chain and decommissioning activity, wherever possible, with operators of adjacent infrastructure to optimise efficiencies and cost reduction.
- > Development and submission of the Supply Chain Action Plan (SCAP) to the OGA.

2 DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

2.1 Installations: Surface Facilities

Table 2-1: Surface Facilities Information									
Name	Facility Type	Location		Topsides / Facilities		Jacket			
				Weight Note 1 (Te)	Number of Modules	Weight (Te)	Number of Legs	Number of Piles	Weight of Piles (Te)
Fulmar 'A'	Production Platform	WGS84 Decimal	56.4937 N 2.1544 E	23,583	21	N/A	N/A	N/A	N/A
		WGS84 Decimal minute	56° 29.622'N 02°09.267'E						
Fulmar Bridge Link	Bridge	Between Fulmar Alpha and AD		220	N/A	N/A	N/A	N/A	N/A
Fulmar 'AD'	Wellhead Platform	WGS84 Decimal	56.4937 N 2.1544 E	282	3	N/A	N/A	N/A	N/A
		WGS84 Decimal minute	56° 29.622'N 02°09.267'E						

Notes

1. Dry weight

2.2 Installations: Subsea including Stabilisation Features

Table 2-2: Subsea Installations and Stabilisation Features					
Subsea installations including Stabilisation Features	Number	Size/Weight Note 1 (Te)	Location		Comments/Status
Template	1	10.6m x 8.1m x 5m 50 tonnes	WGS84 Decimal	56.4940N 02.1552E	Steel piled structure beneath Fulmar AD platform
			WGS84 Decimal minute	56° 29.639'N 02° 09.315'E	
Protection Structures	4	8.6m x 6.1m x 4.2m Approx. est. 78 tonnes	WGS84 Decimal	56.4945N 2.1593E	Structure is secured to the seabed by four steel piles.
1 x Fulmar SSIV 1 x PL208 NRV 1 x SALM Tee Piece			WGS84 Decimal minute	56° 29.671'N 02° 09.56'E	
			WGS84 Decimal	56.5040N 2.1483E	Steel gravity based structure.

Table 2-2: Subsea Installations and Stabilisation Features					
Subsea installations including Stabilisation Features	Number	Size/Weight <small>Note 1</small> (Te)	Location		Comments/Status
1 x Fulmar Igloo (Protection Surrounding SALM Tee-Piece)		21.8m x 25.3m x 4.5m Approx. est. 78 tonnes	WGS84 Decimal minute	56° 30.238'N 02° 08.899'E	
		9.5m x 5m x 1.6m 14 tonnes	WGS84 Decimal	56.4788N 2.1312E	Steel gravity based structure
			WGS84 Decimal minute	56° 28.726'N 02° 07.87'E	
		10m x 5m x 1.7m 120Te	WGS84 Decimal	56.4788N 2.1312E	Grout or concrete walls surrounding SALM tee-piece
			WGS84 Decimal minute	56° 28.726'N 02° 07.87'E	
Concrete mattresses	N/A				
Grout bags	N/A				
Formwork	N/A				
FronD Mats	N/A				
Rock Cover		50 tonnes (estimated)	Surrounding Auk North Manifold		
Other (STL Anchor Piles)	8	72" Approx. est. 74 tonnes (each)	WGS84 Decimal	56.4840 N 02.1313 E	Steel piles protruding approx. 0.2 - 0.4m above the seabed.
			WGS84 Decimal minute	56° 29.038' N 02° 07.878' E	
			WGS84 Decimal	56.4818 N 02.1405 E	
			WGS84 Decimal minute	56° 28.907' N 02° 08.427' E	
			WGS84 Decimal	56.4768 N 02.1439 E	

Table 2-2: Subsea Installations and Stabilisation Features					
Subsea installations including Stabilisation Features	Number	Size/Weight <small>Note 1</small> (Te)	Location		Comments/Status
			WGS84 Decimal minute	56° 28.608' N 02° 08.636' E	
			WGS84 Decimal	56.4720 N 02.1400 E	
			WGS84 Decimal minute	56° 28.318' N 02° 08.400' E	
			WGS84 Decimal	56.4701 N 02.1311 E	
			WGS84 Decimal minute	56° 28.203' N 02° 07.864' E	
			WGS84 Decimal	56.4722 N 02.1223 E	
			WGS84 Decimal minute	56° 28.331' N 02° 07.338' E	
			WGS84 Decimal	56.4771 N 02.1188 E	
			WGS84 Decimal minute	56° 28.623' N 02° 07.130' E	
			WGS84 Decimal	56.4820 N 02.1227 E	
			WGS84 Decimal minute	56° 28.922' N 02° 07.361' E	
Other (SALM Base)	2	24.4m x 20m x 3.05m Approx. est. 2528 tonnes (each)	WGS84 Decimal	56.4633 N 2.1307 E	Steel and concrete anchor base that is secured to the seabed by six steel piles.
			WGS84 Decimal minute	56° 27.797' N 02° 07.84' E	

Table 2-2: Subsea Installations and Stabilisation Features					
Subsea installations including Stabilisation Features	Number	Size/Weight <small>Note 1</small> (Te)	Location		Comments/Status
			WGS84 Decimal	56.4615 N 2.1191 E	
			WGS84 Decimal minute	56° 27.692' N 02° 07.144' E	
Integrated Wellhead Protection Structures	4	Approx. est. 20 tonnes (each)	WGS84 Decimal	56.4398 N 02.0793 E	None of the integrated protection structures are piled to the seabed. Integrated protection structures are fully removed with the trees during P&A
Auk North Well N1			WGS84 Decimal minute	56° 26.387' N 02° 00.476' E	
Auk North Well N2			WGS84 Decimal	56.4399 N 02.0082 E	
Auk North Well N3			WGS84 Decimal minute	56° 26.395' N 02° 00.49' E	
Auk North Well N4			WGS84 Decimal	56.4396 N 02.0082 E	
			WGS84 Decimal minute	56° 26.38' N 02° 00.49' E	
			WGS84 Decimal	56.4397 N 02.0085 E	
			WGS84 Decimal minute	56° 26.383' N 02° 00.511' E	
Manifolds	2	11.9m x 9.5m x 2.2m 94 tonnes	WGS84 Decimal	56.4401 N 02.0077 E	Steel gravity based structure with overtrawlable sides
1 x Auk North Manifold			WGS84 Decimal minute	56° 26.404' N 02° 00.46' E	
1 x Auk North Well N4 Manifold		9.2m x 9.2m x 2.2m	WGS84 Decimal	56.4400 N 02.0074 E	

Table 2-2: Subsea Installations and Stabilisation Features					
Subsea installations including Stabilisation Features	Number	Size/Weight <small>Note 1</small> (Te)	Location		Comments/Status
		72 tonnes	WGS84 Decimal minute	56° 26.398' N 02° 00.443' E	

Notes

1. Dry weight

2.3 Pipelines Including Stabilisation Features

Table 2-3: Pipeline/Flowline/Umbilical Information

Description	Pipeline No. (as per PWA)	Diameter (inches)	Length (km)	Description of Component Parts	Product Conveyed	From – To End Points	Burial Status	Pipeline Status	Current Content
20" Gas Export	PL208	20	1.120	Concrete coated steel	Gas	Fulmar 'A' to NRV Assembly	Surface Laid, rock covered	Operational	Hydrocarbon
16" Oil Pipeline	PL63	16	2.348	Concrete coated steel	Oil	Fulmar 'AD' Platform to Seabed Manifold at SALM Base	Majority trenched to target 0.3m below MSBL. Some of pipeline on seabed surface.	Out-of-use	Inhibited Seawater (Flushed)
16" Oil Pipeline	PL648	16	1.817	Concrete coated steel	Oil	Tee Piece Tie-in Original SALM Manifold to Pipeline End Flange at Replacement SALM Base	Majority trenched to target 0.3m below MSBL. Some of pipeline on seabed surface.	Out-of-use	Inhibited Seawater (Flushed)
16" Oil Pipeline	PL648A	16	0.034	Concrete coated steel	Oil	Tee Piece Tie-in Original SALM Manifold to Pipeline End Flange at Original SALM Base	Majority trenched to target 0.3m below MSBL. Some of pipeline on seabed surface.	Out-of-use	Inhibited Seawater (Flushed)

Description	Pipeline No. (as per PWA)	Diameter (inches)	Length (km)	Description of Component Parts	Product Conveyed	From – To End Points	Burial Status	Pipeline Status	Current Content
24" Oil Pipeline	PL1315	24	15.550	Concrete coated steel	Oil	Fulmar 'A' Platform to Judy / Norpipe Wye	Surface Laid Potentially fluctuating condition on seabed	Operational	Hydrocarbon
4.5" Fuel Gas Pipeline	PL1316	4.5	1.4739	Carbon steel pipe	Gas	Fulmar 20" Subsea Gas Isolation Valve Assembly to Fulmar 'AD' Platform	Surface Laid, rock covered	Operational	Hydrocarbon
SSIV Umbilical	PLU4472	10	0.490	Copper pilot cores, steel hoses, steel wire and plastic	Electro- Hydraulic	Fulmar 'AD' Platform to Oil Export SSIV	Surface Laid, rock covered	Operational	Hydraulic fluid
Fulmar SSIV (Oil Export) to NRV Control Umbilical	PLU4473	3	1.404	Copper pilot cores, steel hoses, steel wire and plastic	Electro- Hydraulic	Oil Export SSIV to Fuel Gas NRV	Surface Laid, rock covered	Operational	Hydraulic fluid
8" Production Pipeline	PL2651	8	10.813	Carbon steel pipe	Oil	Auk North Manifold to Fulmar 'A'	Trenched, Backfilled with Spot Rock Cover	Operational	Hydrocarbon
Auk North Power Cable	PLU2652	6	10.950	Cooper cores, steel wire and plastic	Power	Fulmar 'A' to Auk North Manifold	Trenched, Backfilled with Spot Rock Cover	Operational	N/A

Description	Pipeline No. (as per PWA)	Diameter (inches)	Length (km)	Description of Component Parts	Product Conveyed	From – To End Points	Burial Status	Pipeline Status	Current Content
Auk North EHC Umbilical	PLU2653	4.8	11.095	Copper cores, steel hoses, steel wire and plastic	Electro- Hydraulic	Fulmar 'A' to Auk North Manifold	Trenched, Backfilled with Spot Rock Cover	Operational	Hydraulic fluid & chemicals

Notes:

- Lengths quoted in above table are as listed in the Pipeline Works Authorisation for the relevant pipeline.
- Risers and associated pipeline equipment on Fulmar A and AD jackets will be decommissioned as part of Fulmar Sub-structures DP.

Table 2-4: Subsea Pipeline Stabilisation Features

Stabilisation Feature	Total Number	Weight (Te)	Locations	Exposed/Buried/Condition
Concrete mattresses (6m x 3m x 0.15m)	458	Approx. 4.56 tonnes each 2,088.5 tonnes total	Locations vary although relate to the following assets: PL63 / PL648 PL1315 PL1316 PL2651 PL2652 PL2653	Exposed
Concrete mattresses (6m x 3m x 0.3m)	16	Approx. 9.12 tonnes each 145.9 tonnes total	Locations vary although relate to the following assets: PL2563, JN1, JN2, JN3 & JN4	Exposed

Stabilisation Feature	Total Number	Weight (Te)	Locations	Exposed/Buried/Condition
Grout bags	3120	25kg each Total 78 tonnes	Locations vary although relate to the following assets: PL63 / PL648 PL1315 PL2651 PL2652 PL2653	Varies
Formwork	N/A	N/A	N/A	N/A
Fronnd Mats	N/A	N/A	N/A	N/A
Rock Cover	Approx. 6km of rock cover over pipelines / umbilicals Note 1	94,000 (estimated)	PL1315 PL208 PLU4473 PLU4472 PL1316 PL2651 PL2652 PL2653	N/A
Other	N/A			

Notes

1. PL208 and power cable are fully rock covered. All other lines listed have rock covered sections only.

2.4 Wells

Table 2-5: Well Information				
Fulmar Alpha Well Information				
Field	Platform Wells	Designation	Status	Category of Well
Fulmar	30/16-F5	Oil Production	Plugged	PL 4-0-4
Fulmar	30/16-F36	Oil Production	Shut In	PL 4-0-4
Fulmar	30/16-F27	Water Injection	Plugged	PL 4-0-3
Fulmar	30/16-F30	Oil Production	Plugged	PL 4-0-4
Fulmar	30/16-F15	Water Injection	Plugged	PL 4-0-4
Fulmar	30/16-F24	Oil Production	Shut In	PL 3-0-4
Fulmar	30/16-F9Z	Water Injection	Shut In	PL 4-0-4
Fulmar	30/16-F23	Water Injection	Phase 1 Abandoned	PL 3-0-3
Fulmar	30/16-F16	Water Injection	Plugged	PL 4-0-4
Fulmar	30/16-F34	Oil Production	Shut In	PL 4-0-4
Halley	30/16-F38Y	Oil Production	Shut In	PL 4-0-3
Fulmar	30/16-F7	Water Injection	Shut In	PL 4-0-4
Fulmar	30/16-F32	Oil Production	Shut In	PL 4-0-4
Fulmar	30/16-F22	Oil Production	Shut In	PL 4-0-4
Fulmar	30/16-F21	Oil Production	Plugged	PL 4-0-4
Fulmar	30/16-F1	Oil Production	Shut In	PL 4-0-4
Fulmar	30/16-F25Z	Oil Production	Shut In	PL 4-0-4
Fulmar	30/16-F35	Oil Production	Shut In	PL 3-0-4
Fulmar	30/16-F28	Water Injection	Plugged	PL 4-0-3
Fulmar	N/A	(Auk North Riser)	N/A	N/A
Fulmar	30/16-F12	Water Injection	Plugged	PL 4-0-4
Fulmar	N/A	(Conductor only)	N/A	PL 0-0-3
Fulmar	30/16-F19	Oil Production	Phase 1 Abandoned	PL 4-0-3
Fulmar	N/A	(Conductor only)	N/A	PL 0-0-3
Fulmar	30/16-F2	Oil Production	Plugged	PL 4-0-4
Fulmar	30/16-F18	Oil Production	Shut In	PL 4-0-4
Fulmar	30/16-F13Z	Oil Production	Shut In	PL 4-0-4
Fulmar	30/16-F10	Water Injection	Shut In	PL 4-0-4
Fulmar	30/16-F31	Water Injection	Plugged	PL 4-0-3
Fulmar	30/16-F14	Oil Production	Shut In	PL 4-0-4

Field	Platform Wells	Designation	Status	Category of Well
Fulmar	30/16-F4	Water Injection	Phase 1 Abandoned	PL 4-0-4
Halley	30/16-F37	Oil Production	Plugged	PL 4-0-3
Fulmar	30/16-F33Z	Oil Production	Plugged	PL 4-0-3
Fulmar	N/A	(Conductor only)	N/A	PL 0-0-3
Fulmar	30/16-F8	Water Injection	Plugged	PL 4-0-4
Fulmar	30/16-F26	Water Injection	Plugged	PL 4-0-3
Fulmar AD Well Information				
Field	Platform Wells	Designation	Status	Category of Well
Fulmar	30/16-T3Z	Oil Production	Phase 2 Abandoned	PL 0-0-1
Fulmar	30/16-T2	Oil Production	Phase 2 Abandoned	PL 0-0-1
Fulmar	30/16-T5	Oil Production	Phase 2 Abandoned	PL 0-0-1
Fulmar	30/16-T1	Oil Production	Phase 2 Abandoned	PL 0-0-1
Fulmar	N/A	(Conductor Only)	N/A	PL 0-0-3
Fulmar	30/16-T4	Oil Production	Phase 2 Abandoned	PL 0-0-1
Auk North Well Information				
Field	Subsea Wells	Designation	Status	Category of Well
Auk North	30/16-N1	Oil Production	Shut In	SS 3-3-1
Auk North	30/16-N2	Oil Production	Shut In	SS 3-2-1
Auk North	30/16-N3	30" Casing only	Phase 1 Abandoned	SS 0-0-1
Auk North	30/16-N3A	Oil Production	Shut In	SS 3-3-1
Auk North	30/16-N4 and N4Z	Oil Production	Shut In	SS 3-2-1

For details of well abandonment categorisation see the Oil and Gas UK Well Decommissioning Guidelines, Issue 6, June 2018.

2.5 Drill Cuttings

No drill cuttings are being decommissioned as part of this DP. Drill cuttings associated with the field are covered under the Fulmar Sub-structure DP.

2.6 Inventory Estimates

The approximate amount of key materials used in the make-up of the Fulmar Alpha, AD and Auk North installations as well as the associated pipelines and subsea infrastructure and stabilisation features has been evaluated. Further review of the inventories of materials will be conducted during the detailed engineering phase of decommissioning, summary plots of the material inventories are shown in Table 2-6, Table 2-7, Table 2-8 and Table 2-9 below. An inventory will be shared with the Scottish Environmental Protection Agency (SEPA) as part of the Active Waste Management Plan for decommissioning activities.

The values presented in Table 2-6 may differ from those presented in Table 1-1, Table 2-1, and Table 3-13 because those tables only present the dry weight and do not take into account any residual or trapped fluids.

Table 2-6: Fulmar Installations Estimated Inventory							
	Weight (tonnes)						Total
	Ferrous	Non-Ferrous	Plastic	Hazardous/ NORM	Concrete	Other	
Fulmar A Topsides	20,666 (86.7%)	1,609 (6.7%)	447 (1.9%)	195 (0.8%)	44 (0.2%)	880 (3.7%)	23,841
Fulmar AD Topsides	273 (96.8%)	3 (1.1%)	1 (0.4%)	0 (0.0%)	0 (0.0%)	5 (1.8%)	282
Fulmar Bridge	214 (97.3%)	2 (0.9%)	1 (0.5%)	0 (0.0%)	0 (0.0%)	3 (1.4%)	220
Total	21,153	1,614	449	195	44	888	24,343

Table 2-7: Fulmar Pipelines Estimated Inventory							
	Weight (tonnes)						Total
	Ferrous	Non-Ferrous	Plastic	Hazardous/ NORM	Concrete	Other	
PL208 – 20" Gas Export Pipeline	209.4 (32.7%)	8.2 (1.3%)	14.6 (2.3%)	-	408.8 (63.8%)	-	641.0
Pipeline	194.3	7.4	13.8	-	408.8	-	624.3
Tie-in Spools	15.1	0.8	0.8	-	-	-	16.7
PL63 – 16" Oil Pipeline	281.5 (36.4%)	3.5 (0.5%)	18.3 (2.4%)	-	470.1 (60.8%)	-	773.4
Pipeline	271.3	2.9	17.7	-	461.0	-	752.9
Tie-in Spools	10.2	0.7	0.6	-	9.1	-	20.6
PL648 (incl. PL648A) - 16" Oil Pipeline	2,745.9 (41.8%)	8.1 (0.1%)	18.5 (0.3%)	-	3,798.6 (57.8%)	-	6,571.1
Pipeline	245.6	8.1	17.9	-	462.5	-	734.1
Tie-in Spools	8.5	-	0.6	-	16.1	-	25.2
SALM Tee Piece	14.0	-	-	-	-	-	14.0
Fulmar Igloo	-	-	-	-	120.0	-	120.0

Table 2-7: Fulmar Pipelines Estimated Inventory							
	Weight (tonnes)						
	Ferrous	Non-Ferrous	Plastic	Hazardous/ NORM	Concrete	Other	Total
STL Anchor Piles	591.6	-	-	-	-	-	591.6
STL Riser Support Frame	30.0	-	-	-	-	-	30.0
Original SALM (incl. Piles)	928.1	-	-	-	1,600.0	-	2,528.1
Replacement SALM (incl. Piles)	928.1	-	-	-	1,600.0	-	2,528.1
PL1315 - 24" Oil Pipeline	4,036.9 (48.8%)	49.6 (0.6%)	228.5 (2.8%)	-	3,965.8 (57.8%)	-	8,280.8
Pipeline	3,863.5	46.4	228.1	-	3,883.7	-	8,021.7
Tie-in Spools	97.4	1.2	0.4	-	82.1	-	181.1
Fulmar SSIV (Oil Export) Structure	76.0	2.0	-	-	-	-	78.0
PL1316 - 4.5" Fuel Gas Pipeline	106.1 (96.7%)	2.5 (2.3%)	1.1 (1.0%)	-	-	-	109.7
Pipeline	26.5	0.4	1.0	-	-	-	27.9
Tie-in Spools	3.6	0.1	0.1	-	-	-	3.8
NRV Structure	76.0	2.0	-	-	-	-	78.0
Power Cables	29.0 (74.6%)	0.4 (1.0%)	9.5 (24.4%)	-	-	-	38.9
PLU4472 SSIV Umbilical	7.5	0.1	2.4	-	-	-	10.0
PLU4473 Control Umbilical	21.5	0.3	7.0	-	-	-	28.8
Misc. Structures	50.0 (100.0%)	-	-	-	-	-	50.0
Fulmar AD Template	50.0	-	-	-	-	-	50.0
Mattresses & Grout Bags	-	-	-	-	-	586.6 (100.0%)	586.6
Mattresses	-	-	-	-	-	579.1	579.1
Grout Bags	-	-	-	-	-	7.5	7.5
Total	7,458.8	72.3	290.5	0.0	8,643.3	586.6	17,051.5

Table 2-8: Auk North Installations Estimated Inventory							
	Weight (tonnes)						
	Ferrous	Non-Ferrous	Plastic	Hazardous/ NORM	Concrete	Other	Total
Auk North Manifold	90.7 (96.5%)	3.3 (3.5%)	-	-	-	-	94.0
Auk J4 Manifold	69.2 (96.5%)	2.5 (3.5%)	-	-	-	-	71.7
Wellhead Protection Structures	80 (100%)	-	-	-	-	-	80
Total	239.9	5.8	-	-	-	-	245.7

Table 2-9: Auk North Pipelines Estimated Inventory							
	Weight (tonnes)						
	Ferrous	Non-Ferrous	Plastic	Hazardous/ NORM	Concrete	Other	Total
<i>PL2651 – 8” Production Pipeline</i>	<i>1,031.6</i> <i>(87.9%)</i>	<i>1.7</i> <i>(0.1%)</i>	<i>140.7</i> <i>(12.0%)</i>	-	-	-	<i>1,174.0</i>
Pipeline	988.2	1.0	132.3	-	-	-	1,121.5
Tie-in Spools	43.4	0.7	8.4	-	-	-	52.5
<i>Umbilical</i>	<i>212.8</i> <i>(87.0%)</i>	<i>6.0</i> <i>(2.5%)</i>	<i>25.9</i> <i>(10.6%)</i>	-	-	-	<i>244.7</i>
PLU2653 – EHC Umbilical	212.8	6.0	25.9	-	-	-	244.7
<i>Power Cable</i>	<i>237.7</i> <i>(46.9%)</i>	<i>111.8</i> <i>(22.1%)</i>	<i>157.4</i> <i>(31.1%)</i>	-	-	-	<i>506.9</i>
PLU2652 – ESP Power Cable	237.7	111.8	157.4	-	-	-	506.9
<i>Electrical Jumpers</i>	<i>2.1</i> <i>(47.7%)</i>	<i>1.0</i> <i>(22.7%)</i>	<i>1.3</i> <i>(29.5%)</i>	-	-	-	<i>4.4</i>
Well N1 Electrical Jumper	0.5	0.2	0.3	-	-	-	1.0
Well N2 Electrical Jumper	0.4	0.2	0.2	-	-	-	0.8
Well N3 Electrical Jumper	0.6	0.3	0.4	-	-	-	1.3
Well N4 Electrical Jumper	0.6	0.3	0.4	-	-	-	1.3

Table 2-9: Auk North Pipelines Estimated Inventory							
	Weight (tonnes)						
	Ferrous	Non-Ferrous	Plastic	Hazardous/ NORM	Concrete	Other	Total
Hydraulic / Chemical Jumpers	4.3 (75.4%)	-	1.4 (24.6%)	-	-	-	5.7
SUTU – SDU	1.3	-	0.2	-	-	-	1.5
SUTU – Production Header Injection Valves	0.2	-	0.2	-	-	-	0.4
Well N1 Hydraulic / Chemical Jumper	0.6	-	0.2	-	-	-	0.8
Well N2 Hydraulic / Chemical Jumper	0.6	-	0.2	-	-	-	0.8
Well N3 Hydraulic / Chemical Jumper	0.8	-	0.3	-	-	-	1.1
Well N4 Hydraulic / Chemical Jumper	0.8	-	0.3	-	-	-	1.1
Mattresses & Grout Bags	-	-	-	-	-	1725.3 (100.0%)	1725.3
Mattresses	-	-	-	-	-	1,654.8	1,654.8
Grout Bags	-	-	-	-	-	70.5	70.5
Total	1,488.5	120.5	326.7	-	-	1,725.3	3,661

3 REMOVAL AND DISPOSAL METHODS

In line with the waste hierarchy, Repsol Sinopec Resources UK Limited have considered other potential reuse options for the Fulmar Area infrastructure.

Options to re-use the infrastructure *in situ* for future hydrocarbon developments were assessed, but none yielded a viable commercial opportunity, primarily due to the absence of remaining hydrocarbon reserves in the vicinity, and a Cessation of Production Application was approved by the Oil and Gas Authority (OGA) 8th October 2018.

Relocation options of the platform as a producing asset concluded that the limited remaining design life of the infrastructure meant no technically or economically viable reuse option was available.

Repsol Sinopec Resources UK Limited have reviewed, and will continue to review, the platform's equipment inventories to assess options for their re-use either as entire units or to supplement the company's spares inventory.

On removal and where practical, Repsol Sinopec Resources UK Limited will ensure the principles of the waste hierarchy will be met in the handling of materials from Fulmar Area Decommissioning to maximize the amount of material which can be reused or recovered/recycled.

Repsol Sinopec Resources UK Limited and the selected removal contractor(s) will monitor and review the disposal route of all materials and waste to the point of final reuse, recycling or disposal. As the decommissioning is not scheduled to be completed imminently, Repsol Sinopec Resources UK Limited propose to take advantage of any future advances in technology to aid waste management, including the further reuse, recycle or scrapping of parts of the installations as appropriate. More details of the Fulmar Area waste strategy is reported in Section 5.3 of the Environmental Appraisal document [Ref. 2].

The selection of a disposal yard contractor has not yet been finalised by Repsol Sinopec Resources UK Limited. However, if the selected disposal yard is in a country outside of the UK, the waste will be dealt with in line with the receiving country's waste legislation taking account of any required applications, reporting or notifications under the Trans-Frontier Shipment of Waste Regulations 2007.

3.1 Topsides Decommissioning Overview

3.1.1 Fulmar Alpha Topsides

The Fulmar Alpha installation comprises a modular layout arranged upon three working decks employing an end bay drilling concept, Refer to Figure 3.1 and Figure 3.2.

Figure 3.1: Fulmar Alpha and AD Topsides



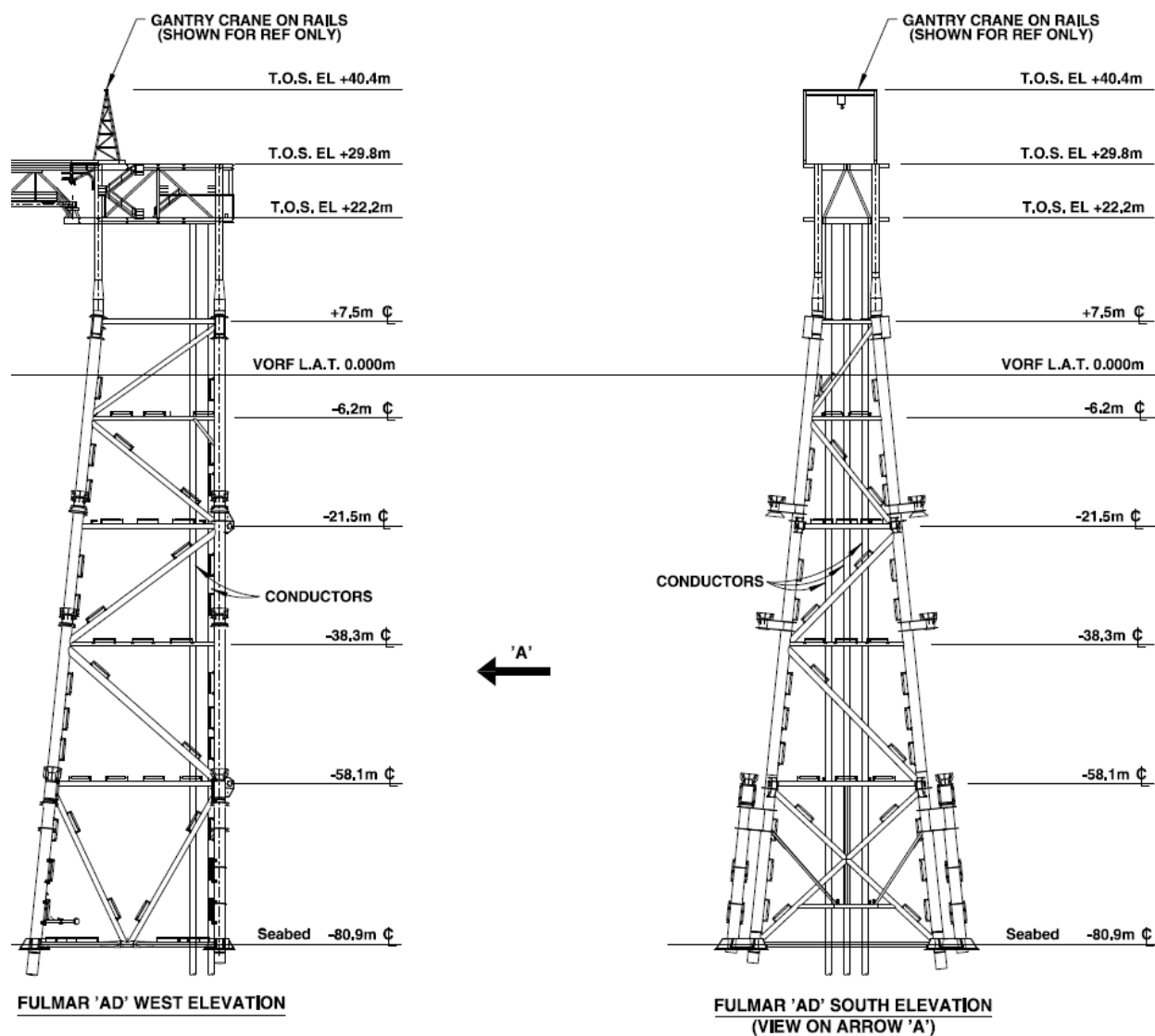
Modules M1 to M6 are mounted directly on the Module Support Frame (MSF) with the Production Deck level. Mezzanine levels are provided on the west side of M1 and M2 and mezzanine level access platforms are provided for equipment in M3, M4, M5 and M6. The Molsieve Module is a cantilever which overhangs the east side of the Platform outboard of M5. The Oil Export Module cantilever overhangs the west side of the Platform outboard of M6. The Switchgear and Instrumentation Module is a single deck module located on M2 roof. In addition, the Single Lift Module is located on the northern side of the M2 roof next to the Living Quarters. The Permanent Living Quarters (PLQ) consist of a five level module mounted on top of M1.

The Flare Tower is situated on the southeast corner of the platform above the Cellar Deck area Z3 whilst two crane pedestals are located on the East and West sides of the Platform. The North and South Drilling Modules are located above M4 and M5 respectively. The modules each incorporate a mezzanine level, covering part of the plan area, while the roof area forms part of the pipedeck.

In general, the facilities are arranged with the main hazard risks, Drilling and Process located to the South, while the accommodation, utilities and power generation are located to the North of the Installation.

The Fulmar A topsides was installed using Heerema's Hermod HLV. The Hermod commenced with installing the cellar deck in three sections, north, south and centre, in that sequence, and welded up. The bridge to 'AD' was installed next followed by the flare tower. Thereafter, the

Figure 3.3: Diagram of Fulmar AD Topsides



3.1.3 Preparation / Cleaning

Table 3-1: Cleaning of Topsides for Removal		
Waste Type	Composition of Waste	Disposal Route
Onboard hydrocarbons	Hydrocarbons	Fluids will be drained and transported to shore for treatment as applicable. Residual hydrocarbons will be transported to shore with the installation and will be treated at the waste facility as applicable.
Other hazardous materials	NORM, any radioactive material, instruments containing heavy metals, batteries	NORM, if present, will be disposed of in accordance with the appropriate permit. Other hazardous materials will be transported ashore for re-use or disposal by appropriate methods.
Original paint coating	The presence of lead-based paints will be identified.	Painted items will be disposed of onshore with consideration given to any toxic components. Painted items deemed hazardous will be treated as appropriate at the waste facility.
Asbestos	Asbestos and Ceramic Fibre	Asbestos shall be disposed of via an appropriately licenced waste management contractor.

3.1.4 Topsides Removal Methods

Table 3-2: Topsides Removal Methods	
1) HLV (semi-submersible crane vessel) <input checked="" type="checkbox"/> 2) Monohull crane vessel <input type="checkbox"/> 3) SLV <input checked="" type="checkbox"/> 4) Piece small <input type="checkbox"/> 5) Other <input type="checkbox"/>	
Method	Description
Single lift removal by SLV	Removal of topsides as a complete unit using a SLV, and transportation to onshore facility for deconstruction. Selected equipment to be re-used, and deconstructed material to be recovered for recycling and/or disposal.
Reverse installation (piece large) by HLV	Removal of separated topsides modules by HLV for transportation to onshore facility for deconstruction. Selected equipment to be re-used, and deconstructed material to be recovered for recycling and/or disposal.
Combination of removal methods	A combination of piece small and reverse installation methods using a HLV. All materials will be transported to onshore facility for reuse, recycling and/or disposal.
Proposed removal method and disposal route	The topsides of each facility will be fully removed and returned to shore for recycling. A final decision on decommissioning method will be made following a commercial tendering process. This process may identify additional methodologies as technologies develop and become field proven. Following the commercial tender process, Repsol Sinopec Resources UK Limited will inform OPRED of the result of the process.

3.2 Jackets/Substructures

No jackets / sub-structures are being decommissioned within the scope of this DP.

3.2.1 Jacket / Substructures Decommissioning Overview

Table 3-3: Jackets/Substructures			
Name of Jackets/Substructures	Substructure weight (Te) Note 1	Date Installed	Seeking Derogation from OSPAR Decision 98/3 (Yes/No)
N/A	N/A	N/A	N/A

Table 3-4: Outcome of Comparative Assessment		
Name of Jackets/Substructures	Recommended Option	Justification
N/A	N/A	N/A

3.2.2 Jackets/Substructures Removal Methods

Table 3-5: Jacket/Substructure Decommissioning Methods
N/A

3.3 Subsea Installations and Stabilisation Features

Table 3-6 Subsea Installations and Stabilisation Features			
Subsea installations and stabilisation features	Number / Quantity	Option	Disposal Route (if applicable)
Wellheads	4	Full Removal	Removal to shore for re-use, recycling or disposal. Removal to shore for disposal and recycling.
Manifolds	2	Full Removal	Removal to shore for re-use, recycling or disposal.
Template	1	Full Removal	Removal to shore for disposal and recycling.
Protection Structures	4	Full Removal	Removal to shore for re-use, recycling or disposal.
Integrated Wellhead Protection Structures	4	Full Removal	Removal to shore for re-use, recycling or disposal.
Concrete Mattresses	N/A	N/A	N/A
Grout Bags	N/A	N/A	N/A
Formwork	N/A	N/A	N/A
Froned Mats	N/A	N/A	N/A
Rock Cover	50 tonnes	Made safe and left <i>in situ</i>	N/A
Other (<i>STL Anchor Piles</i>)	8	Full Removal	Removal to shore for re-use, recycling or disposal.
Other (<i>SALM Base</i>)	2	Full Removal	Removal to shore for re-use, recycling or disposal.

3.4 Pipelines

Decommissioning Options:

*Key to Options:

- | | | |
|---|---------------------------|------------------------|
| 1) Remove - reverse reeling | 2) Remove - Reverse S lay | 3) Trench and bury |
| 4) Rock cover | 5) Partial Removal | 6) Leave in place |
| 7) Remedial trenching | 8) Remedial removal | 9) Remedial rock cover |
| 10) Remove - Unbury (if required), cut and lift | | |

Pipeline or Group (as per PWA)	Condition of line/group (Surface laid/Trenched/ Buried/ Spanning)	Whole or part of pipeline/group	Decommissioning Options* considered
PL208	Surface Laid, rock covered	Whole Pipeline	2, 6, 8, 10
PL63	Majority trenched to target 0.3m below MSBL. Some of pipeline on seabed surface. ^{Note 1}	Whole Pipeline	3, 6, 7, 8, 9, 10
PL648	Majority trenched to target 0.3m below MSBL. Some of pipeline on seabed surface. ^{Note 1}	Whole Pipeline	3, 6, 7, 8, 9, 10
PL648A	Surface Laid	Whole Pipeline	10
PL1315	Surface Laid, exposed	Whole Pipeline	3, 4, 6, 8, 10
PL1316	Surface Laid, rock covered	Whole Pipeline	1, 6, 8, 10
PLU4472	Surface Laid, rock covered	Whole Umbilical	1, 6, 8, 10
PLU4473	Surface Laid, rock covered	Whole Umbilical	1, 6, 8, 10
PL2651	Trenched, Backfilled with Spot Rock Cover.	Whole Pipeline	1, 6, 8, 10
PLU2652	Trenched, Backfilled with Spot Rock Cover.	Whole Cable	1, 6, 8
PLU2653	Trenched, Backfilled with Spot Rock Cover.	Whole Umbilical	1, 6, 8

Notes

- The PL63 / PL648 pipelines were installed with a target trench depth of 0.3m. The earlier survey results suggest that approximately 50 – 55% of the pipeline length was trenched and buried but over time the proportion of pipe that is buried has increased to between 70 – 75%. This reinforces the average depth of burial plot that the pipeline may be self-burying over time.

3.4.1 Comparative Assessment Method

A CA was carried out for all pipelines and power cables in line with the recommendations in BEIS Guidance Notes. The CA considered Technical, Safety and Environmental Risks and Societal and Economic Impacts. The assessments closely followed the Guidelines on Comparative Assessments in Decommissioning Programmes published by Oil and Gas UK.

Workshops were held by Repsol Sinopec Resources UK Limited (including representatives from safety, environmental, subsea, topsides and decommissioning teams) using established terms of reference, detailed data on field facilities and recorded results approved by participants.

3.4.2 Outcome of Comparative Assessment

Table 3-8: Outcomes of Comparative Assessment – Fulmar and Auk North		
Pipeline or Group	Recommended Option	Justification
PL208 Exposed pipeline ends	6 Leave <i>in situ</i> and minimal remediation.	Pipeline is rock covered and historical review indicates stable pipeline condition. Based on the CA evaluation, it has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.
PL63 Pipeline transition sections	4 Rock cover exposed sections.	The pipeline is partially trenched and buried, with spanning in locations. Based on the CA evaluation, it has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.
PL648 (including PL648A) Pipeline transition sections	4 Rock cover exposed sections.	The pipeline is partially trenched and buried, with spanning in locations. Based on the CA evaluation, it has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.
PL1315	3 Trench and Bury Note 1	The pipeline is fully exposed with the exception of 4 pipeline crossings which are covered by rock placement or mattresses, with spanning in locations. Based on the CA evaluation, it has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.
PL1316 Exposed pipeline ends	6 Leave <i>in situ</i> and minimal remediation.	Pipeline is rock covered and historical review indicates stable pipeline condition. Based on the CA evaluation, it has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.
PLU4472 Exposed umbilical ends	6 Leave <i>in situ</i> and minimal remediation.	Umbilical is rock covered and historical review indicates stable pipeline condition. Based on the CA evaluation, it has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.
PLU4473 Exposed umbilical ends	6 Leave <i>in situ</i> and minimal remediation.	Umbilical is rock covered and historical review indicates stable pipeline condition. Based on the CA evaluation, it has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.

Table 3-8: Outcomes of Comparative Assessment – Fulmar and Auk North

Pipeline or Group	Recommended Option	Justification
PL2651 Exposed pipeline ends	6 Leave <i>in situ</i> and minimal remediation.	Pipeline is buried at 0.6m below seabed and historical review indicates stable pipeline condition. Based on the CA evaluation, it has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.
PLU2652 Exposed cable ends	6 Leave <i>in situ</i> and minimal remediation.	Power Cable is buried at 0.6m below seabed and historical review indicates stable condition. Based on the CA evaluation, it has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.
PLU2653 Exposed umbilical ends	6 Leave <i>in situ</i> and minimal remediation.	EHC Control Umbilical is buried at 0.6m below seabed and historical review indicates stable condition. Based on the CA evaluation, it has been assessed as the most preferred option against the Safety, Environmental, Technical and Economic criteria.

Notes:

1. Should technical difficulties arise when executing trenching and burying, leave *in situ* with selective rock cover would be considered the fall-back option.

3.5 Pipeline Stabilisation Features

Table 3-9: Pipeline Stabilisation Features – Fulmar and Auk North			
Stabilisation features	Number	Option	Disposal Route
Concrete mattresses (6m x 3m x 0.15m)	458	Full Removal ^{Note 1}	Removal to shore for reuse, recycling or disposal.
Concrete mattresses (6m x 3m x 0.3m)	16	Full Removal ^{Note 1}	Removal to shore for reuse, recycling or disposal.
Grout bags	3,120	Full Removal ^{Note 1}	Removal to shore for reuse, recycling or disposal.
Formwork	N/A	N/A	N/A
Froned Mats	N/A	N/A	N/A
Rock Cover	94,000Te (estimated)	Made safe and left <i>in situ</i>	N/A

Notes

1. Where mattresses and / or grout bags cannot be safely recovered due to degradation and/or are inaccessible, Repsol Sinopec Resources UK Limited will consult with OPRED before any alternative option is executed.

3.6 Wells

Table 3-10: Well Plug and Abandonment
<p>The Fulmar development consists of 37 wells, whilst the Auk North development consists of 4 wells. These wells (captured in Table 2.5) will be plugged and abandoned in accordance with the latest version of the Oil & Gas UK Wells Decommissioning Guidelines (Issue 6, June 2018).</p> <p>A Master Application Template (MAT) and the supporting Subsidiary Application Template (SAT) will be submitted in support of the works carried out. A PON 5 will also be submitted to OGA for application to abandon the wells.</p>

3.7 Drill Cuttings

No drill cuttings are being decommissioned as part of this DP. Drill cuttings associated with the field are covered under the Fulmar Sub-structure DP.

3.7.1 Drill Cuttings Decommissioning Options

Table 3-11: Drill Cuttings Decommissioning Options	
How many drill cuttings piles are present?	N/A
Tick options examined: <input type="checkbox"/> Remove and re-inject <input type="checkbox"/> Leave in place <input type="checkbox"/> Cover <input type="checkbox"/> Relocate on seabed <input type="checkbox"/> Remove and treat onshore <input type="checkbox"/> Remove and treat offshore <input type="checkbox"/> Other (<i>describe briefly</i>) Other treatment / remediation options and the options above will be discussed as part of the BAT Assessment.	
Review of Pile characteristics	N/A
How has the cuttings pile been screened? (desktop exercise/actual samples taken)	N/A

3.7.2 Comparative Assessment Method

N/A

3.7.3 Outcome of Comparative Assessment

N/A

3.8 Waste Streams

Table 3-12: Waste Stream Management Methods	
Waste Stream	Removal and Disposal method
Bulk liquids	Residual hydrocarbons will be removed from the topsides and transported to shore. Vessels, pipework and sumps will be drained prior to removal to shore and shipped in accordance with maritime transportation guidelines. Further cleaning and decontamination will take place onshore prior to recycling / re-use. All pipelines will be flushed, cleaned and filled with seawater prior to decommissioning activities taking place.
Marine growth	Where necessary and practicable to allow access, some marine growth will be removed offshore. The remainder will be brought ashore and disposed of in accordance with health, safety and environmental protocols.
NORM/LSA Scale	Tests for NORM will be undertaken offshore and disposal will be carried out in full compliance with all relevant regulations.
Asbestos	The final disposal route will depend on the quantities found but will be dealt with and disposed of in full compliance with all relevant regulations.
Other hazardous wastes	Will be recovered to shore and disposed of in full compliance with all relevant regulations.
Onshore Dismantling sites	Appropriate licenced sites will be selected. Facility chosen must demonstrate waste stream management throughout the deconstruction process and demonstrate their ability to deliver the disposal options reflecting the waste hierarchy's aims. Existing sites would need a proven track record.

As part of the Contracting Strategy, Repsol Sinopec Resources UK Limited will ensure the selection of waste competent Contractor(s), experienced in the handling of all wastes associated with the Decommissioning of Oil and Gas Platforms.

The waste management providers / disposal yards shall follow the waste management hierarchy in the handling of materials from Fulmar and Auk North Decommissioning to maximize the amount of material from the projects which is reused or recovered/recycled. Repsol Sinopec Resources UK Limited and the selected removal contractor(s) will, monitor and review the disposal route of all materials and waste to the point of final reuse, recycling or disposal and reserves the right to audit to fulfil any Duty of Care responsibilities.

It is anticipated that at least 90% of the returned material will be reused or recovered/recycled.

Table 3-13: Inventory Disposition			
	Total Inventory Tonnage	Planned tonnage to shore	Planned left <i>in situ</i>
Installation – Fulmar Alpha	Topsides – 23,583 tonnes	Topsides – 23,583 tonnes	Topsides – 0 tonnes
Installation – Fulmar AD	Topsides – 282 tonnes Bridge – 220 tonnes	Topsides – 282 tonnes Bridge – 220 tonnes	Topsides – 0 tonnes Bridge – 0 tonnes
Subsea Installations – Fulmar	5,972.9 tonnes	4,696.6 tonnes	1,276.3 tonnes ^{Note 2}
Subsea Installations – Auk North	245.7 tonnes ^{Note 1}	245.7 tonnes	0 tonnes
Fulmar Pipelines	10,447.3 tonnes	1,816.8 tonnes	8,630.5 tonnes
Auk North Pipelines	1,935.7 tonnes	141.4 tonnes	1,794.3 tonnes
Fulmar Mattresses & Grout Bags	586 tonnes	586 tonnes	0 tonnes
Auk North Mattresses & Grout Bags	1,725.3 tonnes	1,725.3 tonnes	0 tonnes

Notes

1. Weight from Auk North integrated wellhead protection structures is estimated and may vary dependent on the wellhead cut location below the seabed.
2. Weight stated relates only to the bottom sections of SALM base & STL piles at -3m below mudline which are to be left *in situ*.

4 ENVIRONMENTAL APPRAISAL

4.1 Environmental Sensitivities (Summary)

Table 4-1: Environmental Sensitivities	
Environmental Receptor	Main Features
Conservation Interests	Fulmar and Auk North infrastructure are located within the Fulmar Marine Conservation Zone (MCZ) but are more than 50 km from any other offshore designated sites. The Fulmar MCZ was designated for its representative examples of subtidal sand, subtidal mud, subtidal mixed sediments, and populations of the ocean quahog <i>Arctica islandica</i> . All three sediment types and seven individual ocean quahogs were counted from survey work over the Auk, Fulmar and Auk North fields. No Annex I habitats or other Priority Marine Features were identified from survey work.
Seabed	<p>Recent and past survey work indicates that water depth across the Fulmar and Auk North area ranges between 70 - 85 m. The seabed consists primarily of sediments; the most widespread sediments are muddy sand or sandy mud although areas of mixed sediments also occur. Oily mud was observed within the cuttings pile at the Fulmar platform.</p> <p>In general, the seabed type, the fauna living on the seabed and the macrofauna within the sediments is characteristic of the region and similar to that identified in surveys since the 1990s. From earlier surveys carried out at Auk and Fulmar in the late 1970s, it is evident that some widescale changes in the main species present have taken place, though these are not related to these field developments. A modified fauna has existed in the cuttings pile at Fulmar since development drilling activities commenced and remains to this day although recovery over time is evident. The faunal community exhibited reduced numbers of taxa with low species diversity and evenness compared to samples gathered from the wider area. The community structure was very similar to that observed at the Auk cuttings pile and is typical of historical North Sea cuttings piles. At Fulmar, the 'area of ecological effect' around the visible cuttings pile, within which a modified fauna is present, has reduced in area from 1.26 km² in 2008 to 0.278 km² in 2017.</p>
Fish	Auk North and the Fulmar fields lie within spawning areas for cod, lemon sole, plaice, sandeel and whiting. The site also falls within nursery areas for cod, haddock, anglerfish, blue whiting, hake, herring, ling, mackerel, plaice, sandeel, spotted ray, spurdog and whiting. However, fisheries sensitivity maps indicate that the probability of significant aggregations of juveniles of these species in the offshore Project area is low.
Fisheries	The fishing area around Auk North and Fulmar is targeted primarily for demersal fish, which have tended to dominate catches in terms of landed weight and value since 2011. Recorded catch values from the Auk North and Fulmar region have fluctuated over the last five years, but fishing effort in the vicinity of the Auk North and Fulmar area is low compared to other UK offshore areas.
Marine Mammals	Harbour porpoise, minke whale, common dolphin, white-beaked dolphin and white-sided dolphin have been sighted in the region. Harbour porpoise and the white-beaked dolphin are the most frequently recorded cetaceans in the vicinity of Auk North and Fulmar, together with low numbers of minke whales. Seal densities at this distance offshore are low.

Table 4-1: Environmental Sensitivities	
Environmental Receptor	Main Features
Birds	The most abundant seabird species found in the Project area are northern fulmar, black-legged kittiwake and common guillemot. Herring gulls, glaucous gull and great black-backed gulls also use the area in winter. The Seabird Oil Sensitivity Index (SOSI) identifies areas at sea where seabirds are likely to be most sensitive to surface pollution, and the sensitivity in Block 30/11 is classed as low all year.
Onshore Communities	Waste generated during decommissioning will be transported to shore in an auditable manner through licensed waste contractors. The waste management hierarchy of 'reduce, re-use, recycle' will be followed. Repsol Sinopec Resources UK Limited intends to engage approved waste management contractors to handle, store and dispose of all waste generated by the decommissioning activities.
Other Users of the Sea	At this location, sea users other than fisheries mainly relates to shipping. Shipping density in the vicinity of the proposed decommissioning activities is very low and consists mainly of cargo and supply vessels.
Atmosphere	Emissions to atmosphere offshore will arise from the vessels used to decommission the Auk North and Fulmar infrastructure. Onshore emissions will result from the yard activities including recycling of the steel etc. associated with the structures returned to shore.

4.2 Potential Environmental Impacts and their Management

4.2.1 Environmental Appraisal Summary

The Environmental Appraisal (EA) identifies potential environmental impacts by identifying interactions between the proposed decommissioning activities and the local environment while considering responses from stakeholders. The EA also details mitigation measures designed to avoid and reduce the identified potential environmental impacts and describes how these will be managed in accordance with the Repsol Sinopec Resources UK Limited established Environmental Management System (EMS).

Following an assessment of the key potential impacts through an environmental issues identification workshop and subsequent risk assessment, the EA concludes that the recommended options to decommission the Auk, Fulmar and Auk North facilities can be completed without causing significant impact to the environment. Those activities that had a potential for a significant impact are summarised in Table 4-2, along with the proposed environmental management.

Table 4-2: Environmental Impact Management		
Activity	Main Impacts	Management
Topsides Removal	Emissions during decommissioning activities, largely from fuel combustion gases from vessels; Physical presence of vessels in relation to other sea users	Vessels, combustion machinery and fuel use conform to UK and international emissions standards; Vessel use will be optimised/minimised for the decommissioning activities; Use of established contractors with appropriate capability, licences and maintenance procedures will be selected and audited; and, Other sea users will be notified in advance of activities occurring,
Jackets Removal	N/A	N/A

Table 4-2: Environmental Impact Management

Activity	Main Impacts	Management
Subsea Installations Removal	<p>Disturbance to seabed;</p> <p>Possible snagging risk to other sea users from holes in the seabed remaining after removal of structures;</p> <p>Waste to onshore – use of scarce landfill resource, and impacts to air quality, odour and visual amenity due to yards and transport.</p>	<p>Management measures will include those outlined above for topsides removal together with the following:</p> <p>Survey data confirm absence of Annex I habitat and species features;</p> <p>Use of approved contractors with proven experience, licences, controls, consents and environmental management procedures;</p> <p>No vessel anchoring planned;</p> <p>Notifications and data made available for charting and FishSAFE plotters;</p> <p>Surveys and debris searches will be conducted as part of a programme to ensure a safe seabed is left for other sea users.</p> <p>Excavated areas remediated as necessary to mitigate snagging risks to other sea users;</p> <p>Post-decommissioning monitoring; type and frequency to be determined through a risk-based approach but will be agreed with OPRED.</p>
Decommissioning Pipelines	<p>Disturbance to seabed;</p> <p>Possible exclusion and snagging risk to other sea users from pipelines decommissioned <i>in situ</i>;</p> <p>Waste to onshore – use of scarce landfill resource, and impacts to air quality, odour and visual amenity due to yards and transport.</p>	<p>Management measures will include those outlined above for topsides removal together with the following:</p> <p>Survey data confirm absence of Annex I habitat and species features;</p> <p>Excavated areas remediated and any berms created profiled to mitigate snagging risks to other sea users.</p> <p>Surveys and debris searches will be conducted as part of a programme to ensure a safe seabed is left for other sea users.</p> <p>Notifications and data made available for charting and FishSAFE plotters;</p> <p>Post-decommissioning monitoring; type and frequency to be determined through a risk-based approach but will be agreed with OPRED.</p>

Table 4-2: Environmental Impact Management

Activity	Main Impacts	Management
Decommissioning Stabilisation Features	Disturbance to seabed; Possible exclusion and snagging risk to other sea users if any protection features end up being decommissioned <i>in situ</i> ; Waste to onshore – use of scarce landfill resource, and impacts to air quality, odour and visual amenity due to yards and transport.	Management measures will include those outlined above for topsides removal together with the following: Survey data confirm absence of Annex I habitat and species features; Use of approved contractors with proven experience, licences, controls, consents and environmental management procedures; No vessel anchoring planned; Notifications and data made available for charting and FishSAFE plotters; Surveys and debris searches conducted as part of a programme to ensure a safe seabed is left for other sea users. Post-decommissioning monitoring; type and frequency to be determined through a risk-based approach but will be agreed with OPRED.
Decommissioning Drill Cuttings	N/A	N/A

5 INTERESTED PARTY CONSULTATIONS

Table 5-1: Summary of Stakeholder Comments

UK	
Comment	Response
Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) – Offshore Decommissioning Unit (ODU)	
<p>RSRUK should note that HRAs are Habitats Regulations Assessments and are only required if the decommissioning proposals are considered to have a significant effect on a Special Area of conservation (SAC) or a Special Protected Area (SPA). Any relevant SACs or SPAs which could be impacted by the proposed activities must be provided in the environmental baseline description. Details of other protected habitats and species which may be affected, such as the Fulmar MCZ, should also be included but these would not require a HRA. Further guidance on this is included at the following link</p> <p>https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/82706/habitats-simplify-guide-draft-20121211.pdf</p> <p>Note 2 for Table 1 states 'It is understood from the OSPAR 98/3 that concrete anchor bases/piles that do not, and are likely to, interfere with other legitimate users of the sea (i.e. buried to >0.6 m beneath the surface) are excluded from the definition of a 'disused offshore installation'. Please note this definition applies to the concrete anchor bases but not to piles. As per Section 7.9 of the draft guidance notes for the Decommissioning of Offshore Oil and Gas Installations and Pipelines issued in December 2017; 'any piles should be severed below the natural seabed level at such a depth to ensure that any remains are unlikely to become uncovered. Operators should aim to achieve a cut depth of 3m below the natural seabed level, however consideration will be given to the prevailing seabed conditions and currents and this should be detailed in the decommissioning programme and discussed with the relevant decommissioning team.'</p> <p>In addition, a burial depth of 0.6m is not applicable in either case and applies only to pipelines, mattresses and related items.</p> <p>Please note that the guidance I have quoted above is in draft and may be subject to further change.</p> <p>RSRUK should satisfy themselves that the current environmental survey data and any proposed future surveys cover the full area of where the decommissioning activities are to occur, and consideration should be given to any gaps and how these will be filled.</p> <p>Consideration should be given to the proposed operation(s) in the context of any relevant Marine Plan. This should include recognition of the operation(s) as being located within the Marine Plan area, identification of the relevant policies in the Plan and a brief consideration as to how the operation(s) complies with those requirements</p>	<p>Noted. Auk, Fulmar and Auk North are 50 km or more from the nearest SAC or SPA. However, they are located within the Fulmar MCZ.</p> <p>Details of the latter are provided within the EA [Ref. 2] Sections 3.2, 3.4.2 and 3.4.3 (physical and biological nature of the benthic environment); and in the EA [Ref. 2] Section 3.8 (protected sites).</p> <p>Noted. This applies to the SALM bases and associated STL anchor piles. As noted in EA [Ref. 2] Section 2.3.4, piles will be cut to 3 m below seabed level as far as practicable dependent on prevailing seabed conditions.</p> <p>Noted. An account of the surveys commissioned for Auk, Fulmar and Auk North decommissioning is provided in EA [Ref. 2] Section 3.1.</p> <p>Noted. The Marine Plan area, policies and how this decommissioning project complies is given in EA [Ref. 2] Sections 1.3 and 6.</p>
Northern Lighthouse Board	
<p>We would advise that the Northern Lighthouse Board would only comment on any navigational impact that the decommissioning operations may have and will recommend the appropriate marking and lighting to reduce the risk to surface marine traffic by the structures in their various transitional states, along with any vessels, barges and/or heavy lift cranes involved with the operations.</p>	<p>Noted. Impacts associated with marine traffic during the execution stage for decommissioning have been considered but were scoped out of the Environmental Assessment for the Auk, Fulmar and Auk North decommissioning project.</p>
<p>We would expect that the decommissioning process will allow the platforms and their supporting substructures (jackets) to be completely removed, or as much as is practicably possible to be removed from each location once the comparative assessment has been carried out and all stakeholder responses have been considered.</p>	<p>Noted. Information on the CA process, the chosen options and which structures are being removed or left in place is provided in EA [Ref. 2] Section 2.</p>

Table 5-1: Summary of Stakeholder Comments

UK	
Comment	Response
Joint Nature Conservation Committee	
<p>The scoping document states that the last environmental survey in the Auk, Fulmar and North Auk area was carried out in the summer of 2017. We ask that a copy of the report be provided to the JNCC for review when available.</p> <p>The scoping document also highlights the presences of Horse Mussels, Ocean Quahog and Sea pens in the Auk, Fulmar and North Auk area. We would like to establish if these conservation important species have been found in close proximity to the intended operations, and if so:</p> <ul style="list-style-type: none"> • Where are they located; • At what distance are they located from the intended operation(s); • What form do they take i.e. have aggregations or reefs been recorded; <p>And what impacts, if any, are there expected to be on these features.</p>	<p>Copies of all environmental reports from the surveys carried out for Auk, Fulmar and Auk North Decommissioning will be provided to JNCC.</p> <p>The incidence of these and other features of conservation interest noted from survey reports has been noted in EA [Ref. 2] Section 3.4, with accounts of their numbers/aggregations and whether they qualify as reefs or other features.</p> <p>The potential impacts on these and other features are assessed in EA [Ref. 2] Section 5.</p>
<p>Use of Explosives</p> <p>The scoping document states that a number of cutting operations will be carried out during the decommissioning works, in particular relating to the jacket and piles. We would ask Repsol to state if the use of explosives would be necessary during such operations or considered as an alternative if initial cutting methods aren't possible.</p>	<p>As stated in EA [Ref. 2] Section 2.4, the use of explosives is not planned in relation to cutting activities.</p>
<p>Stabilisation Material</p> <p>The scoping document highlights the introduction of hard substrate into a mainly sedimentary environment. Although the changes are not necessarily considered as having a significant impact in this instance, we still encourage the operator to continue working to minimise the amount of hard substrate material used. We note that the long-term effect of the introduction of substratum into naturally sandy or muddy sea beds is not fully understood at present and should be carefully considered by the regulators.</p>	<p>Noted. The introduction of rock cover is being limited to pipeline cut end burial and protection. This remains a subject for detailed design but, for assessment purposes the worst case is that rock placement could occur at each end of the nine pipelines being decommissioned in situ (i.e. 18 locations).</p>
<p>We welcome detailed commentary on stabilisation operations to allow further understanding of their actual nature conservation impact. This would include:</p> <ul style="list-style-type: none"> • Location of dump sites • Size / grade of rock to be used • Tonnage / volume to be used • Contingency tonnage / volume to be used • Method of delivery to the seabed • Footprint of rock • Assessment of the impact • Expected fate of deposit after end of production, i.e. will it be left <i>in situ</i> or recovered <p>Where stabilisation material cannot be avoided, we recommend using a more targeted placement method e.g. fallpipe vessels rather than using vessel-side discharge methods, in such areas where protected species/ habitats have been recorded.</p>	<p>Noted. Information on the locations for rock introduction, the tonnage and the footprint is provided in EA [Ref. 2] Section 5.1.2.5.</p> <p>The use of a fall pipe system of rock delivery to the seabed is noted in EA [Ref. 2] Section 5.1.6.</p>
<p>Staged Applications</p> <p>Whilst JNCC appreciates that not all of the detailed project design is finalised at this time, JNCC notes that best practice would not be to submit applications where stabilisation / protection material requirements are incrementally increased. The worst-case scenario should be assessed in the application to enable a meaningful assessment of the whole environmental impact of the project to be undertaken.</p>	<p>Noted. Worst-case requirements have been assessed.</p>

Table 5-1: Summary of Stakeholder Comments

UK	
Comment	Response
<p>It is understood that activities evolve over time, and that subsequent stages are often contingent on the outcome of the earlier activities. However, every effort should be made to predict the likely outcome and carry out an assessment on that basis so that all the elements have been assessed and presented accordingly.</p>	
<p>Cumulative Assessment</p> <p>There is a requirement for assessing the cumulative effects of a project under the EIA Directive. JNCC suggests that the proposed decommissioning operations are assessed alongside approved developments under construction, approved developments that have not yet commenced construction, developments submitted for approval but not yet approved, as well as any other significant appropriate development for which some realistic figures are available.</p> <p>Fulmar MCZ</p> <p>We would request that potential impacts on the MCZ's protected features, associated with decommissioning work should be considered, or what extent of each protected feature could be affected. To help make this clear, a detailed map of the protected features in relation to proposed operations/ operator infrastructure should be provided in subsequent applications.</p> <p>We suggest Repsol consults the following webpage for further information on Fulmar MCZ http://archive.jncc.gov.uk/default.aspx?page=6774. This will provide Repsol with the most up-to date site information and will allow them to ensure that their applications contain correct evidence.</p> <p>Recovery</p> <p>JNCC considers that recovery should be considered in relation to the habitats present in the site. For the protected features of the Fulmar MCZ the following should be considered:</p> <ul style="list-style-type: none"> Arctica islandica has low resilience to high rates of siltation rate changes meaning it could take 10-25 years to recover. The scores are dependent on the amount of siltation occurring, thus habitats will recover more quickly from low rates of siltation (around 5cm) compared with high (around 30cm). Subtidal mud is not sensitive to siltation at low rates but has medium sensitivity at high rates (suggesting recovery rates of around 2-10 years). Subtidal mixed sediments have high resilience to low rates of siltation but medium resilience to high rates of siltation (2-10 years of recovery). <p>Subtidal sand has medium resilience at low rates of siltation and low resilience at high rates of siltation (10-25 years to recover).</p> <p>Conservation Advice</p> <p>We would like to highlight that the JNCC is currently reviewing its conservation advice for the United Kingdom's Marine Protected Areas (MPA). An updated draft advice package is now available for the Fulmar MCZ via the link below:</p> <p>http://jncc.defra.gov.uk/files/Fulmar_Draft_ConsAdvice_December2017.zip</p> <p>Drill Cuttings</p> <p>We would ask if Repsol could provide the results from the drill cutting analysis taken during the summer of 2017.</p>	<p>Cumulative impacts have been assessed against other infrastructure (e.g. platforms, pipelines) in the region.</p> <p>The link provided has been used, including the Fulmar MCZ site map, evidence base and supporting information.</p> <p>Estimates of recovery rates following impact have been provided where appropriate in EA [Ref. 2] Section 5.</p> <p>Noted.</p> <p>Copies of all environmental reports from all surveys carried out for Auk, Fulmar and Auk North Decommissioning will be provided to JNCC.</p>

6 PROGRAMME MANAGEMENT

6.1 Project Management and Verification

Repsol Sinopec Resources UK Limited has established a multi-disciplinary team lead by a Project Manager responsible for the implementation of activities and co-ordination of all services. An execution plan will align with established Repsol Sinopec Resources UK Limited Health, Safety and Environmental policies and meet all relevant legislative requirements. A contracting strategy will be based on Repsol Sinopec Resources UK Limited procurement and contract policies, including competitive tendering for all contractor services. Where possible, activities will be co-ordinated with other decommissioning operations and take account of any initiatives promoted by the OGA. Repsol Sinopec Resources UK Limited will report regularly on the execution of the decommissioning programmes to OPRED and discuss any changes in plans in advance.

6.2 Post-Decommissioning Debris Clearance and Verification

A pre-decommissioning survey has been conducted to identify debris within the 500m zones and within the 100m (50m either side of the pipeline) pipeline corridors. Any seabed debris related to offshore oil and gas activities will be recovered for onshore recycling or disposal in line with existing waste management policies. Debris removal will form part of the subsea decommissioning execution scope of work. The clear seabed will be validated, either by side-scan sonar or an independent verification trawl over the installation sites and pipeline corridors. The post decommissioning survey will provide further verification. This will be followed by a statement of clearance to all relevant governmental departments and non- governmental organisations.

6.3 Schedule

The main milestones on the decommissioning programmes are anticipated to be:

> Cessation of production:	Q4 2018
> Fulmar AD wells plug and abandon:	2019
> Fulmar A wells plug and abandon:	Q1 2028
> Auk North wells plug and abandon:	Q1 2026
> Fulmar A and AD engineering down and clean:	Q2 2028
> Fulmar A and AD topsides removal:	Q2 2031
> Subsea infrastructure removal:	Q2 2033
> Post removal survey:	Q2 2033
> Close Out Report	Q4 2033

The schedule may change to maximise economic recovery, or to exploit opportunities to minimise decommissioning impacts by combining other decommissioning activities within our portfolio into campaigns, or by combining Fulmar and Auk North decommissioning operations with third-party decommissioning. The Fulmar and Auk North overall decommissioning programmes are outlined in Figure 6.1 below.

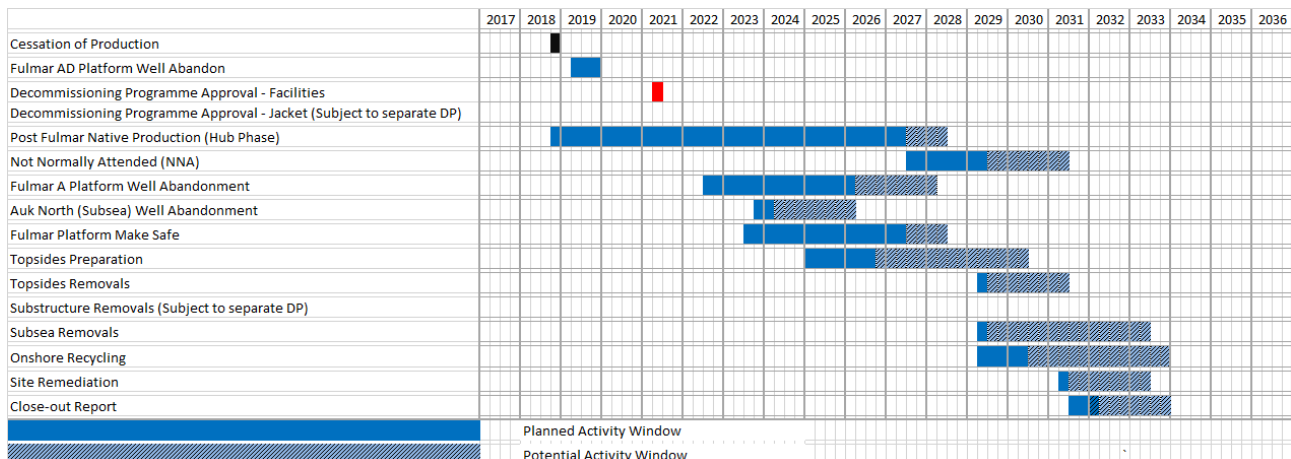


Figure 6.1: Gantt Chart of Project Plan

6.4 Costs

Repsol Sinopec Resources UK Limited has used the Oil and Gas UK work breakdown structure to develop cost estimates for the Fulmar and Auk North decommissioning programmes. The provisional estimated costs have been provided to OPRED in confidence.

6.5 Close Out

A close out report will be submitted to OPRED within 12 months of the completion of decommissioning completion, including debris clearance and post-decommissioning surveys. The close out report will notify OPRED of any expected changes in parties to the DPs and will provide details in line with the undertakings given in section 6.7 below.

6.6 Post-Decommissioning Monitoring and Evaluation

A post decommissioning environmental seabed survey, covering pipeline routes and the installation site shall be carried out when decommissioning activity has been concluded. The survey will also focus on chemical and physical disturbances due to the decommissioning and be compared with the pre-decommissioning survey. Results of the survey will be forwarded to OPRED to enable a post monitoring survey regime to be agreed by both parties.

6.7 Management of Residual Liability

Repsol Sinopec Resources UK Limited and Repsol Sinopec North Sea Limited recognise that they will continue to retain ownership of, and residual liability for all decommissioned items allowed to remain in place through acceptance of the results of the Comparative Assessment process in Section 3. Repsol Sinopec Resources UK Limited and Repsol Sinopec North Sea Limited undertake;

- > To contact OPRED in advance, in the event that any parties to the programme will no longer have a presence in the UK, to provide details of the organisation or individual who will act in their place.
- > To notify OPRED of any organisation/individual that will engage with OPRED on future legacy and liability matters.
- > To notify OPRED of any organisation / individual that will be the contact point for any future third party claims for damage caused by pipelines left in place.

- > To ensure that any alternative organisation/individual will have appropriate authority for, and knowledge of the Decommissioning Programmes, to engage with OPRED.
- > To ensure that any alternative organisation/individual will have access to appropriate funding to carry out any actions relating to the residual legacy and liability as outlined in the approved Decommissioning Programmes.

7 Supporting Documents

1. Comparative Assessment Recommendation Subsea Report, RP-DTAAUK001-HS-0049.
2. Environmental Appraisal Report, RP-DTAAUK001-HS-0047.

8 PARTNER LETTER OF SUPPORT

[HOLD 1]

APPENDIX A PUBLIC NOTICE

The Petroleum Act 1998

Fulmar and Auk North fields

Repsol Sinopec Resources UK Limited has submitted, for the consideration of the Secretary of State for Business, Energy and Industrial Strategy, a combined Decommissioning Programmes (DPs) for the installations and pipelines associated with the Fulmar and Auk North fields in accordance with the provisions of the Petroleum Act 1998. It is a requirement of the Act that interested parties be consulted on such decommissioning proposals. The items/facilities covered by the Decommissioning Programme(s) are:

Fulmar: Fulmar A production platform, Fulmar AD production platform and bridge link including without limitation all associated subsea equipment.

Fulmar Oil Export System: Old and new Single Anchor Leg Mooring (SALM) Bases and associated Pipelines.

Auk North: all subsea equipment including the manifold associated with the Auk North field and associated Pipelines, Flowlines, Umbilicals and Power Cables.

Wells: all wells will be plugged and abandoned to Repsol Sinopec Resources UK Limited standards which comply with "Offshore Installations and Wells (Design and Construction, etc.) Regulations 1996" and align with Oil & Gas UK Well Decommissioning Guidelines.

Repsol Sinopec Resources UK Limited hereby gives notice that a summary of Fulmar and Auk North combined Decommissioning Programmes can be viewed at the internet website address: www.repsolsinopecuk.com

Alternatively, a hard copy of the combine Decommissioning Programmes can be requested via email or phone call:

Phone: 01224352973

Email: FULMARAUKNORTHDECOM@repsolsinopecuk.com

Representations regarding the Fulmar and Auk North Combined Decommissioning Programmes should be submitted in writing to Repsol Sinopec Resources UK Limited, 163 Holburn Street, Aberdeen AB10 6BZ where they should be received by 10th of January 2021 and should state the grounds upon which any representations are being made.

Date: 30th of November 2020

Repsol Sinopec Resources UK Limited
Company Address

Teresa Munro
Decommissioning Manager

APPENDIX B STATUTORY CONSULTEES CORRESPONDENCE

[HOLD 2]

APPENDIX C FULMAR & AUK NORTH PREPARATION WORK SCOPES DECOMMISSIONING PROGRAMME

Prior to formal approval of the Fulmar and Auk North Decommissioning Programmes (Facilities) and DP (Jacket), there are a number of decommissioning scopes that are required to be progressed to prepare for final decommissioning. This document contains the decommissioning scope of work that will be executed prior to formal approval of the DP (Facilities) and DP (Jacket).

These scopes include:

- Development of the Decommissioning Programme including all studies, platform surveys, development of well abandonment solutions for the Fulmar A wells (Fulmar and Halley), Fulmar AD wells, and Auk North Wells;
- Development of Stakeholder engagement plan to present and facilitate engagement sessions with stakeholders;
- Asset Operations transition planning;
- Fulmar AD well abandonment;
- Fulmar A well intervention (Fulmar and Halley Wells);
- Fulmar A Well Abandonment (Fulmar and Halley Wells) including platform rig upgrades, commitments to module rigs, or hydraulic workover units or any potential topside removal;
- Upgrade of platform utility and safety systems will also be required to support the Well Abandonment Operations based on a platform based solution. The scope may take the form of inspection, modifications/upgrades as part of the enabling scopes to ensure that they are suitable to support the abandonment scopes.
- Engineering, Down and Cleaning of Fulmar A and Fulmar AD production facilities and supporting utilities.