

FOINAVEN FPSO OFFSTATION DECOMMISSIONING PROGRAMMES

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HOLD	SECTION	DESCRIPTION
1	1.2 & 8	Partner Letters will be issued with final version of DP (post public consultation).



Terms and Abbreviations

Abbreviation	Explanation
AHTS	Anchor Handling Tug Supply
BEIS	Department for Business, Energy & Industrial Strategy
bp	Britoil Limited, member of the bp group and operator of the Foinaven Field
BSP	Blind Seal Plate
CA	Comparative Assessment
CCR	Central Control Room
COABIS	Component Orientated Anomaly Based Inspection System
dia	diameter
DMaC	Diverless Maintained Cluster
DP	Decommissioning Programme
DPN	Disused Pipeline Notification
DUTA	Dynamic Umbilical Termination Assembly
EA	Environmental Appraisal
EMT	Environmental Management Team
ENVID	Environmental Impact Identification
EoFL	End of Field Life
EPS	Early Production System
ERRV	Emergency Response and Rescue Vessels
FPAL	First Point Assessment
FPSO	Floating Production, Storage and Offloading vessel
FTA	Flowline Termination Assembly
HBA	Hold Back Anchors
HSE	Health and Safety Executive
ICES	International Council for the Exploration of the Sea
IHM	Inventory of Hazardous Materials
JNCC	Joint Nature Conservation Committee
kg	kilogramme
km	kilometre
LLI	Long Lead Item
LTC	Lower Tether Clamp
LWIV	Light Weight Intervention Vessel
M	Metre



Abbreviation	Explanation
MarCo	Marine Coordinator
MARPOL	International Convention for the Prevention of Pollution from Ships
MEG	Mono-ethylene glycol
mm	millimetre
m ³	Cubic Metres
MCA	Maritime and Coastguard Agency
MCZ	Marine Conservation Zone
MDPE	Medium-Density Polyethylene
MOC	Management of Change
MSS	Marine Scotland Science
NCMPA	Nature Conservation Marine Protected Area
NGO	Non-Governmental Organisations
NORM	Naturally Occurring Radioactive Material
NLB	Northern Lighthouse Board
N/A	Not Applicable
OD	Outer Diameter
ODU	Offshore Decommissioning Unit
OEI	Offshore Environmental Inspectorate
OGA	Oil and Gas Authority
OGUK	Oil and Gas UK
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSA	Operating Services Agreement
OSDR	Offshore Installations (Offshore Safety Directive) (Safety Case etc) Regulations 2015 (SI 2015/398)
PETS	Portal Environmental Tracking System (application)
PL	Pipeline (number)
PLANC	Permits, Licences, Authorisations, Notifications and Consents
PLEM	Pipeline End Manifold
PLU	Umbilical (number)
ppm	Parts per million
PWA	Pipeline Works Authorisations
REWS	Radar Early-Warning System
RGB	Riser Gravity Base
ROVDB	Remotely Operated Vehicle Deployable Blinds



Abbreviation	Explanation
RSPB	Royal Society for the Protection of Birds
S29	Section 29
SAC	Special Area of Conservation
SCAP	Supply Chain Action Plan
SCIRM	Subsea Construction, Installation, Repair and Maintenance
SEPA	Scottish Environment Protection Agency
SFF	Scottish Fishermen's Federation
SPA	Special Protection Area
TAR	Turn Around
Te	tonnes
TFSW	Trans Frontier Shipment of Waste
UDA	Umbilical Distribution Assembly
UKCS	United Kingdom Continental Shelf
UTC	Upper Tether Clamp
WGS84	World Geodetic System 1984
WI	Water injection
WIT	Well Integrity Test
w.t.	Wall thickness
"	inch



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1 EXECUTIVE SUMMARY

1.1 Combined Decommissioning Programmes

This document contains the Decommissioning Programmes (DPs) for the removal of the Petrojarl Foinaven Floating Production, Storage and Offloading vessel (FPSO) and the recovery of associated mooring systems, the risers and dynamic umbilicals from the Foinaven Field, all to be transferred onshore for re-use, recycling or disposal as appropriate. The FPSO has to be taken off-station as it has reached end of its 25-year service life, operating in a harsh environment.

The FPSO is owned by Petrojarl 4 DA (part of the Teekay Corporation group) and is currently chartered by bp pursuant to a bareboat charter party. In accordance with the terms and conditions of the bareboat charter party, the FPSO will, following removal from the Foinaven Field, be redelivered to Petrojarl 4 DA at a nominated UK or EU port. Following redelivery, Petrojarl 4 DA (as owners) will re-assume full control of and responsibility for the FPSO (including any ship recycling which will be carried out at an approved shipyard in compliance with all relevant UK legislation, including retained EU ship recycling regulations).

The remaining Foinaven Field infrastructure, which is detailed on the relevant Section 29 Notices, will be subject to separate DPs to be submitted later at the End of Field Life (EoFL).

The Petrojarl Foinaven FPSO will be utilised for the initial decommissioning activities, namely the flushing and de-oiling of the subsea infrastructure i.e., manifolds, risers, subsea pipelines and umbilicals, and to support with the implementation of isolations for the subsea wells.

The FPSO will then not be required to perform any further decommissioning related activities and it is proposed that the vessel is removed from its current location. Activities associated with the subsequent decommissioning stages of the mooring systems, risers and dynamic umbilicals will require the services provided by other specialist vessels.

The bp projects team is currently investigating a range of future options for the Foinaven Field, which may result in complete redevelopment, partial redevelopment or full decommissioning. The pipelines, umbilicals and risers will be wet stored and managed through a risk-based inspection and maintenance programme to ensure future safe recovery. The team will continue assessing options as we move into and through 2022. Should this work conclude that Foinaven Field redevelopment is not viable, bp will initiate decommissioning programmes for the remaining field infrastructure. Alternatively, if a viable redevelopment option is identified, work will progress through further project stages to better define the infrastructure requirements for redevelopment. This will include definition around which elements can be decommissioned and which will be retained.

The early removal of the FPSO will not prejudice any further decommissioning work in the Foinaven Field.

1.2 Requirement for Decommissioning Programme(s)

Installation(s)

In accordance with the Petroleum Act 1998, the Section 29 notice holders of the Petrojarl Foinaven FPSO (see Table 1-2) are applying to The Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for the removal of the FPSO and its mooring lines (risers and umbilicals) from the field.

Pipeline(s)

In accordance with the Petroleum Act 1998, the Section 29 notice holders of the relevant Foinaven Field risers and dynamic umbilicals (see Table 1-4) are applying to OPRED to obtain approval for the removal of the risers and dynamic umbilicals detailed in Section 2.3 of this document.

We anticipate execution of this DP to begin with the disconnection of the risers and umbilicals from the FPSO and removal of the FPSO and its mooring systems in Q3 2022. The risers and umbilicals will be laid down on the seabed. Timing of recovery of the risers and umbilicals will be influenced by the outcome of redevelopment or decommissioning options being considered for the field and will be between Q3 2023 and Q3 2028



In conjunction with public, stakeholder and regulatory consultation, these decommissioning programmes are submitted in compliance with national and international regulations and OPRED guidelines. The schedule outlined in this document is for the initial decommissioning project to commence and will cover FPSO, mooring lines, risers and dynamic umbilical removal only. The Partner letters of support are included in Section 8. **[HOLD 1]**

An overview of the proposed Decommissioning Schedule is given in Section 6.3.

1.3 Introduction

The Foinaven Field was discovered in 1992 and extends into UKCS licence blocks 204/19a, 204/24a and 204/25b. The field is situated approximately 120 miles west of the Shetland Isles within the Faroes/Shetland Trough, in water depths ranging between 330 and 530m. The Foinaven FPSO is located in UKCS license block 204/24a. See Figure 1-1 for location map of the Foinaven Area.

The Foinaven Field was the first development in Atlantic water to the west of the United Kingdom although the adjacent Schiehallion field was sanctioned for development shortly afterwards.

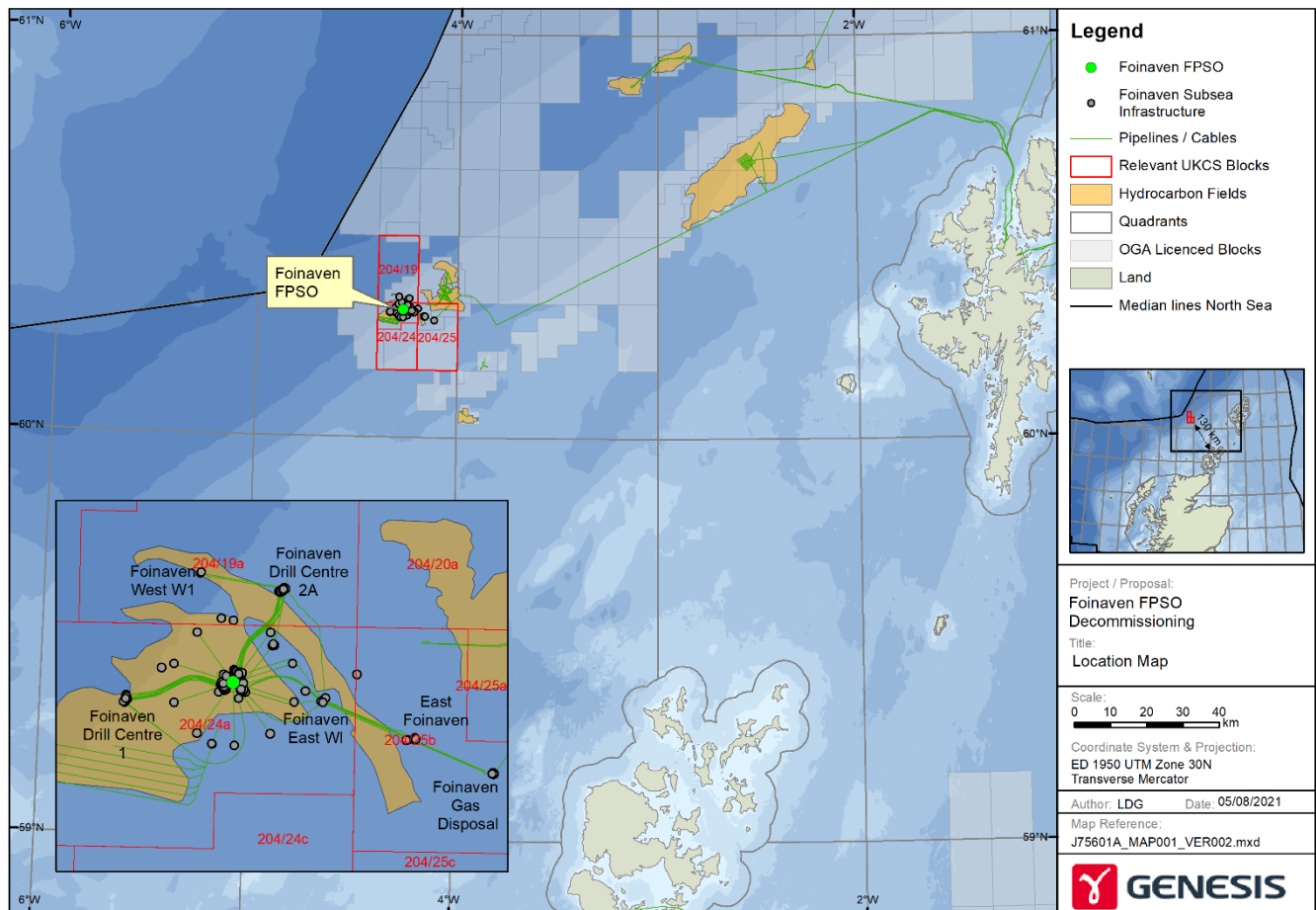


Figure 1-1: Foinaven Field Location

The field consists of three subsea Drill Centres (DCs), two water injection well sites, a gas disposal centre, control umbilical distribution assemblies (UDA) and the FPSO vessel ‘Petrojarl Foinaven’. Pursuant to an OSA with bp, Golar-Nor (UK) Limited (part of the Altera Infrastructure group) operates and serves as “duty holder”¹ of the vessel. Petrojarl 4 DA (part of the Teekay Corporation group) is the owner of the FPSO. bp currently charters the FPSO from its owner, Petrojarl 4 DA, pursuant to a bareboat charter party.

¹ The person appointed as operator of the installation and responsible as duty holder for the maintenance and implementation of the Safety Case in relation to the installation in accordance with the OSDR.



Oil export from the field prior to suspension of production was undertaken by shuttle tankers. The gas produced was either injected or exported via 20in-diameter pipelines linking the Foinaven Field with the Schiehallion and Magnus Fields via the Sullom Voe terminal. The western leg of the pipeline extends over a length of 198km from the Foinaven Field to Sullom Voe via Schiehallion. The eastern leg of the pipeline is 210km long and extends from Sullom Voe to Magnus. These pipelines are separate assets, under separate ownership to the Foinaven Field, and are not part of this DP.

The FPSO is moored on the site and connected to subsea manifolds and wells via flexible production risers and seabed flowlines. Risers for each of the production and well test flowlines are arranged in two groups, one group serving Drill Centre 1 and Foinaven East and the other serving Drill Centre 2A. Water injection and gas lift/injection duties are served by a single riser each, with subsea distribution of gas/water to each of the Drill Centres (see Figure 1-1).

Each riser is configured as a pliant wave with buoyancy modules fitted over the lower 220m. The lower section of each riser is tethered to a riser gravity base (RGB) which controls the motion of the pipe at the seabed touchdown point. All risers terminate at the FPSO turret and the connectors at the turret allow release of the risers. See Figure 1-2 for layout schematic of the current field.

Production from reservoirs T25/T35 was developed in 2002 and 2000, both reservoirs are located below the main field at DC1 and the wells from these reservoirs is tied into the pipeline infrastructure at DC1. Therefore, production risers PL1124 (ident R14) and PL1125 (ident R5) receive co-mingled production DC1 (Main Field) and from T25/T35 and are therefore a shared resource.

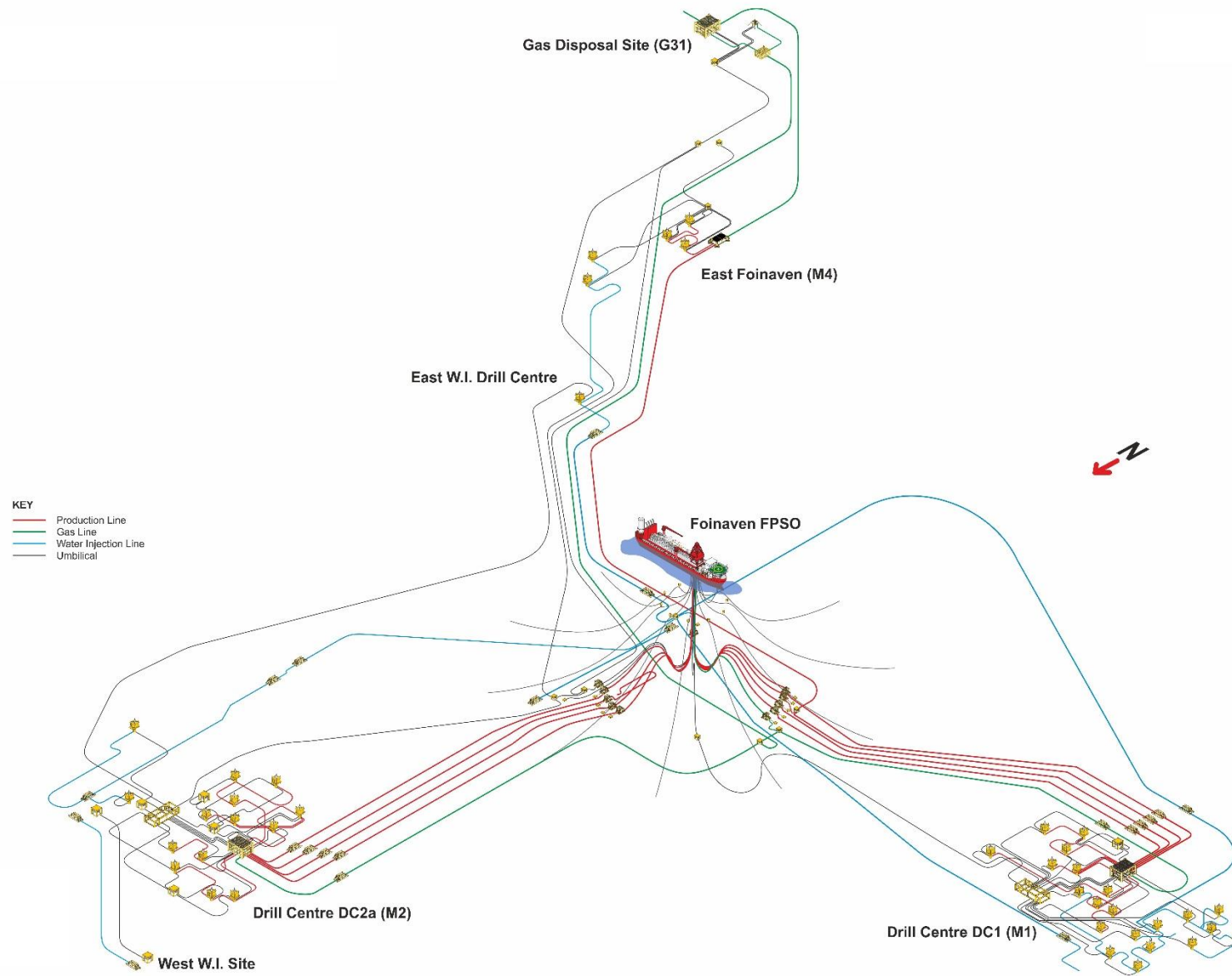


Figure 1-2: Current Overall Field Layout



1.4 Overview of Installation(s)/Pipeline(s) Being Decommissioned

1.4.1 Installation(s)

Table 1-1: Installation(s) Being Decommissioned			
Field(s)	Foinaven	Production Type (Oil/Gas/Condensate)	Oil / Gas
Water Depth (m)	Approx. 480m at FPSO location	UKCS block	204/24a
Distance to nearest median line	26.8km (to UK/Faroes median line)	Distance from nearest UK coastline (km)	120km West of Shetland
Surface Installation(s)			
Number	Type	Vessel Weight (Te)	Jacket Weight (Te)
1	Petrojarl Foinaven FPSO	Lightship weight 33,221	N/A
Mooring Lines, Anchors and Buoys			
Mooring Leg	Type	System Weight (Te)	
#1, 2, 3, 5, 6, 7, 8 and 10	Mooring lines incl. winch line pennants, anchors and spring buoys	3,332	
#4 and 9	Mooring lines incl. winch line pennants, anchors and spring buoys	847	

Table 1-2: Installation(s) ^{Note 1} Section 29 Notice Holders Details		
Section 29 Notice Holder(s)	Registration Number	Equity Interest (%)
PETROJARL 4 DA	971171057	100%
AMOCO (FIDDICH) LIMITED	01005360	0%
BP AMOCO EXPLORATION (FAROE) LIMITED	00856444	0%
BP BRASIL LIMITADA	FC022106	0%
BP EXPLORATION (EPSILON) LIMITED	01004984	0%
BP EXPLORATION INDONESIA LIMITED	01009905	0%
BP EXPLORATION LIBYA LIMITED	05335923	0%
BP EXPLORATION OPERATING COMPANY LIMITED	00305943	0%
BRITOIL LIMITED	SC077750	0%
ROCKROSE UKCS 10 LIMITED	04105025	0%

Note 1: Although Petrojarl 4 DA have 100% equity in the FPSO they do not have equity in the mooring systems. All mooring systems as listed in Table 1-1 are owned by the section 29 Notice Holders listed for pipelines group 12.04.06.05/478C listed in Table 1-4 below and have an identical equity split.



1.4.2 Pipeline(s)

Table 1-3: Pipelines /Risers Being Decommissioned	
Group 12.04.06.05/478C	From production manifolds to ESD valves
Number of Risers (Details given in Table 2-4)	10 ^{Note 1}
Number of Umbilical(s) (Details given in Table 2-4)	4 ^{Note 2}
Group 12.04.06.05/479C ^{Note 3}	From ESD valves to pig launchers/pig traps
Number of Risers (Details given in Table 2-4)	10 ^{Note 1}
Number of Umbilical(s) (Details given in Table 2-4)	0

Note 1: There are 10 risers/pipelines in total and each pipeline /riser is allocated a common PL number., however the split in S29 notice holder groups is at a point along each riser as described in this table.

Note 2: There are only 4 separate umbilicals (PL1139, PL 1140, PLU1150 and PLU3546. Where multiple PLU numbers have been allocated as shown in Table 2-4 (e.g., PL1139/1 to PL1139/10, PL 1140/1 to PL1140/10) allocation of PLU numbers are individual cores within a single umbilical and are not counted as individual umbilicals in this table.

Note 3: The equipment referenced under Group 12.04.06.05/479C, forms part of the Petrojarl Foinaven FPSO, which bp shall redeliver to Petrojarl 4 DA in accordance with Section 1.5.

Table 1-4: Pipeline(s) Section 29 Notice Holders Details		
Section 29 Notice Holder(s)	Registration Number	Equity Interest (%)
Group 12.04.06.05/478C		
AMOCO (FIDDICH) LIMITED	01005360	5
BP AMOCO EXPLORATION (FAROE)S LIMITED	00856444	5
BP BRASIL LIMITADA	FC022106	5
BP EXPLORATION (EPSILON) LIMITED	01004984	5
BP EXPLORATION INDONESIA LIMITED	01009905	5
BP EXPLORATION LIBYA LIMITED	05335923	5
BP EXPLORATION OPERATING COMPANY LIMITED	00305943	2
BRITOIL LIMITED	SC077750	40
ROCKROSE UKCS 10 LIMITED	04105025	28
Group 12.04.06.05/479C		
PETROJARL 4 DA	971 171 057 (Norway)	100



1.5 Summary of Proposed Decommissioning Programmes

Table 1-5: Summary of Decommissioning Programmes		
Selected Option	Reason for Selection	Proposed Decommissioning Solution
1. Petrojarl Foinaven FPSO		
Removal from field for redelivery to the owner (Petrojarl 4 DA) at a nominated UK or EU port in accordance with the terms of the bareboat charter party.	The FPSO has reached end of its 25-year life operating in a harsh environment. Redeployment or sale opportunities are considered unlikely options by the vessel owners, due to the vessel condition.	Following flushing and cleaning of the vessel, disconnection from risers, umbilicals and mooring lines, vessel will be towed from field to a nominated redelivery port in the UK or the EU. The vessel will then be redelivered to its owner, Petrojarl 4 DA (part of the Teekay Corporation group) who will re-assume full control of and responsibility for the FPSO (including any ship recycling which will be carried out at an approved shipyard in compliance with all relevant UK legislation, including retained EU ship recycling regulations).
2. Mooring Lines, Buoys and Anchors		



Table 1-5: Summary of Decommissioning Programmes

Selected Option	Reason for Selection	Proposed Decommissioning Solution
<p>Ultimately the mooring lines, buoys and anchors will be fully removed and returned onshore for recycle, however removal will be managed in phases as follows:-</p> <ul style="list-style-type: none"> - Disconnection of the Mooring lines from FPSO recovery of the buoys and partial removal and return onshore for recycle (1140m long wire rope section). - The bottom section of the lines (1200m long studless chain section) will be initially laid down on the seabed. - After the FPSO has been removed, the studless chain sections including drag anchors will be recovered and returned onshore for recycle or disposal. 	<p>Initial disconnection to allow removal of the FPSO.</p> <p>Recovery of the buoys and wire rope sections of the mooring systems can be achieved in the same campaign season as the FPSO going offstation. The limited operational weather window for the required decommissioning support vessels at this location will not allow the lower mooring bottom chain sections and anchors to be recovered in the same season and will therefore be laid down on the seabed and recovered during the next available weather window.</p> <p>Recovery for recycle of the mooring lines is in line with clear seabed policy and waste hierarchy.</p>	<p>Disconnection from FPSO and controlled lowering of individual mooring lines 1200m long studless chain sections to the seabed. The 1140m long wire rope sections of the mooring lines may be buoyed off using 76mm pennants within the water column and recovered with the buoys to an Anchor Handling Tug Supply (AHTS) vessel after FPSO departure.</p> <p>The bottom studless chain sections including drag anchors will be recovered, with support of an AHTS vessel, in a later campaign.</p>



Table 1-5: Summary of Decommissioning Programmes		
Selected Option	Reason for Selection	Proposed Decommissioning Solution
3. Pipelines, Risers and Dynamic Umbilicals		
<p>bp commit to recovery of 10 off risers and 4 off dynamic umbilicals (including U11 static umbilical) from the Foinaven Field. Ultimately the risers and dynamic umbilicals will be fully removed and returned onshore for recycle, however removal will be managed in phases as follows:-</p> <ul style="list-style-type: none"> - To minimise risks to the 2022 FPSO offstation schedule, 9 off risers (R11 is already on seabed) and 4 off dynamic umbilicals will be disconnected from the FPSO, laid to seabed and wet-stored until a suitable recovery window is selected, which is dependent on the future Foinaven Field redevelopment / decommissioning plan. - It is expected that the risers would be recovered as part of a future redevelopment / decommissioning campaign to align with the availability of appropriate construction vessel(s) and campaign approach to facilitate cost effective execution. - We anticipate this to be between Q2 2023 and Q3 2028 and will be refined as our understanding of the re-development or decommissioning options continue. - The wet-stored risers and umbilicals will be managed through a risk-based inspection and maintenance programme to ensure future safe recovery. 	<p>Initial disconnection and placement on the seabed to allow removal of the FPSO. Recovery of the risers and umbilicals after removal of the FPSO also reduces health, safety, and project risks.</p> <p>Recovery for recycle of the risers and dynamic umbilicals is in line with clear seabed policy and waste hierarchy.</p>	<p>Flushing and cleaning of the risers and umbilical cores, disconnection from the FPSO and capping of the lines will be followed by controlled lowering of individual lines to the seabed. After the FPSO has been removed, risers and umbilicals will be recovered by a subsea construction vessel and transported to shore for recycling/ disposal.</p>
4. Wells		
<p>Wells will be temporarily isolated and monitored until a decision is made on continued operation and production.</p> <p>For the period following removal of the FPSO and before completion of well decommissioning, dedicated satellite monitoring of the sea surface for sheen detection via the CGG SeaScope will be employed. Daily sheen monitoring reports will be issued covering a 10km radius around the retired FPSO position; ensuring that any sheen is detected and responded to rapidly.</p> <p>An enhanced ROV subsea inspection routine for Wellhead Trees will be employed during the execution period of the FPSO offstation.</p>		



Table 1-5: Summary of Decommissioning Programmes		
Selected Option	Reason for Selection	Proposed Decommissioning Solution
5. Interdependencies		
FPSO mooring lines, risers and umbilicals must be disconnected from the FPSO and laid down on the seabed in order to allow the FPSO to be towed from the field. Mooring lines, risers and umbilicals will subsequently be recovered from the seabed.		

Table 1-6: Adjacent Facilities

Operator	Name	Type	Distance/Direction	Information	Status
BP EXPLORATION OPERATING COMPANY LIMITED	Schiehallion & Loyal	Subsea fields tied back to Glen Lyon FPSO	10km/ East North East	Producing FPSO	Active
ENQUEST HEATHER LIMITED	Magnus EOR	Subsea PLEM	26km/East South East	Producing	Active
HURRICANE ENERGY PLC	Lancaster subsea wells and manifold	Lancaster EPS tied back to Aoka Mizu FPSO	28km/ South East	Producing FPSO	Active
HARBOUR ENERGY PLC	Solan	Subsea field tied back to Unmanned Platform	34km / South South East	Producing platform	Active

Impacts of Decommissioning Proposals

There are no direct impacts on adjacent facilities from the decommissioning works associated with the Petrojarl Foinaven FPSO and associated risers, dynamic umbilicals and moorings systems.

For the decommissioning of the gas export system, this will be covered by the subsequent DPs covering the decommissioning of the pipelines at EoFL. Export pipeline operators will be informed as to that decommissioning plan at that time.

1.7 Boundaries of the Decommissioning Programmes

bp is currently evaluating options for continued operation and production from the Foinaven Field and as such, the scope of this DP is limited to the activities required to allow the FPSO to be taken off station and redelivered to its owner (Petrojarl 4 DA, part of the Teekay Corporation group) at a nominated UK or EU port. Such scope includes:

- Flushing and cleaning of the subsea production system and the FPSO
- Implementation of required isolations from the subsea systems
- Disconnection of the risers, umbilicals and the vessel mooring lines from the FPSO (as detailed in Table 2-2 and Table 2-4) and initially laid down on the seabed
- Remove the FPSO vessel from the field (as detailed in Table 2-1)
- Recovery of the risers, umbilicals and the vessel mooring chains from the seabed and returned onshore for recycle or disposal

All other subsea infrastructure associated with the Foinaven Field will remain in place to be subsequently decommissioned at a later stage and will be covered by separate DPs.

See Figure 1-5 and Figure 1-6 showing the boundaries of this DP. Figure 1-7 shows an image of equipment remaining on completion of DP Scope.

The S29 holders confirm that any recycling of the FPSO will be carried out at an approved shipyard in compliance with all relevant UK legislation, including retained EU Ship recycling regulations².

² The Ship Recycling Regulation (EU) No 1257/2013 adopted by the EU Parliament and the Council of the European Union on 20 November 2013

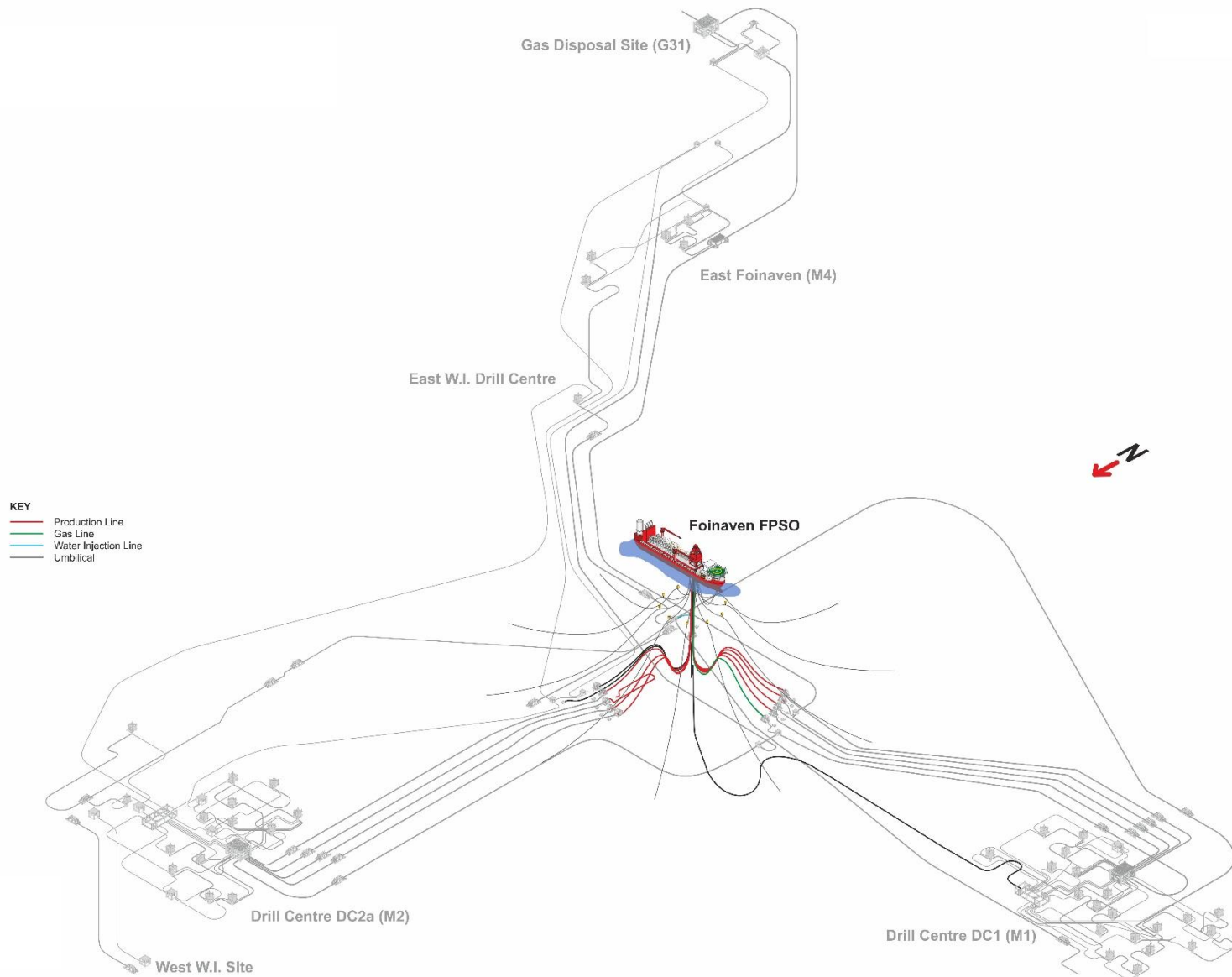


Figure 1-5: Field Layout showing Boundaries of scope for this DP
Infrastructure shown in grey is outside the scope of this DP

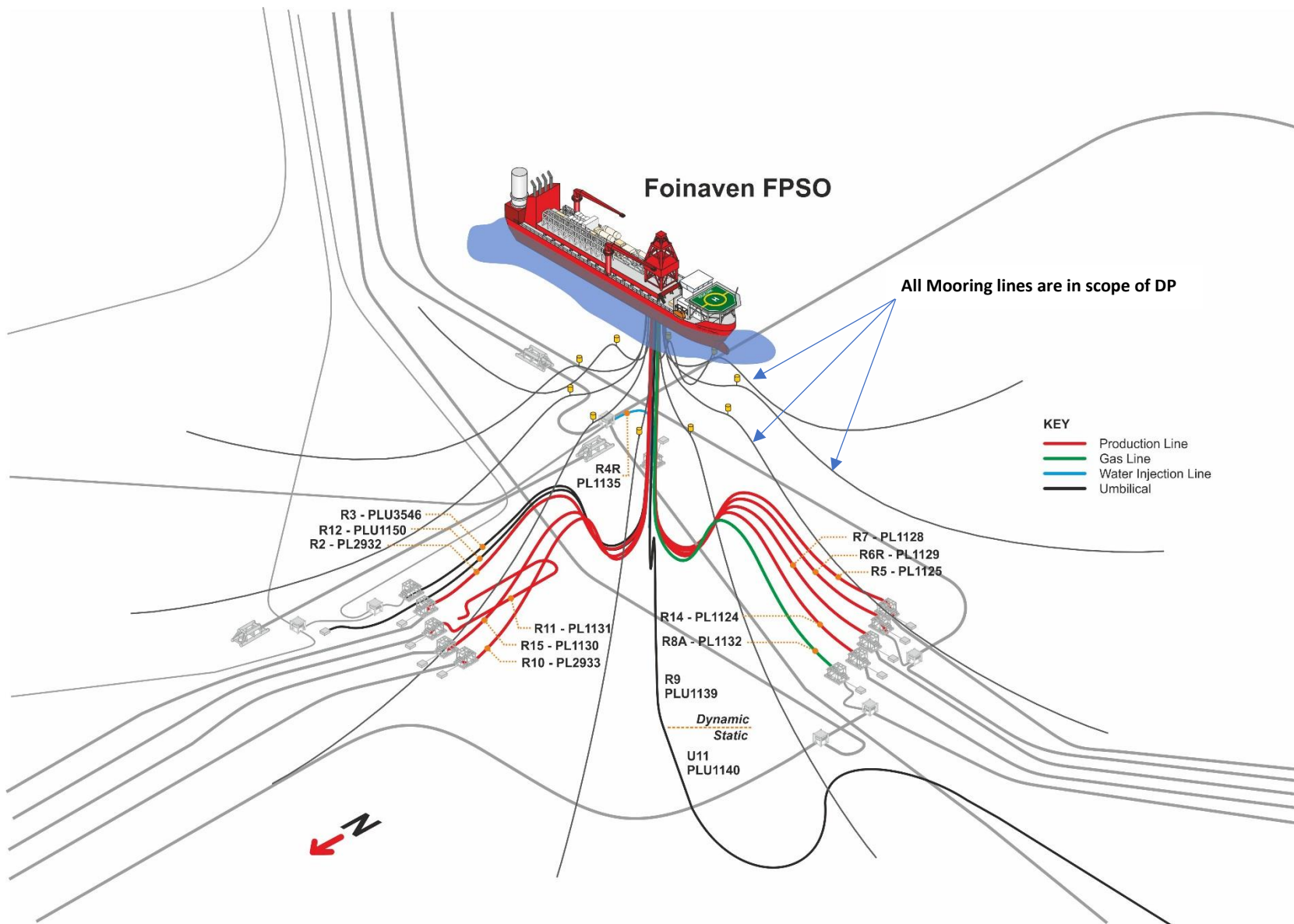


Figure 1-6: Close-up of facilities within scope of DP
Infrastructure shown in grey is outside the scope of this DP

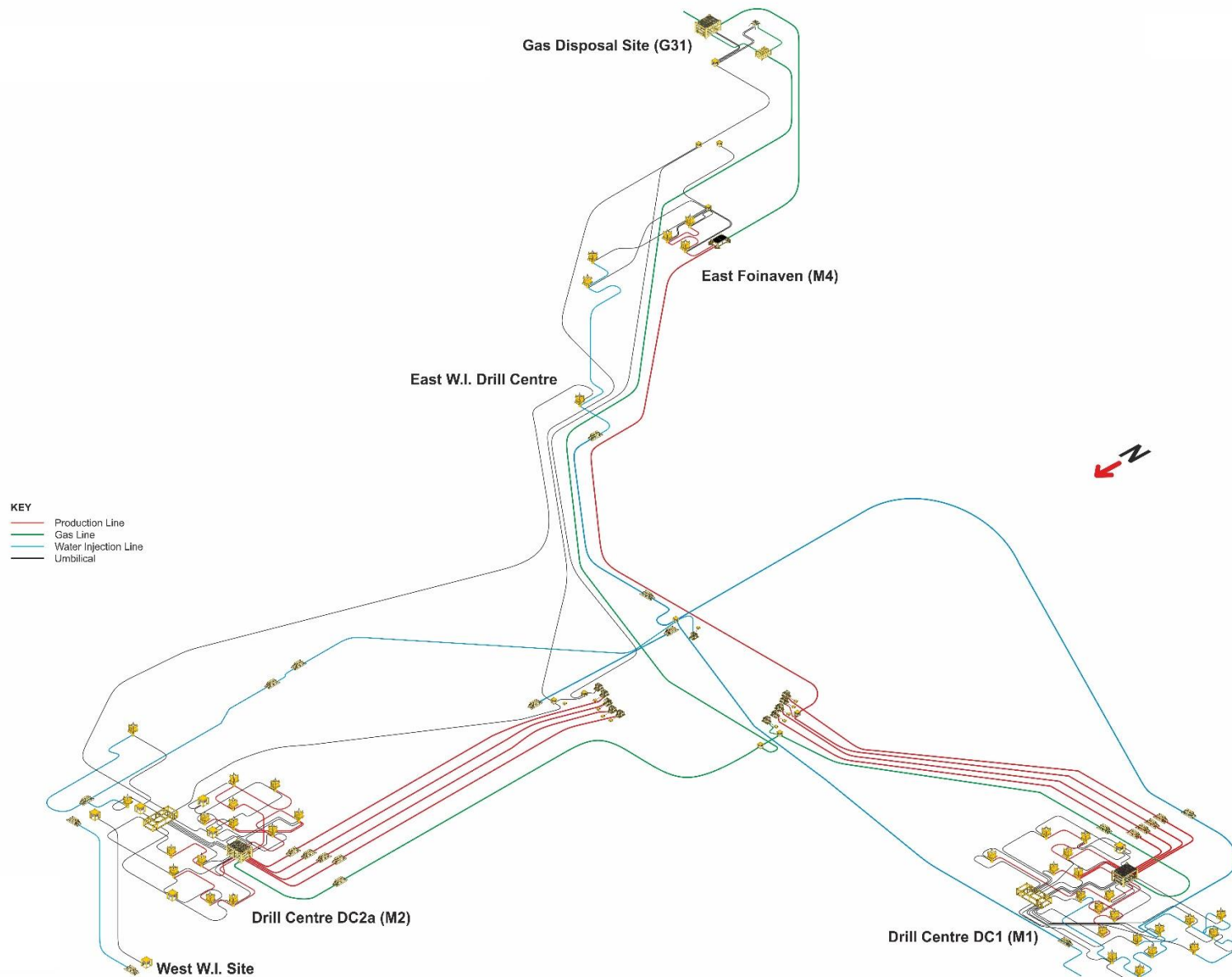


Figure 1-7: Overall Field Layout – showing equipment remaining on completion of DP Scope



1.8 Industrial Implications

It is bp intention to develop a contract strategy that will result in an efficient and cost-effective execution of the decommissioning works.

bp will demonstrate this intention by:

- Publishing information on the decommissioning project and timelines on its decommissioning website;
- Working closely with OGA and other industry bodies in engagement sessions with the decommissioning supply chain on issues relating to the DP and timelines, including engaging directly with disposal yards, where applicable, that serve the North Sea;
- Utilising the First Point Assessment (FPAL) database, along with known industry companies, as a source for establishing tender lists for contracts/purchases;
- Competitively tendering all removal scopes, including the onshore disposal scope;
- Aligning supply chain and decommissioning activity, wherever possible, with Operators of adjacent infrastructure to optimise efficiencies and cost reduction; and
- Development and submission of the Supply Chain Action Plan (SCAP) to the OGA.

2 DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

2.1 Installation(s): Surface Facilities (Topsides/Jacket(s)/FPSO etc.)

Table 2-1: Surface Facilities Information							
Name	Facility Type	Location (FPSO Turret Centre Line) Longitude/Latitude		Topsides/Facilities		Mooring System	
				Weight	Number of modules	Number of Mooring Lines	Weight
Petrojarl Foinaven	FPSO	WGS84 Decimal	-4.27329/ 60.31618	Lightship weight 33,221Te	1	10	4,169te
		Geographical Co-ordinates	60° 18' 58.24" N 04° 16' 23.85" W				

2.2 Installation(s): Subsea including Stabilisation Features

Table 2-2: Moorings Systems and Subsea Installations				
Subsea installations	Number	Size/Weight	Location of Equipment	Comments/Status
Mooring Lines				
FPSO Mooring Line, buoy and Anchor #1, 2, 3, 5, 6, 7, 8 and 10	8	Each mooring line is 2,540m long overall. Total weight of each line is 383te approx. Total weight of all 8 Mooring lines is 3,322te	See Table 2-3.	Weights include anchors, winch line pennants and spring buoy systems
FPSO Mooring Line, buoy and Anchor #4 and 9	2	Details are as Mooring Line # 1 except each line is fitted with a heavier anchor. Total weight of 2 Mooring lines is 847te		



Table 2-3: Mooring Lines Anchor Locations				
Equipment Ident	WGS84 Decimal		WGS84 Decimal Minute	
	Longitude	Latitude	Longitude	Latitude
Mooring line and Anchor #1	-4.275771	60.334078	4°16.54626' W	60°20.04465' N
Mooring line and Anchor #2	-4.253833	60.330694	4°15.22996' W	60°19.84166' N
Mooring line and Anchor #3	-4.239742	60.321622	4°14.38452' W	60°19.29732' N
Mooring line and Anchor #4	-4.238382	60.310105	4°14.30295' W	60°18.60628' N
Mooring line and Anchor #5	-4.252482	60.300651	4°15.14895' W	60°18.03908' N
Mooring line and Anchor #6	-4.273775	60.296812	4°16.42653' W	60°17.80873' N
Mooring line and Anchor #7	-4.296549	60.300337	4°17.79295' W	60°18.02019' N
Mooring line and Anchor #8	-4.310431	60.309450	4°18.62586' W	60°18.56698' N
Mooring line and Anchor #9	-4.310816	60.320868	4°18.64896' W	60°19.25211' N
Mooring line and Anchor #10	-4.297413	60.330348	4°17.84480' W	60°19.82088' N



2.3 Pipelines Including Stabilisation Features

All relevant permit and consent applications will be submitted to the OGA and Health and Safety Executive (HSE) in a timely manner to gain approval prior to the removal of the pipelines (risers) listed below. As the pipelines (risers) are taken out of use, variations to the Pipeline Work Authorisations (PWA) will be submitted to the OGA, and Disused Pipeline Notification (DPN) forms may be submitted to OPRED if deemed appropriate.

Table 2-4: Risers and Dynamic Umbilicals Information									
Description	Pipeline Number	Diameter (mm)	Length (km)	Description of Component Parts	Product Conveyed	From – To End Points	Burial Status	Pipeline Status	Current Content
Production Risers									
Risers serving Drill Centre DC1	PL1124 (Ident R14)	254	0.825	Dynamic Riser	3-phase production fluid	From, and not including, Production Manifold DC1 to, and including, the Pig Launcher Valve.	In Water Column	Shut down and isolated	3-phase production fluid
	PL1125 (Ident R5)	254	0.817	Dynamic Riser	3-phase production fluid				
	PL1128 (Ident R7)	203	0.819	Dynamic Riser	3-phase production fluid				
Riser serving Drill Centres DC1 and Foinaven East	PL1129 (Ident R6R)	203	0.818	Dynamic Riser	3-phase production fluid	From, and not including, Manifold M1 to, and including, the Pig Trap Valve.	In Water Column	Shut down and isolated	3-phase production fluid
Riser serving Drill Centre DC2A	PL1130 (Ident R15)	203	0.817	Dynamic Riser	3-phase production fluid	From, and not including, Production Manifold DC2A to, and including, the Pig Launcher Valve.			
Riser not in use	PL1131 (Ident R11)	203	0.819	Dynamic Riser	Not in use	From, and including, Manifold M2 to, and including, the Pig Trap Valve.	Laid down (wet stored) on seabed	Out of use and disconnected from the FPSO	Inhibited seawater
Risers serving Drill Centre DC2A	PL2932 (Ident R2)	254	0.807	Dynamic Riser	3-phase production fluid	From, and not including, Manifold M2 to, and including, the Pig launcher Valve.	In Water Column	Shut down and isolated	3-phase production fluid
	PL2933 (Ident R10)	254	0.810	Dynamic Riser					



Table 2-4: Risers and Dynamic Umbilicals Information

Description	Pipeline Number	Diameter (mm)	Length (km)	Description of Component Parts	Product Conveyed	From – To End Points	Burial Status	Pipeline Status	Current Content
Water Injection Riser									
Riser serving Main Field	PL1135 (Ident R4R)	254	0.834	Dynamic Riser	Injection Water	From, and including, the WI Piping to and not including the Water Injection Manifold M5	In Water Column	Shut down and isolated	Injection Water
Gas Lift/ Gas Export Riser									
Riser serving Main Field when required or to Gas Export	PL1132 (Ident R8A)	203	0.811	Dynamic Riser	Processed Gas	From, and including, the Riser to and not including FTA F16.	In Water Column	Shut down and isolated	Processed Gas
Control Umbilicals									
Dynamic Umbilical serving Main Field (DC1) and T25/35	PL1139/1 to PL1139/10 (Ident R9)	185	0.845	Dynamic Umbilical	Scale/ Corrosion Inhibitor mix, Wax Dissolver and Methanol	From FPSO Turret to Dynamic/ Static umbilical interface PLU1140 (U11)	In Water Column	In operation/ monitoring mode	Scale/ Corrosion Inhibitor mix, Wax Dissolver and Methanol
Static Umbilical serving Main Field (DC1) and T25/35	PL1140/1 to PL1140/10 (ident U11)	185	4.150	Static Umbilical		From Dynamic/ Static umbilical interface PLU1139 (R9) to SUT1R structure in DC1 drill centre		In operation/ monitoring mode	
Dynamic Umbilical Not in Use	PLU1150 (Ident R12)	185	0.845	Dynamic Umbilical		From FPSO Turret to UDA U31		Shut down and isolated	Control Fluid HW540
Dynamic Umbilical serving Main Field and East Foinaven	PLU3546 (Ident R3)	185	0.841	Dynamic Umbilical		From FPSO Turret to DUTA D3		In operation/ monitoring mode	Scale/ Corrosion Inhibitor mix, Wax Dissolver and Methanol

2.3.1 Dynamic Risers and Umbilicals

Common Components:

Each riser comprises a flexible pipe connected at the seabed to a tie-in structure, Flowline Termination Assembly (FTA) or manifold and at the upper end to the vessel turret where it is terminated at a hydraulic connector. Each riser is configured as a pliant wave (see Figure 2-1) with buoyancy modules fitted over the lower 200m to 240m, dependent on the riser type and diameter. The bottom of each riser is tethered to foundations, which controls the motion of the pipe at the seabed touchdown point. Bend stiffeners are fitted to each riser at the connection to the vessel turret to prevent damage due to vessel motions.

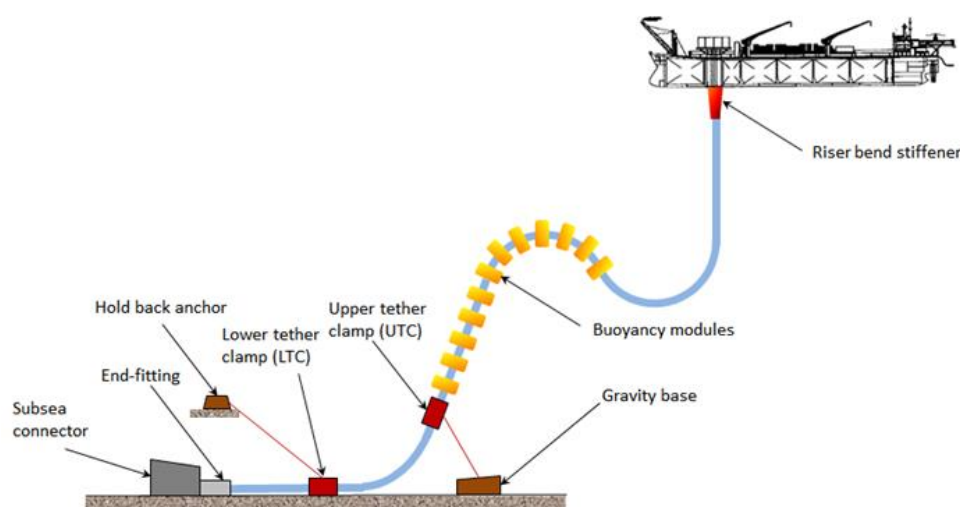


Figure 2-1: Typical Dynamic Riser Arrangement showing attachments

The following components are a generic description of the types of equipment fitted to each riser, that will be recovered with the risers. The size and weights of some of the components described varies according to the size and duty of the riser where fitted. Some of the replacement risers also have a different supplier for certain components. e.g. replacement riser R4R (PL1135) has Balmoral buoyancy modules fitted rather than Eccofloat fitted to most of the risers and also has Trelleborg riser protection wrap rather than Uraduct protection fitted to other risers.

Table 2-5: Risers Riser and Dynamic umbilical attachments				
Component	Quantity per riser	Description	Weight Te	Materials
Subsea Connector	1	Diverless DMac Pull-in head connected to the FTA/manifold	1.8	Steel
Lower Riser End-fitting	1	Destec flange connecting riser to DMac pull-in head	0.3	Steel
Bottom bend restrictor	1	A Vertebrae connection collar +bend restrictor (not shown in Figure 2-2)	2.5	Steel/ moulded polyurethane elastomer
Lower Tether Clamp (LTC)	1	Prefabricated split clamp 1m long	0.48	Steel
Upper Tether Clamp (UTC)	1	Prefabricated split clamp 1m long	1.4	Steel



Table 2-5: Risers Riser and Dynamic umbilical attachments				
Component	Quantity per riser	Description	Weight Te	Materials
Buoyancy Modules	74 to 78	Eccofloat, split and bolted modules weighing 0.43te in air each and spaced at 3m centers along over a length of between 200m and 230m of the riser.	31.82 to 33.54	Moulded low density syntactic foam with steel bolts
Upper bend restrictor	1	Bend stiffener assembly (including interface sleeve and conical segment- not shown in Figure 2-2)	10.6	Steel/ moulded polyurethane elastomer
Upper Riser End-fitting	1	Destec flange (not shown in Figure 2-2)	0.3	Steel
Anode Bracelets	4 to 6	Impalloy Bracelet Anodes attached to the bottom 8m of the riser adjacent to bend restrictor (not shown in Figure 2-2)	0.7	Aluminium/Zinc Alloy, steel
External pipeline wrap	118m to 175m	Uraduct protection wrap system installed at intervals along the length of the riser weighing 45kg/m	5.5 to 7.9	Polyurethane and steel bands
Total Weight of components attached to each riser			55.4 to 59.5	

Risers

There are 4-off 8" dia production risers which have 10.4mm wall thickness (w.t.) and weigh 122.4kg/m

There are 4-off 10" dia production risers which have 11.1 mm w.t. and weigh 153.9kg/m

There is 1-off 10" WI Riser which has 16.6mm w.t. and weigh 230.6kg/m

There is 1-off 8" dia gas riser which has 6.4mm w.t. and weigh 127.4kg/m

Total weight of all 10 risers to be recovered is 1,194te + total weight of attachments as listed in Table 2-5 is 574te, giving a total combined weight of 1,768te.

Dynamic Umbilicals

Dynamic Umbilicals consist of

- Medium-density polyethylene (MDPE) Outer Sheath – 185mm dia x 6mm w.t., with:
 - with multiple layers of galvanised steel wire reinforcement bonded with bitumen
 - multiple layers of nylon and polyester tape separating the reinforcement layers between outer and inner sheath
- MDPE Inner Sheath – 132mm dia x 3.6mm w.t. with an inner core containing:
 - 6 - 3/8" dia thermoplastic hoses
 - 3 - 5/8" dia thermoplastic hoses
 - 2 - 1/2" dia thermoplastic hoses
 - 1 - 37mm dia electrical cable containing power and signal conductors
 - Filler elements

The weight of the dynamic umbilical is 75.8 kg/m. Total weight of the 3 dynamic umbilicals is 192te + total weight of attachments as listed in Table 2-5 is 166te, giving a total combined weight of 376te.

Static Umbilical

One static umbilical PLU1140 (U11) connected back to SUT1R structure in DC1 drill centre is to be recovered for disposal. The static umbilical cross section is similar to the dynamic umbilicals described above, except the static umbilical has less layers of galvanised steel reinforcement. The weight of the static umbilical is 59.5 kg/m with total weight of the 247te

2.4 Wells

All Foinaven wells will be temporarily isolated and monitored until bp complete the evaluation of options for continued operation and production from the Foinaven Field. Therefore, all wells are outside the boundaries of this DP.

2.5 Drill Cuttings

This DP is associated with removal of the FPSO and associated mooring lines, risers and umbilicals within the water column only. There are no drill cuttings accumulations near these facilities. Where any drill cuttings accumulations existing in the wider Foinaven Field drill centres, these will be considered as part of the relevant DP for the subsea infrastructure at a future date.

2.6 Inventory Estimates

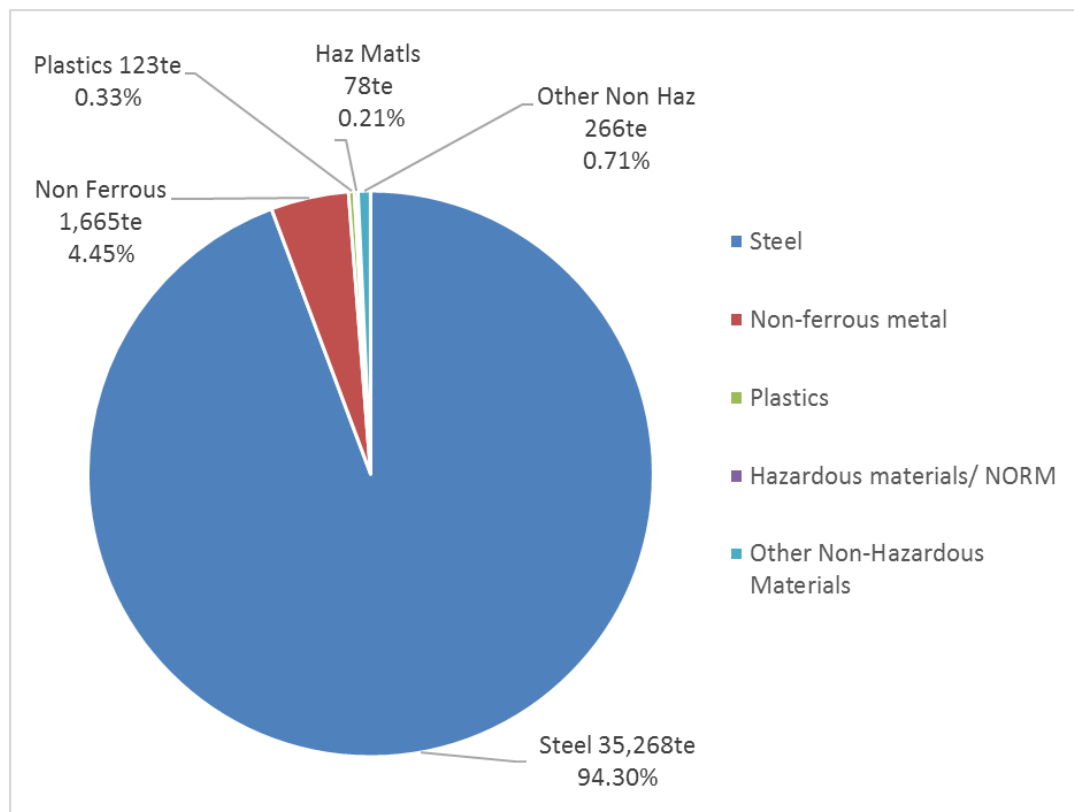


Figure 2-2: Estimated Inventory – FPSO and Mooring Systems
Total Weight = 37,400te

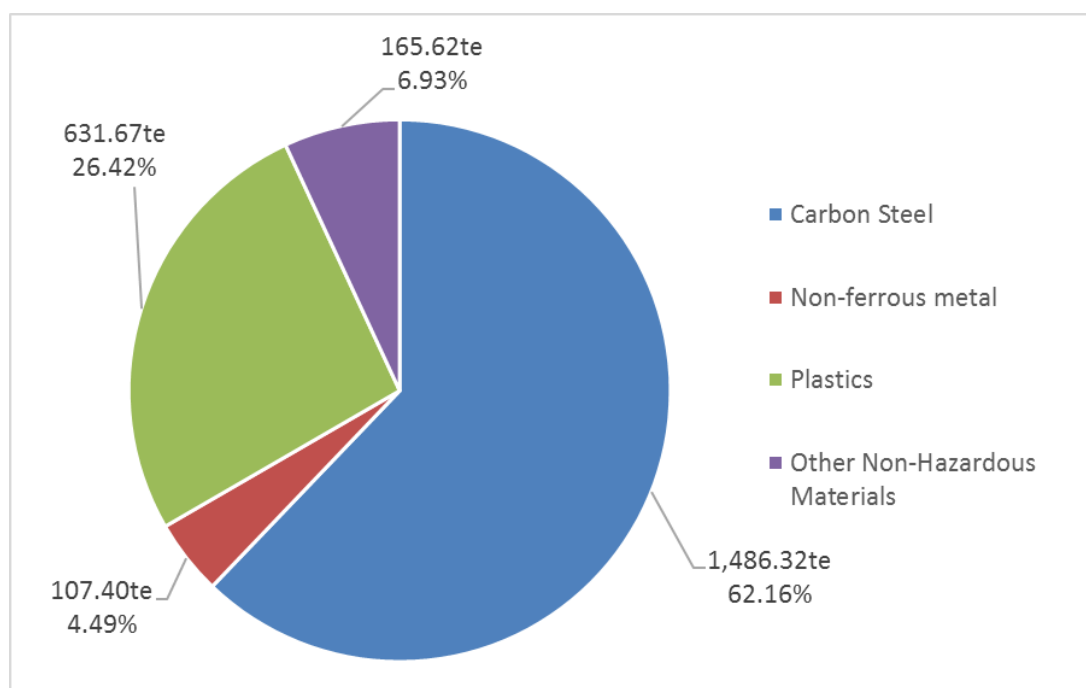


Figure 2-3: Estimated Inventory – Risers and Dynamic Umbilicals

Total Weight of all Risers, Umbilicals and associated subsea structures = 2,391te

3 **REMOVAL AND DISPOSAL METHODS**

Article 4 of the EU Waste Framework Directive (Directive 2008/98/EC) sets out the five steps to manage waste ranked according to environmental impact (also known as the waste hierarchy). In line with the waste hierarchy, the re-use of an installation (or parts thereof) is first in the order of preferred decommissioning options. bp and Golar-Nor (UK) Limited will follow the principles of the waste hierarchy (Figure 3-1) to minimise waste production resulting from the removal of the Petrojarl Foinaven FPSO.

Recovered subsea infrastructure will be returned to shore and transferred to a suitably licensed waste treatment facility. Recovered infrastructure e.g., risers, umbilicals and mooring lines will be cleaned before being recycled.

With respect to recovered subsea infrastructure, an appropriately licensed waste management company and yard will be identified through a selection process that will ensure that the chosen facility demonstrates a proven record of waste stream management throughout the deconstruction process, the ability to deliver appropriate reuse/ recycling options, and ensure the aims of the waste hierarchy are achieved.

With respect to the FPSO, Petrojarl 4 DA, as the FPSO vessel owner, has confirmed that, following redelivery to it, the vessel is unlikely to be suitable for reuse and it therefore expects to arrange for the FPSO to be recovered for recycling/disposal onshore, which will be carried out at an approved shipyard in compliance with all relevant UK legislation, including retained EU ship recycling regulations.

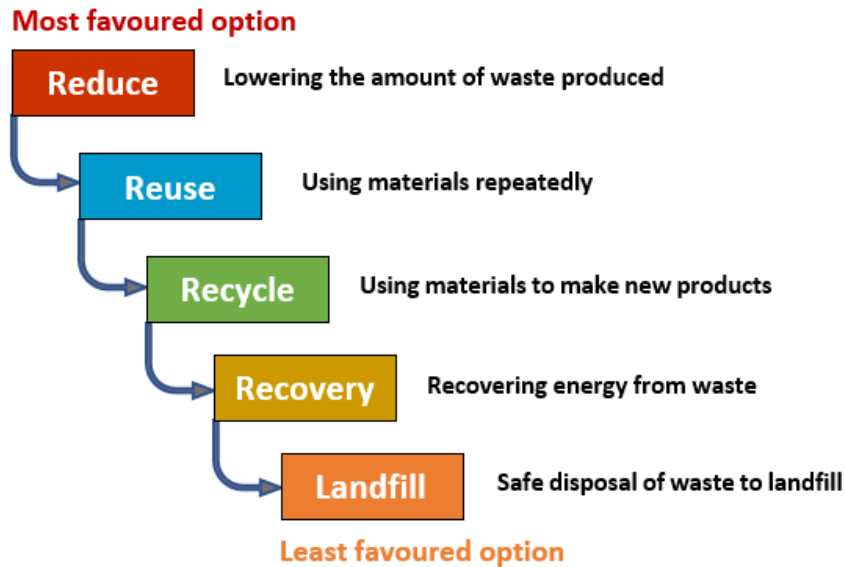


Figure 3-1: Waste Hierarchy

3.1 Petrojarl Foinaven FPSO

Teekay Corporation (through its subsidiary called Petrojarl 4 DA) own the Petrojarl Foinaven FPSO. Pursuant to a Bareboat charter party, bp currently has exclusive use and control of the FPSO. Following expiry of the bareboat charter party, the vessel is to be redelivered to Petrojarl 4 DA in accordance with the bareboat charter party at a nominated EU or UK port, at which point it will re-assume full custody and control of the vessel. Altera Infrastructure (through its subsidiary called Golar-Nor (UK) Limited) are the installation operator in respect of the FPSO, meaning it is the duty holder.

The FPSO has reached the end of its 25-year life operating in a harsh environment. Redeployment or sale opportunities are not considered an option by the vessel owners, due to the vessel condition. Following redelivery, Petrojarl 4 DA will be responsible for any onward movement of the FPSO and for its recycling, which will be carried out at an approved shipyard in compliance with all relevant UK legislation, including retained EU ship recycling regulations.

Preparation/Cleaning:

Table 3-1: Cleaning of FPSO for Removal		
Waste Type	Composition of Waste	Disposal Route
Onboard Hydrocarbons	Process fluids, fuels and lubricants.	<p>Prior to redelivery of the FPSO by bp to Petrojarl 4 DA, the topsides will be gas free to a standard consistent with that customarily applied in preparation for a turnaround, depressurised, flushed, drained, and filled with water and nitrogen to make them safe.</p> <p>The crude oil tanks will be emptied over 4 to 5 weeks. The fluids will be offloaded to the shuttle tanker for disposal. Such activities shall take place prior to redelivery of the FPSO by bp to Petrojarl 4 DA.</p> <p>Fuels and lubricants remaining on the FPSO at the point of redelivery by bp to Petrojarl 4 DA shall be documented in the IHM (Inventory of Hazardous Materials) and managed at the decommissioning facility.</p>
Other Hazardous Materials	NORM scale, radioactive material, instruments containing heavy metals, batteries, lead-based paint, asbestos, etc.	<p>Documented in IHM and managed at vessel recycling facility and disposed of under an appropriate permit by the selected waste management contractor. This activity to be carried out and managed by Petrojarl 4 DA following redelivery of the vessel.</p>

Removal Methods:

Table 3-2: Topsides Removal Methods	
1) HLV (semi-submersible crane vessel) <input type="checkbox"/> 2) SLV <input type="checkbox"/> 3) Piece small <input type="checkbox"/> 4) Other <input type="checkbox"/>	
Method	Description
N/A	
The Petrojarl Foinaven FPSO will be released from its moorings with all risers and umbilicals flushed, cleaned, and disconnected. The Topsides facilities will be decommissioned with the FPSO.	

3.2 FPSO Mooring Systems

Each mooring line comprises:

- 1- 52mm dia. x 200m long, steel wire winch pennant,
- 1- joining shackle,
- 1- 135mm dia. x 640m long, six strand steel mooring wire,
- 1- Joining shackle,

- 1- Swivel link with spring buoy connected with 10m long pennant and shackles,
- 1- 135mm dia. x 500m long, six strand steel mooring wire,
- 1- rectangular plate, and
- 1- 111mm x 1,200m long studless chain, with 1- joining shackle connected to a drag anchor.

There are two different types of drag anchor

- 1- 27te MK6 anchor with shackle fitted to Anchor numbers 1,2,3,5,6,7,8 and 10
- 1- 35te MK5 anchor with shackle fitted to Anchor numbers 4 and 9

The Spring Buoy fitted to each mooring line has a 35te net buoyancy and is located 400m approx. from the underside of the FPSO turret. See Figure 3-2 for typical mooring system configuration.

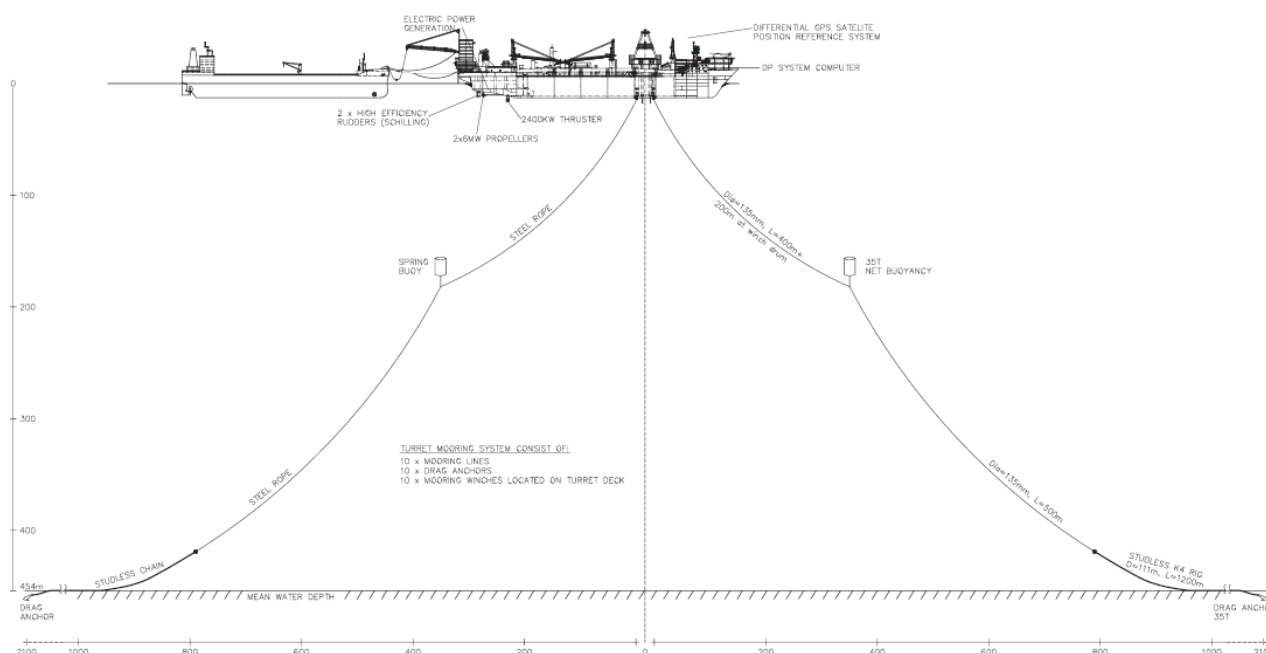


Figure 3-2: Typical FPSO Mooring Line Arrangement

Table 3-3: FPSO Mooring Lines and associated Buoys and Anchors Decommissioning Options			
Mooring systems	Number	Option	Disposal Route (if applicable)
Mooring Systems (Mooring Lines, buoys and anchors) described above.	10	Disconnected from the FPSO. The mooring systems will be recovered, in two phases and transferred onshore for recycle and disposal	Recover to a licenced onshore recycling/disposal facility

3.3 Pipelines, Risers and Dynamic Umbilicals

Comparative Assessment:

A Comparative Assessment (CA) has not been carried out for the risers and dynamic umbilicals covered by this DP as the lines are in the water column and will be laid down temporarily on the seabed but to be recovered and returned onshore for recycle and disposal, it is considered that a CA is not required.

A CA will be carried out for all subsea pipelines nearer to EoFL and in support of the relevant future DP for these systems. The CA will be carried out in line with the recommendations of the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) Guidance Notes in The Department for Business, Energy and Industrial Strategy (BEIS).

Table 3-4: Pipelines, Risers and Umbilicals Decommissioning Options			
Pipelines, Risers and Umbilicals	Number	Option	Disposal Route (if applicable)
Production Risers	7	These risers will be Disconnected from FPSO and returned onshore for recycling and disposal	Recover to a licenced onshore recycling / disposal facility
WI Riser	1		
GI / Gas Export Riser	1		
Dynamic Umbilicals	3		
Static Umbilical	1		
Production Riser PL1131 (R11)	1	This riser has already been disconnected from the FPSO and is 'wet stored' on the seabed. It will be recovered together with the other risers after the FPSO has been removed	Recover to a licenced onshore recycling /disposal facility

3.4 Wells

Wells will be temporarily isolated and monitored until a decision is made on continued operation and production (Reference Table 1-5 for further details).

3.5 Waste Streams

As part of the Contracting Strategy, the S29 notice holders will ensure the selection of competent Contractor(s), experienced in the handling of all wastes associated with the Decommissioning of the FPSO and its associated Oil and Gas infrastructure.

The waste management provider's/disposal yards shall follow the waste management hierarchy in the handling of materials from the Foinaven FPSO decommissioning project to maximize the amount of material from the project which is reused or recovered/recycled. bp 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. Geographic locations of potential disposal yard options may require the consideration of Trans Frontier Shipment of Waste (TFSW), including hazardous materials. Early engagement with the relevant waste regulatory authorities will ensure that any issues with TFSW are addressed.

Table 3-5: Waste Stream Management Methods	
Waste Stream	Removal and Disposal method
Bulk liquids	<p>Bulk liquid waste will be produced during the flushing of the Foinaven Field production systems and during the cleaning of the FPSO process equipment and storage tanks. Bulk liquids will be processed and discharged from the FPSO under an appropriate permit or will be offloaded and transported to shore for treatment and disposal.</p> <p>All pipelines will be flushed with seawater, with returns to a sampling point targeting <100mg/l oil-in-water, residual chemicals in blocked lines.</p>
Marine growth	Some marine growth may be removed offshore. The remainder will be brought to shore for disposal should a recycling route (e.g., potential for use as a fertiliser) not be identified. Onshore disposal will be managed by the selected waste management contractor and will be disposed of in accordance with guidelines.
NORM	Tests for NORM will be undertaken offshore and work will be carried out in full compliance with all relevant regulations. NORM contaminated material may be removed and discharged offshore under the appropriate authorisation. Some material or contaminated equipment may be recovered to shore for disposal or decontamination, selected waste management contractor will have appropriate authorisation for the disposal/decontamination of NORM contaminated waste.
Asbestos	The presence of asbestos has not been identified from the base data review carried out to date. Additional surveys will be undertaken to determine the Inventory of Hazardous Materials (IHM) and before the vessel is sent for recycling. Recycling yard will be informed of the hazard and appropriate controls and disposal methods will be in place.
Other hazardous wastes	Will be recovered to shore and in full compliance with all relevant regulations and disposed of under an appropriate permit by the selected waste management contractor.
Onshore Dismantling sites	<p>Appropriate licensed sites will be selected. Dismantling sites must demonstrate waste stream management throughout the deconstruction process and the ability to deliver innovative reuse and recycling options. Existing sites would need a proven track record.</p> <p>The vessel owners, Petrojarl 4 DA, have undertaken that (following redelivery by bp) the FPSO vessel will be recycled, which will be carried out at an approved shipyard in compliance with all relevant UK legislation, including retained EU ship recycling regulations</p>

Table 3-6: Inventory Disposition			
	Total Inventory Tonnage	Planned tonnage to shore	Planned tonnage left in situ
Installations	37,400	37,400	0
Pipelines and Dynamic Umbilicals	2,391	2,391	0

4 ENVIRONMENTAL APPRAISAL OVERVIEW

All operations described in this DP will be subject to the relevant environmental permits and approvals. All permit applications and reporting will be managed through a Permits, Licences, Authorisations, Notifications and Consents (PLANC) register.

A scoping ENVID exercise in line with OPRED's Decommissioning Guidance Notes was undertaken on the activities associated with this DP, i.e. the limited activities required to allow the removal of the Foinaven FPSO. The ENVID did not identify any environmental activities that are considered to have a significant impact. In addition, as the removal activities will take place within an existing 500 m exclusion zone any impact on other sea users will be limited and are not considered significant. As a result, and in agreement with OPRED, an Environmental Appraisal (EA) was not deemed necessary to support this DP. An EIA will be provided as part of any relevant Marine Licence application.

Figure 4-1 shows the location of the field in relation to protected areas.

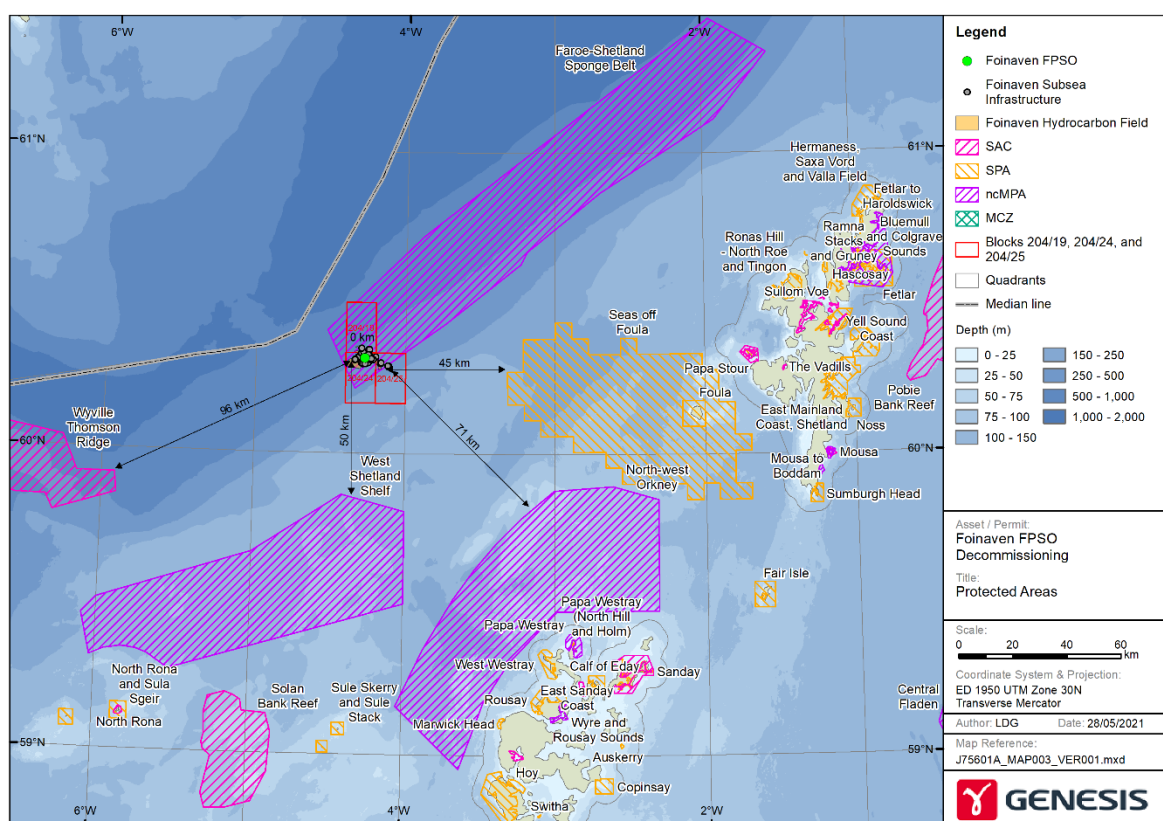


Table 4-1: Environmental Appraisal Impacts Summary

Activity	Main Impacts	Management
Cut and laying down of risers, dynamic umbilicals and vessel mooring lines listed in Table 2-2 and Table 2-4 and subsequent removal from the seabed.	Seabed disturbance will be caused by the laying down and removal of the risers, dynamic umbilicals and vessel mooring infrastructure. This may incur a localised, temporary disturbance of an area of seabed, the Faroe-Shetland Sponge Belt NCMPA.	<p>The lifting activity will be undertaken while vessel is on dynamic positioning, thus will be undertaken through controlled, precise manoeuvring. This will minimise any lateral movement which will ensure the area of seabed temporarily disturbed will be kept as low as possible. No dredging/jetting required. Laydown within existing 500m zone.</p> <p>Any potential impacts will be addressed in the Environmental Impact Assessment submitted prior to execution, in conjunction with the relevant Marine Licences.</p>
Disconnection of risers and dynamic umbilicals listed in Table 2-4.	The potential for the discharge to sea of ~300m ³ of fluids, which is primarily inhibited seawater, ~30m ³ MEG and <0.5m ³ residual chemicals is anticipated to have only a minor environmental impact.	Any discharges to sea associated with the decommissioning of the FPSO and riser/umbilical flushing and disconnections will be subject to the relevant permitting requirements and will be applied for via a Portal Environmental Tracking System (PETS) application.
Vessels	Localised effects on air quality. Given the location of the FPSO (120 miles west of the Shetland Isles within the Faroes / Shetland Trough) it is not anticipated that there will be a significant impact on air quality on a wider scale.	<p>Work procedures will be in place to minimise the duration of activities and therefore optimising vessel use.</p> <p>bp will carry out a detailed assurance process on all vessels prior to contract award</p> <p>Vessels will use ultra-low Sulphur fuel in line with International Convention for the Prevention of Pollution from Ships (MARPOL) requirements.</p>

Table 4-1: Environmental Appraisal Impacts Summary		
Activity	Main Impacts	Management
Physical presence of infrastructure left on seabed until recovered, in relation to other sea users.	<p>The potential exclusion of other sea users to areas of the seabed.</p> <p>Possible increase in snagging risk to demersal fishers.</p>	<p>Stakeholder engagement - notably with Scottish Fishermen's Federation (SFF) and Northern Lighthouse Board (NLB).</p> <p>Laid down infrastructure within 500m zone. Any infrastructure out with the 500m zone is already exposed to fishing - i.e. riser structures.</p> <p>Existing Emergency Response and Rescue Vessel (EERV) currently shared between Glen Lyon and Foinaven Fields will remain on-station.</p> <p>Any potential impacts will be addressed in the Environmental Impact Assessment submitted prior to execution, in conjunction with the relevant Marine Licenses.</p>
Waste	Onshore impacts including resource and energy use.	The Project will promote the 'Circular Economy', driving waste management up the waste hierarchy and adopt the Duty of Care framework for managing all material from decommissioning.

5

INTERESTED PARTY CONSULTATIONS

As part of the informal stakeholder engagement process bp has held meetings with the following to discuss its proposals for taking the Foinaven FPSO off station:

Meeting held on 24th August, 2021:

- OPRED Environmental Management Team (EMT)
- Health and Safety Executive (HSE)

Meeting held on 3rd September, 2021:

- Scottish Fishermen's Federation (SFF)

No concerns were raised by any of the parties during these informal meetings.

bp will continue to engage with the stakeholders and regulatory authorities, regarding overall decommissioning plans and in particular, the removal plans for the FPSO under the Decommissioning Programme Arrangements.

Table 5-1: Summary of Stakeholder Comments		
Who	Comment	Response
Informal Stakeholder Consultations		
OPRED Environmental Management Team (EMT)	<p>Use of ERRV as guard vessel was discussed and what alternatives had been considered, which were SFF guard vessel and cardinal markers.</p> <p>Well monitoring arrangements post FPSO off-station: OPRED requested bp share the technical documents, and risk assessment referenced in the meeting once formally approved, for their detailed review</p>	<p>bp risk assessment supports ERRV a suitable mitigation and extension of existing arrangements.</p> <p>bp agreed to provide these documents to OPRED (EMT) for review.</p>
Health and Safety Executive (HSE)	None	
Scottish Fishermen's Federation (SFF)	<p>SFF aligned that use of ERRV to act as guard vessel would be acceptable.</p> <p>Key requests:</p> <p>Once FPSO offstation a subsea 500m safety zone will need to be established to replace the surface safety zone.</p> <p>ERRV communication protocols will need to be clear on the nature of the hazards within the safety zone which are at the perimeter rather than at the centre and should also include anchor radius.</p> <p>Location of hazards should be communicated in degree, minute and decimal second format.</p>	bp agreed to these requests
Statutory Consultations		
National Federation of Fishermen's Organisations		
Scottish Fishermen's Federation		
Northern Irish Fish Producers Organisation		
Maritime and Coastguard Agency (MCA)		
Global Marine Systems Limited		
Public		
JNCC		



bp and Altera have and will continue to engage with the stakeholders regarding overall decommissioning plans and, the removal plans for the FPSO under the Decommissioning Programme Arrangements.

6

PROGRAMME MANAGEMENT

6.1 Project Management and Verification

A joint bp and Altera project management team has been established, consisting of a multi-disciplinary team lead by a Project Manager responsible for the implementation of activities and co-ordination of all services. An execution plan has been put in place which will align with established bp Health, Safety and Environment policies and meet all relevant legislative requirements.

The contracting strategy will be based on bp procurement and contracts 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.

bp will report regularly on the execution of the DP to OPRED and discuss and agree any changes in plans as they advance.

6.2 Post-Decommissioning Debris Clearance and Verification

A full-scale post decommissioning environmental seabed and pipeline survey of the Foinaven Field will be deferred and carried out only following full decommissioning of the fields at EoFL. Results of this survey will be available once the work is complete, with a copy forwarded to OPRED.



6.3 Schedule

A draft schedule for the Foinaven FPSO Offstation DP is provided in Figure 6.1, this schedule will be subject to final confirmation before the DP is published for public consultation.

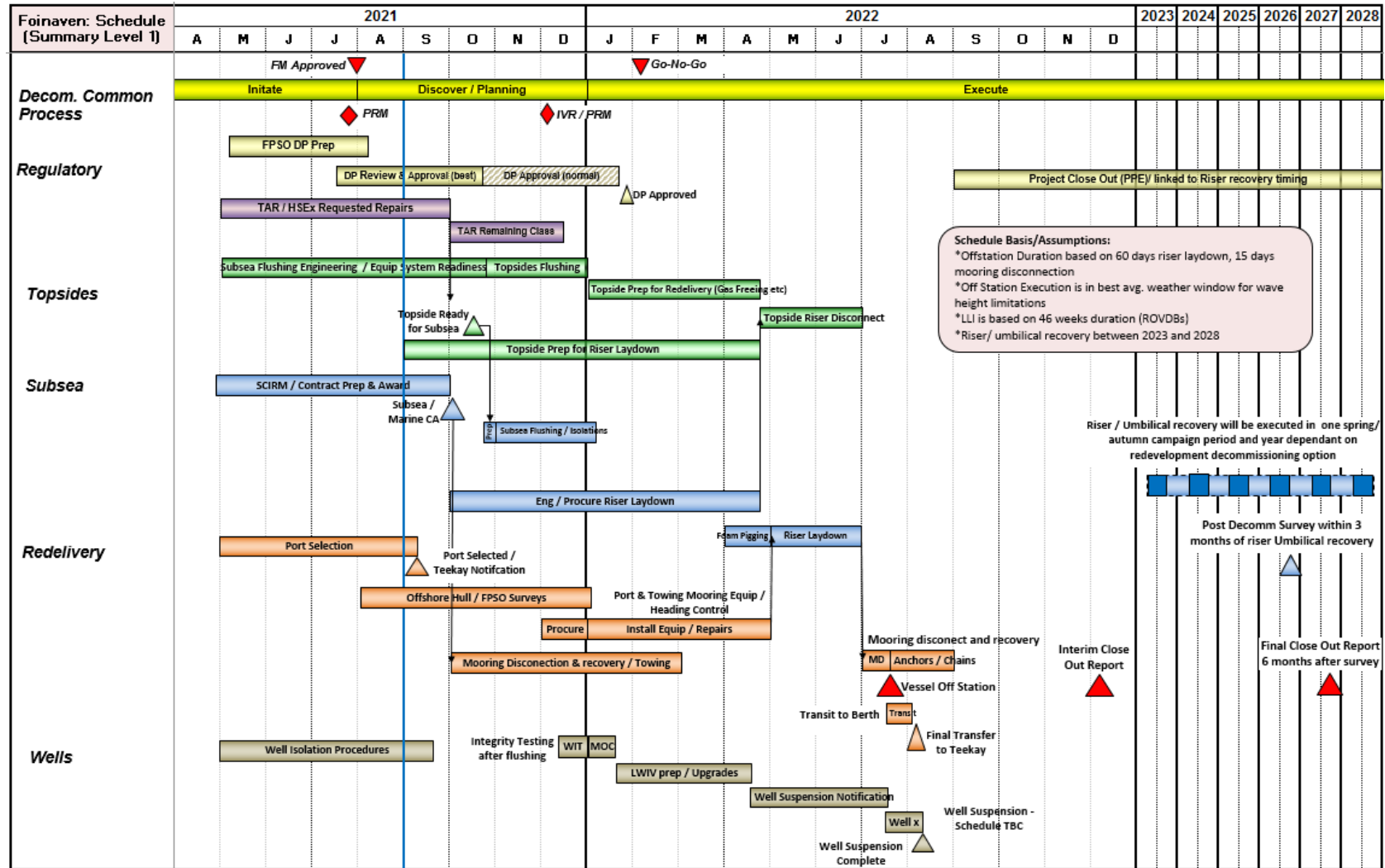


Figure 6-1: Gantt Chart of Project Plan

6.4 Management of Residual Liability

Prior to FPSO removal, a risk-based assessment will be undertaken to determine suitable marking of the subsea infrastructure around the FPSO location. Consideration will be given to providing a guard vessel and/or pennant buoy system to warn of the presence of subsea infrastructure.

The guard vessel function will be provided by the Emergency Response and Rescue Vessels (ERRV) shared with Schiehallion field.

The ERRV is a shared vessel between the Glen Lyon and Foinaven Field which provides a physical presence in field for communication with vessels to alert of any threats in the field on approach.

Information from the Glen Lyon REWS, together with information from the Radar Early-Warning System (REWS) sets on nearby bp Installations and with data from vessel transponder recognition systems, is integrated and displayed on screens at the following locations:

- On the bridge of the ERRV
- At the onshore MarCo's workstation
- In the Glen Lyon CCR

The ERRV, which can utilise the REWS and its marine radar to monitor shipping movements through the Schiehallion and Foinaven Fields, and can attempt, where appropriate, to take proactive action to alert an errant vessel of the threat it poses.

The Foinaven Field production wells will temporarily isolated and monitored. bp has carried out an assessment of the integrity status of each well and the risk associated with leaving each well in a temporarily isolated state for up to five years before the wells are either re-commissioned or permanently plugged and abandoned and have established that there is a low risk of a release from the wells to the marine environment.

For the duration of the offstation, dedicated satellite monitoring of the sea surface for sheen detection via the CGG SeaScope will be employed. Daily sheen monitoring reports will be issued covering a 10km radius around the retired FPSO position; ensuring that any sheen is detected and responded to rapidly.

An enhanced ROV subsea inspection routine for the Wellhead Christmas Trees will be employed throughout the offstation period. Any anomalies identified will be reported in COABIS per the established Aker/ bp interfaces. Inspection campaigns will be 6 monthly for the first year of the offstation and yearly thereafter.

Subsea pipework will be flushed of hydrocarbons prior to disconnection.

- All subsea pipelines to remain on the seabed will be fitted with ROV Deployable Blinds (ROVDB) at the FTA or manifolds, where disconnected from the risers.
- All pipelines will be disconnected, and a Blind Seal Plate (BSP) will be fitted at the manifolds at the production drill centres providing positive isolation from the wells
- The gas lift/ export line will have BSPs fitted at the Gas Injection well and at FTA immediately upstream of the gas export line to Schiehallion providing positive isolation.

This temporary positive isolation of the wells from production pipework this will mitigate the risk of hydrocarbon release from the subsea pipework following the removal of the FPSO.

On completion of flushing the lines will be left flooded as follows:

- Production lines will be filled with chemically inhibited de-aerated injection quality water at ambient pressure
- Water injection lines will be filled with chemically inhibited injection quality water at ambient pressure



- Gas lift/ gas export lines will be filled with chemically inhibited MEG/Water 70/30 at ambient pressure
- Jumpers between the wells and the manifolds at each drill centre will be filled with chemically inhibited MEG/Water 70/30 at ambient pressure
- The 10" Gas Export pipeline between the FTA immediately upstream of the gas export tie-in and to Schiehallion will be left with hydrocarbon gas at nominal pressure (5bar above subsea ambient pressure)

6.5 Costs

An overall cost estimate following Oil and Gas UK (OGUK) Guidelines on Decommissioning Cost Estimates will be provided separately to OPRED.

6.6 Close Out

In accordance with OPRED guidelines, a close out report will be submitted to OPRED within 12 months of the completion of the offshore decommissioning scope covered by these programmes.

6.7 Post-Decommissioning Monitoring and Evaluation

A localised as left survey will be done for each riser and dynamic umbilical following recovery.

bp will also carry out a post decommissioning survey following completion of decommissioning activities in the wider Foinaven Field



7

PARTNER LETTER(S) OF SUPPORT

[HOLD 1] - Partner Letters will be issued with final version of DP (post public consultation).