

HUNTER & RITA

Decommissioning Programmes

FINAL VERSION – 30 March 2021

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Terms and Abbreviations

Abbreviation	Explanation
CA	Comparative Assessment
CMS	Caister Murdoch System
CMSIII	A group of gas accumulations, including 'Murdoch K', which have been developed together and are treated commercially as a single field
CoP	Cessation of Production
Dia	Diameter
DoB	Depth of Burial
DP	Decommissioning Programmes
E	East
EA	Environmental Appraisal
EMS	Environmental Management System
EMT	Environmental Management Team
ENE	East-Northeast
ENVID	Environmental Issues Identification
ES	Environmental Statement
HSES	Health, Safety, Environment and Security
ICES	International Council for the Exploration of the Seas
in	Inch
JNCC	Joint Nature Conservation Committee
km	Kilometre
LSA	Low Specific Activity Scale
m	Metre
MCA	Maritime and Coastguard Agency
MCDA	Multi Criteria Decision Analysis
mm	Millimetre
MDU	Methanol Distribution Unit
MS	Marine Scotland
MPA	Marine Protected Areas
N/A	Not Applicable
NE	Northeast
NORM	Naturally Occurring Radioactive Material
NW	Northwest
ODU	Offshore Decommissioning Unit
OGA	Oil & Gas Authority
OGUK	Oil & Gas UK
OPRED	Offshore Petroleum Regulator for Environment & Decommissioning
OSPAR	Oslo Paris Convention – Convention for the Protection of the Marine Environment of the North East Atlantic
PL	Pipeline

Abbreviation	Explanation
PLU	Pipeline Umbilical
Premier Oil	Premier Oil E&P UK Limited
PWA	Pipeline Works Authorisation
ROV	Remotely Operated Vehicle
SAC	Special Area of Conservation
SCAP	Supply Chain Action Plan
SE	Southeast
SEPA	Scottish Environmental Protection Agency
SFF	Scottish Fishermen's Federation
SIMOPS	Simultaneous Operations
SNS	Southern North Sea
SOSI	Seabird Oil Sensitivity Index
SSE	South-Southeast
SSS	Side Scan Sonar
SSW	South-Southwest
SW	Southwest
SUTU	Subsea Umbilical Termination Unit
SW	Southwest
Te	Tonne
TFSW	Trans Frontier Shipment of Waste
TGT	Theddlethorpe Gas Terminal
UHB	Upheaval buckling
UKCS	United Kingdom Continental Shelf
UTA	Umbilical Termination Assembly
W	West
WHPS	Wellhead Protection Structure
WMP	Waste Management Plan
WONS	Well Operations Notification System
WSW	West-Southwest

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1 EXECUTIVE SUMMARY

1.1 Combined Decommissioning Programmes

This document contains four Decommissioning Programmes for the Hunter and Rita Fields' subsea pipelines and installations.

There is a separate Decommissioning Programme for each set of associated notices served under Section 29 of the Petroleum act 1998. The Decommissioning Programmes are for:

- The Hunter field pipelines and umbilical,
- The Rita field pipeline and umbilical,
- The Hunter WHPS and
- The Rita WHPS.

In 2019, permitted by a Preparatory Works Request, an Umbilical Termination Assembly (UTA) and associated items (detailed in section 2.5) were removed from the Hunter infrastructure as part of disconnection works from Murdoch K, ahead of approval of the associated Decommissioning Programme.

1.2 Requirement for Decommissioning Programmes

Pipelines:

In accordance with the Petroleum Act 1998, the Section 29 notice holders of the Hunter and Rita fields' pipelines (see Table 1.5 and 1.6) are applying to the Offshore Petroleum Regulator for Environment & Decommissioning (OPRED) to obtain approval for decommissioning the pipelines detailed in Section 2.1 of this programme. (See also Section 8 – Partner Letter(s) of Support).

Installations:

In accordance with the Petroleum Act 1998, the Section 29 notice holders of the Hunter and Rita fields' installations (see Table 1.2 and 1.3) are applying to the Offshore Petroleum Regulator for Environment & Decommissioning (OPRED) to obtain approval for decommissioning the pipelines detailed in Section 2.2 of this programme. (See also Section 8 – Partner Letter(s) of Support).

In conjunction with public, stakeholder and regulatory consultation, the Decommissioning Programmes are submitted in compliance with national and international regulations and OPRED guidelines. The schedule outlined in this document is for a four year decommissioning project plan due to begin in 2021.

1.3 Introduction

The Decommissioning Programmes have been prepared to support the decommissioning of the Hunter and Rita fields.

The Hunter field is located in the Southern North Sea (SNS), in UKCS block 44/23a, approximately 170 km north-east of the Lincolnshire coast of the United Kingdom. The Hunter field was discovered in 1992 by exploration well 44/23a-10, and developed with a single well in 2005, with first-gas in January 2006. The gas field comprises a single subsea well, tied back to the Murdock K field via an 8 km 8" diameter carbon steel gas pipeline. In turn, Murdock K is tied back to the 'CMSIII Northern Lobe' pigging skid and onwards to the Murdock MD platform of the Caister Murdock System (CMS) offshore facilities hub. Gas is exported from the CMS offshore facilities to the Theddlethorpe Gas Terminal (TGT) on the Lincolnshire Coast via a 180 km 26" diameter trunk line.

The Rita field is also located in the SNS, in UKCS blocks 44/21b and 44/21c, approximately 150 km north-east of the Lincolnshire coast. It was discovered in 1996 by exploration well 44/22c-9, and developed in 2008 with a single dual-lateral well, with first-gas in March 2009. Rita is tied back to the Hunter gas field via a 14 km 8" diameter gas pipeline.

In September 2016, the Hunter field owners received a notice of termination for the Transportation & Processing Agreement (TPA) that governs the provision of processing services provided to the field by TGT. As a consequence of cessation of operations at the terminal, the CMS owners and the CMSIII owners were no longer in a position to offer transportation services, and notices of termination for the remaining CMSIII/CMS export pipeline system were received in October 2016, with an effective date of the 1st October 2018.

As the Hunter field is cash flow negative, an assessment to replumb the field to alternative gas export infrastructure has not been undertaken, where the Capital Expenditure required would be far in excess of the remaining reserves, and therefore, production revenue. The cessation of operations at TGT and subsequently the CMS offshore facilities, the CMIII fields and the Hunter field, from October 2018, would also reduce the benefit to be gained from cost reduction initiatives, production optimisation solutions and enhanced recovery methods designed to extend the Rita field's life. Hence, the licensees submitted to the Oil & Gas Authority (OGA) for consideration a Cessation of Production (CoP) document.

Cessation of Production from both Hunter and Rita fields was approved on 21st January 2019.

The Hunter field consists of one exploration well (abandoned), one producer well, two pipelines and an umbilical. The Rita field consists of two exploration wells (abandoned), one producer well, one pipeline and an umbilical.

Following public, stakeholder and regulatory consultation, the Decommissioning Programmes are submitted without derogation and in full compliance with OPRED and Oil & Gas UK guidelines. The Decommissioning Programmes explain the principles of the removal activities and are supported by a Comparative Assessment (CA) of decommissioning options and an Environmental Appraisal (EA).

1.4 Overview of Installations/Pipelines Being Decommissioned

1.4.1 Installations

Table 1.1: Installations Being Decommissioned			
Field:	Hunter and Rita	Production Type (Oil/Gas/Condensate)	Gas
Water Depth (m)	Hunter: 33.5 Rita: 30.5	UKCS blocks	Hunter: 44/23a Rita: 44/22c
Subsea Installations		Number of Wells	
Number	Type	Platform	Subsea
2	WHPS	N/A	Hunter: 2 Rita: 3
Drill Cuttings pile(s)		Distance to median	Distance from nearest UK coastline
Number of Piles	Total Estimated volume (m ³)	km	km
Please refer to section 3.4 Drill Cuttings		Hunter: 23.8 (UK/NOR median) Rita: 37.3 (UK/NOR median)	Hunter: 167.8 Rita: 153.8

Table 1.2: Hunter Installation Section 29 Notice Holders Details		
Section 29 Notice Holders	Registration Number	Equity Interest (%)
Premier Oil E&P UK Limited	02761032	79
Neptune E&P UKCS Limited	03386464	21
Neptune Energy International	FR479920134	0
Premier Oil PLC	SC234781	0

Table 1.3: Rita Installation Section 29 Notice Holders Details		
Section 29 Notice Holder(s)	Registration Number	Equity Interest (%)
Premier Oil E&P UK Limited	02761032	76
Neptune E&P UKCS Limited	03386464	24
Neptune Energy International	FR479920134	0
Premier Oil PLC	SC234781	0

1.4.2 Pipelines

Table 1.4: Pipelines Being Decommissioned		
Number of Pipelines	3	(See Table 2.1 and 2.2)
Number of Umbilicals	2	(See Table 2.1 and 2.2)

Table 1.5: Hunter Pipelines Section 29 Notice Holders Details		
Section 29 Notice Holders	Registration Number	Equity Interest (%)
Premier Oil E&P UK Limited	02761032	79
Neptune E&P UKCS Limited (formerly Engie E&P UK Limited)	03386464	21
Neptune Energy International (formerly Engie E&P International)	FR479920134	0
Premier Oil PLC	SC234781	0

Table 1.6: Rita Pipelines Section 29 Notice Holders Details		
Section 29 Notice Holder(s)	Registration Number	Equity Interest (%)
Premier Oil E&P UK Limited	02761032	76
Neptune E&P UKCS Limited (formerly Engie E&P UK Limited)	03386464	24
Neptune Energy International (formerly Engie E&P International)	FR479920134	0
Premier Oil PLC	SC234781	0

1.5 Summary of Proposed Decommissioning Programmes

Table 1.7: Summary of Decommissioning Programmes		
Selected Option	Reason for Selection	Proposed Decommissioning Solution
1. Pipelines, Flowlines & Umbilicals		
Group 2*: Trenched & Buried Rigid Flowlines Leave <i>in-situ</i> .	Comparatively assessed as preferred option. The flowlines are sufficiently trenched and buried and stable posing no risk to marine users. Minimal seabed disturbance, lower energy use, reduced risk to personnel engaged in the activity.	Leave <i>in-situ</i> . Exposed ends & areas of exposure to be removed & returned to shore for recycling or appropriate treatment and disposal. Local rock placement to mitigate snag hazard from cut ends.
Group 4*: Trenched & Buried Flexible Flowlines & Umbilicals Full removal.	Leaves a clear seabed and meets regulations.	Full Removal. Returned to shore for recycling or appropriate treatment and disposal.
Group 5*: Trenched and buried Flexible (Failed) and umbilical Leave <i>in-situ</i> .	Comparatively assessed as preferred option. The flowlines are sufficiently trenched and buried and stable posing no risk to marine users. Minimal seabed disturbance, lower energy use, reduced risk to personnel engaged in the activity.	Leave <i>in-situ</i> . Exposed ends & areas of exposure to be removed & returned to shore for recycling or appropriate treatment and disposal. Local rock placement to mitigate snag hazard from cut ends.
Group 6*: Rigid Spool pieces and jumpers Full removal.	Leaves a clear seabed and meets regulations.	Full Removal. Returned to shore for recycling or appropriate treatment and disposal.
Group 8*: Protection and stabilisation features Full removal.	Leaves a clear seabed and meets regulations.	Full Removal. Returned to shore for recycling or appropriate treatment and disposal.
2. Wells		
Wells will be plugged and abandoned to Premier Oil E&P UK Limited standards which comply with "Offshore Installations and Wells (Design and Construction, etc.) Regulations 1996" and align with Oil & Gas UK Guidelines for the Suspension and Abandonment of Wells (Issue 6, June 2018).	Meets HSE regulatory requirements in accordance with O&G UK and OGA guidelines.	A Master Application Template (MAT) and the supporting Subsidiary Application Template (SAT) will be submitted in support of activities carried out. Applications to abandon the wells will be submitted through the Well Operations Notification System (WONS). Additionally, planned work will be reviewed by a well examiner to Premier Oil E&P UK Limited standards, then submitted to the HSE for review.
3. Subsea Installations		
Group 7*: Installations Hunter Xmas tree & WHPS and Rita Xmas tree & WHPS	Leaves a clear seabed and meets regulations.	Full Removal. Returned to shore for recycling or appropriate treatment and disposal.
4. Interdependencies		
The Hunter infrastructure has already been disconnected from Murdoch K. There may be opportunities to synergise with other CMS area decommissioning works.		

* Refers to the Inventory Group Categories as defined in the Comparative Assessment Report

1.6 Field Location Including Field Layout and Adjacent Facilities

Figure 1.1: Field Location in UKCS

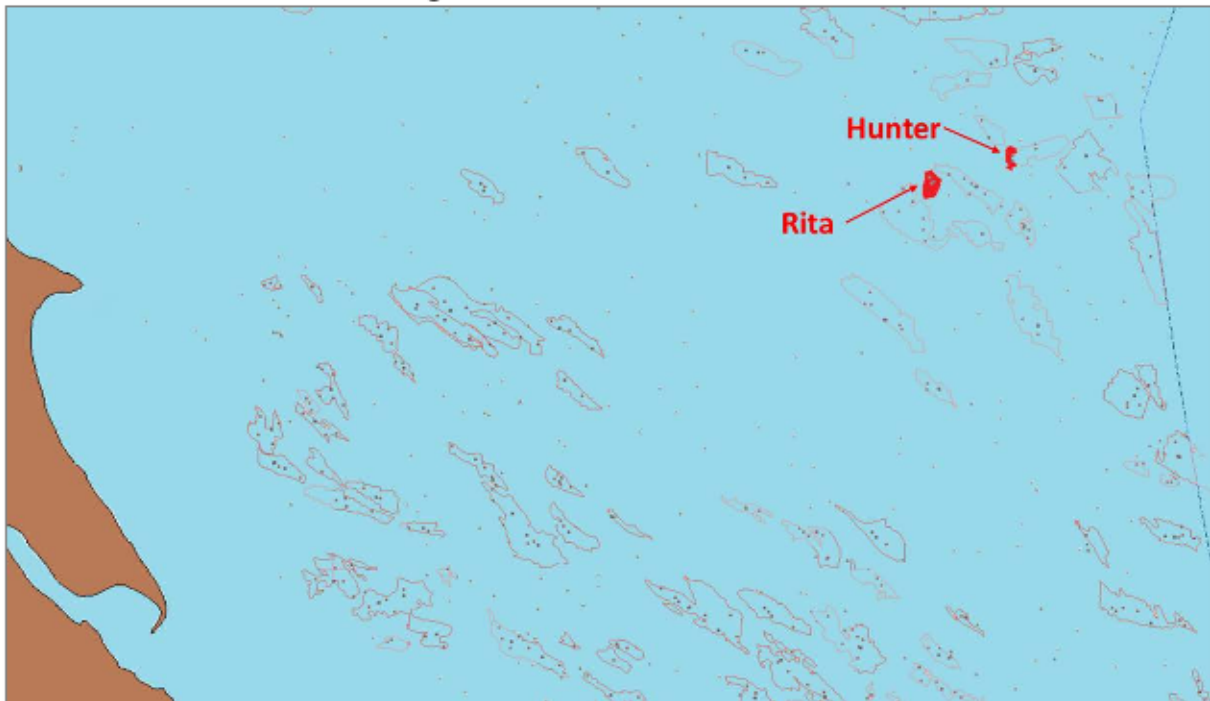


Figure 1.2: Field Layouts

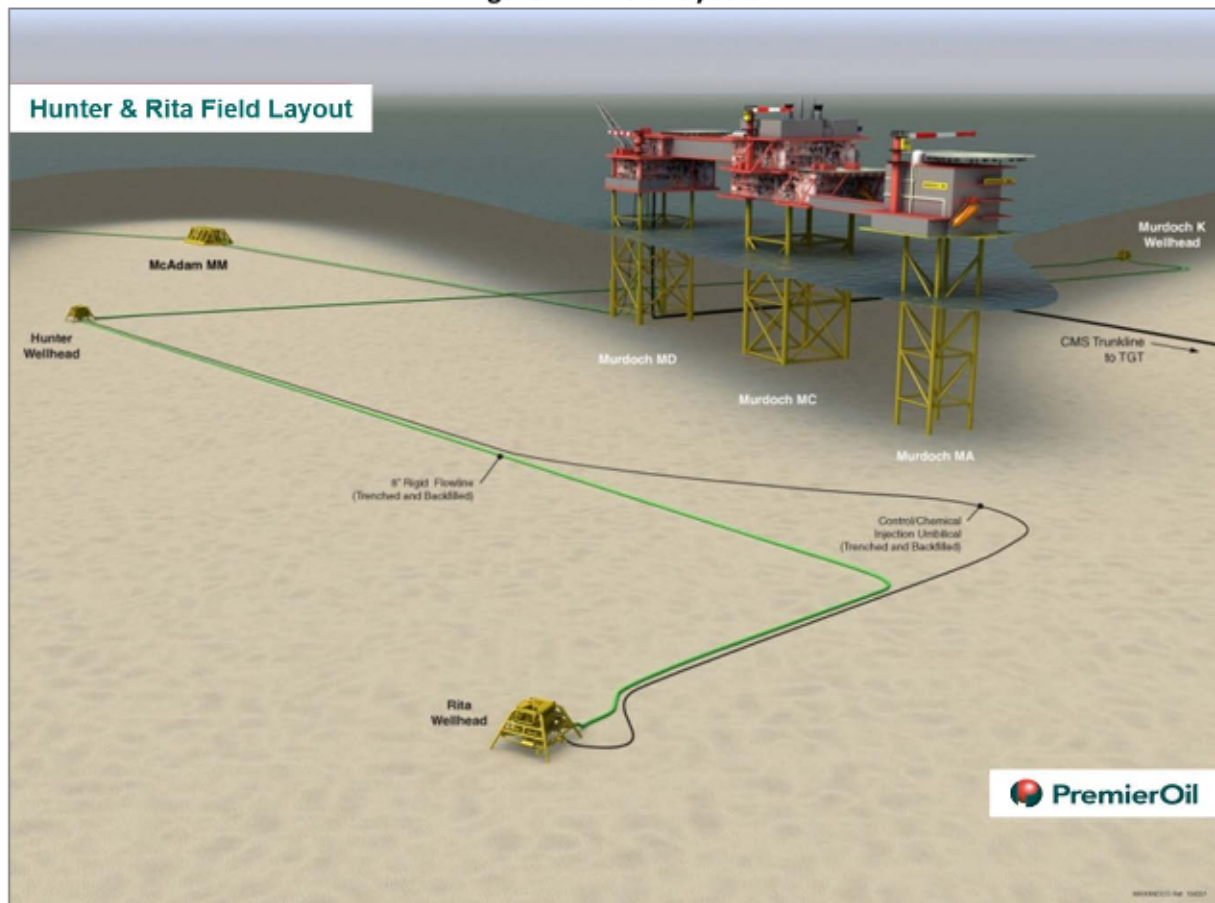


Figure 1.3: Example of concrete protection structures on the failed Hunter production line

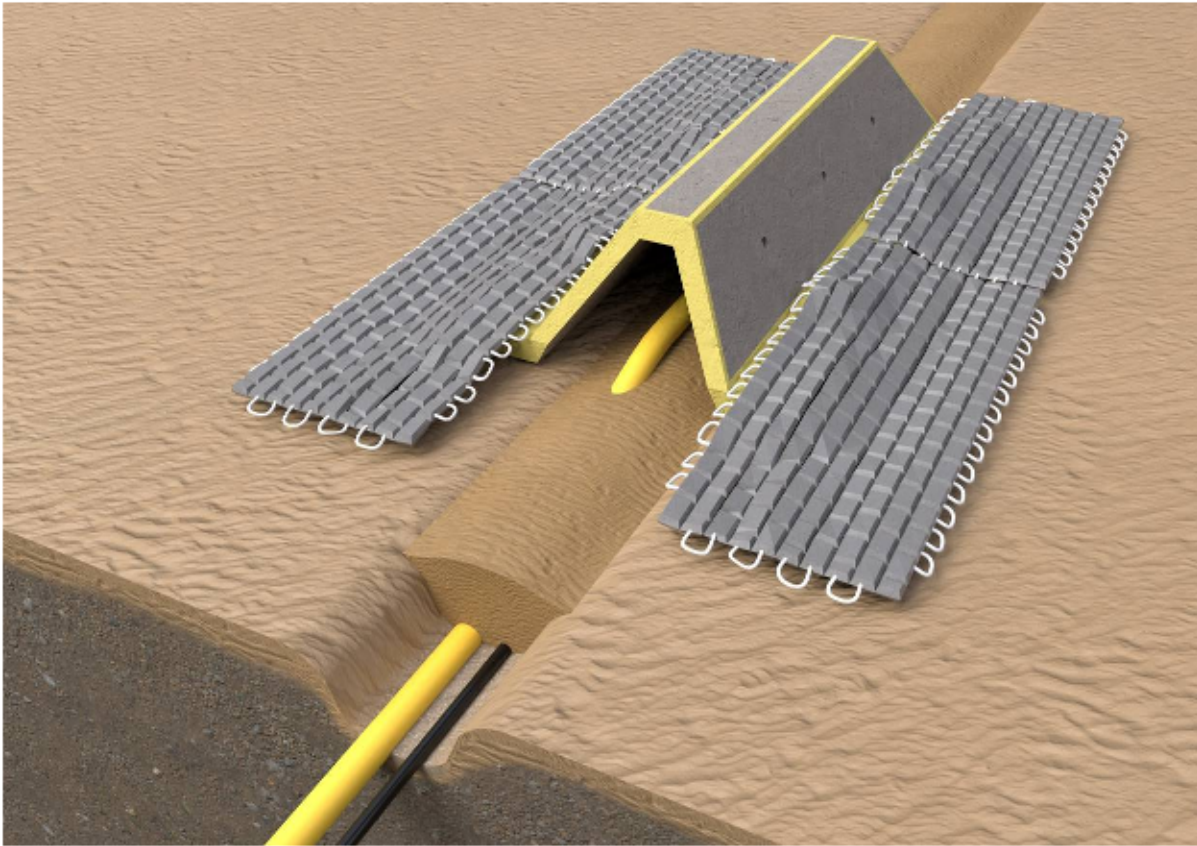


Table 1.8 Adjacent Facilities

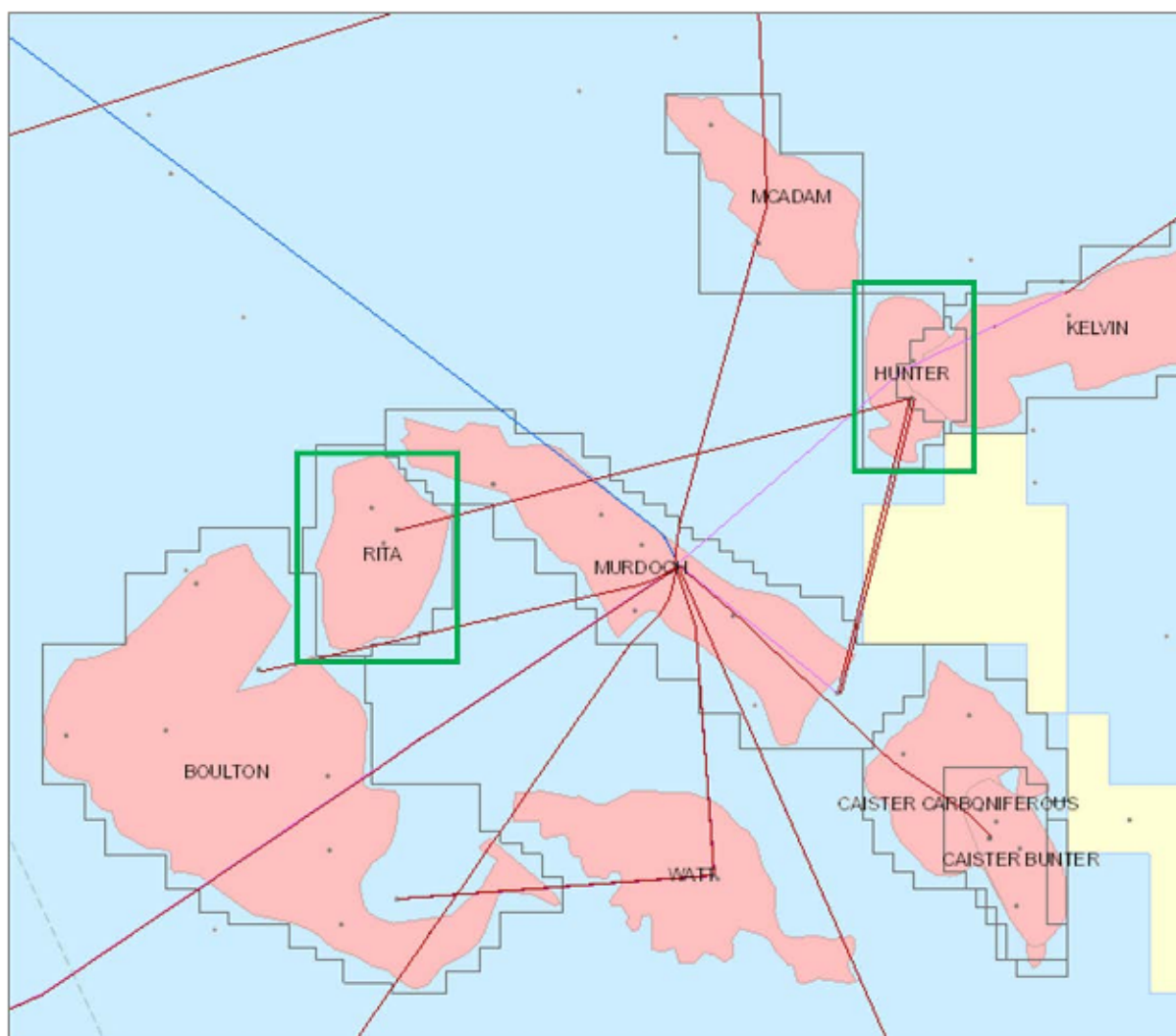
Operator	Name/ Type	Distance/ Direction (Hunter)	Distance/ Direction (Rita)	Information	Status
Chrysaor Production (U.K.) limited	Kelvin Subsea	4.9 km NE	N/A	Gas production through the Murdoch Platform	Shut-in
Chrysaor Production (U.K.) limited	Caister Platform	11.8 km SSE	N/A	Gas production through the Murdoch Platform	Shut-in
Chrysaor Production (U.K.) limited	Murdoch K Subsea	8 km SSW	N/A	Gas production through the Murdoch Platform	Shut-in
Chrysaor Production (U.K.) limited	McAdam Subsea	5.8 km NW	N/A	Gas production through the Murdoch Platform	Shut-In
Chrysaor Production (U.K.) limited	Murdoch Platform	7.7 km SW	7.4 km E	Gas production to Theddlethorpe Gas Terminal	Shut-in
Chrysaor Production (U.K.) limited	Watt Subsea	N/A	12.4 km SE	Gas production through the Murdoch Platform	Shut-in
Chrysaor Production (U.K.) limited	Boulton Platform	N/A	5.3 km SW	Gas production through the Murdoch Platform	Shut-in

Impacts of Decommissioning Proposals

The Hunter and Rita Fields decommissioning activities are planned so they will not affect the decommissioning of other fields or the operation of other developments in the area. The environmental appraisal will consider the potential cumulative implications of decommissioning activities in context of other oil and gas / other industry activities in the area.

Note: Adjacent facilities refer to those potentially impacted by this programme.

Figure 1.3: Adjacent Facilities



1.7 Industrial Implications

The Hunter and Rita decommissioning activities will be managed by Premier Oil in Aberdeen. All decommissioning activities will be planned to realise synergies and efficiencies in offshore execution, including scope aggregation with other Operators in the CMS area.

A Supply Chain Action Plan (SCAP) has been produced for these Decommissioning Programmes in accordance with OGA guidance. The SCAP has been submitted to and approved by the OGA. Premier Oil have some pre-existing Master Service agreements with specialist contractors, which were the result of previous tender exercises. These contractors will be asked to quote for services to support the decommissioning activity in the first instance. Other specialist services will be competitively tendered or novated. Suppliers' offers will be assessed along many criteria, among which are capacity to execute the work safely; the commercial offer and experience of carrying out this type of operation on the UKCS.

2 DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

2.1 Pipelines Including Stabilisation Features

Table 2.1: Hunter Pipelines / Umbilical Information										
Description	Pipeline Number (as per PWA)	Dia. (ins)	Length (km)	Description of Component Parts	Product Conveyed	End Points		Burial Status	Pipeline Status	Current Content
						From	To			
Production	PL2137	10.68	8.201	Flexible	Gas	Hunter Well	Murdoch K Manifold	Trenched & Buried	Out of Use (Disconnected)	Methanol & MEG residue in seawater
Umbilical	PLU2138	3.87	8.15	Umbilical	Hydraulics & Methanol	Laydown Point Adjacent to Murdoch K Template	Hunter Production Well CIV connection	Trenched & Buried	Out of Use (Disconnected)	Methanol, Hydraulic fluid
Production	PL3005	8.63	8.20698	Steel	Gas	Hunter Production Well	Laydown Point at Murdoch K Manifold	Trenched & Buried	Out of Use (Disconnected)	Filtered Seawater

Table 2.2: Rita Pipeline / Umbilical Information										
Description	Pipeline Number (as per PWA)	Dia. (ins)	Length (km)	Description of Component Parts	Product Conveyed	End Points		Burial Status	Pipeline Status	Current Content
						From	To			
Production	PL2528	8	14.1	Steel	Gas	Rita Production Well	Hunter Production Well Header Flange	Trenched & Buried	Out of Use (Disconnected)	Filtered Seawater
Umbilical	PL2529	3.94	14.13	Flexible	Hydraulics & Methanol	Hunter Production Well UTA	Rita Production Well CIV Connection	Trenched & Buried	Out of Use (Disconnected)	Methanol, Hydraulic fluid

Table 2.3: Subsea Pipelines Stabilisation Features

Stabilisation Feature	Total Number	Weight (Te)	Location(s)	Exposed/Buried/Condition
Concrete mattresses (6m x 3m x 0.3m, tapered long edge)	44	396	Various locations across Hunter field infrastructure	Partially covered in sediment, in good condition
Froned concrete mattresses (6m x 3m x 0.3m)	42	350	Placed on the edges of the upheaval buckling (UHB) protection structures	Partially covered in sediment, in good condition
Concrete mattresses (6m x 3m x 0.15m)	134	632	Various locations across Rita field infrastructure	Partially covered in sediment, in good condition
Grout bags*	150	3.8	Various locations across field infrastructure	Exposed, often covered in sediment, condition varies
UHB protection structure 6.9m x 3.88m x 1.5m (22.8 Te)	15	342	Placed over buckled sections of the failed Hunter production line (PL2137)	Exposed, in good condition, edges covered by concrete mattresses
UHB protection structure 8.6m x 3.88m x 1.5m (28.9 Te)	2	57.8		
UHB protection structure 9m x 3.88m x 1.5m (30.4 Te)	1	30.4		
Rockdump	N/A	Estimated 27,000	5 locations on the Hunter replacement pipeline (PL3005)	Exposed
Rockdump	N/A	Estimated 25,000	61 locations on the Rita infrastructure	Exposed

*Estimated using GVI footage and as-built drawings

2.2 Installations: Subsea Installations and Stabilisation Features

Table 2.4: Hunter Subsea Installation and Stabilisation Features

Subsea installations incl. Stabilisation Features	Number	Size (m)/ Weight (Te)	Location		Comments/Status
Hunter Xmas tree & WHPS	1	L6.4xW6.4xH4 55.9 Te	WGS84 Decimal	54.30778° N	Includes weight of protection structure
				2.41868° E	
			WGS84 Decimal Minute	54° 18.467' N	
				2° 25.121' E	

Table 2.5: Rita Subsea Installation and Stabilisation Features

Subsea installations incl. Stabilisation Features	Number	Size (m)/ Weight (Te)	Location		Comments/Status
Rita Xmas tree & WHPS	1	L6.4xW6.4xH4 55.9 Te	WGS84 Decimal	54.27625° N	Includes weight of protection structure
				2.20917° E	
			WGS84 Decimal Minute	54° 16.575' N	
				2° 12.550' E	

2.3 Wells

Well abandonment categorisation reports have been prepared for the Hunter and Rita wells, in accordance with the OGUK Well Decommissioning Guidelines, Issue 6, June 2018.

Table 2.6: Well Information					
Location	Subsea Wells				
	WONS Name Current bore	Designation	License	Status	Category of Well
Hunter	44/23a-10	Exploration	P452	Abandoned (Phase 1)	SS 3-3-3
	44/23a-12z	Producer	P452	Completed (Shut In)	SS 3-3-3
Rita	44/21b-11	Exploration	P766	Abandoned (Phase 3)	N/A
	44/22c-9	Exploration	P771	Abandoned (Phase 3)	N/A
	44/22c-12z	Producer	P771	Completed (Shut-in)	SS 3-3-3

2.4 Drill Cuttings

(See Section 3.4 for further information)

Table 2.7: Drill Cuttings Pile(s) Information		
Location of Pile Centre (Latitude/Longitude)	Seabed Area (m ²)	Estimated volume of cuttings (m ³)
N/A	N/A	N/A

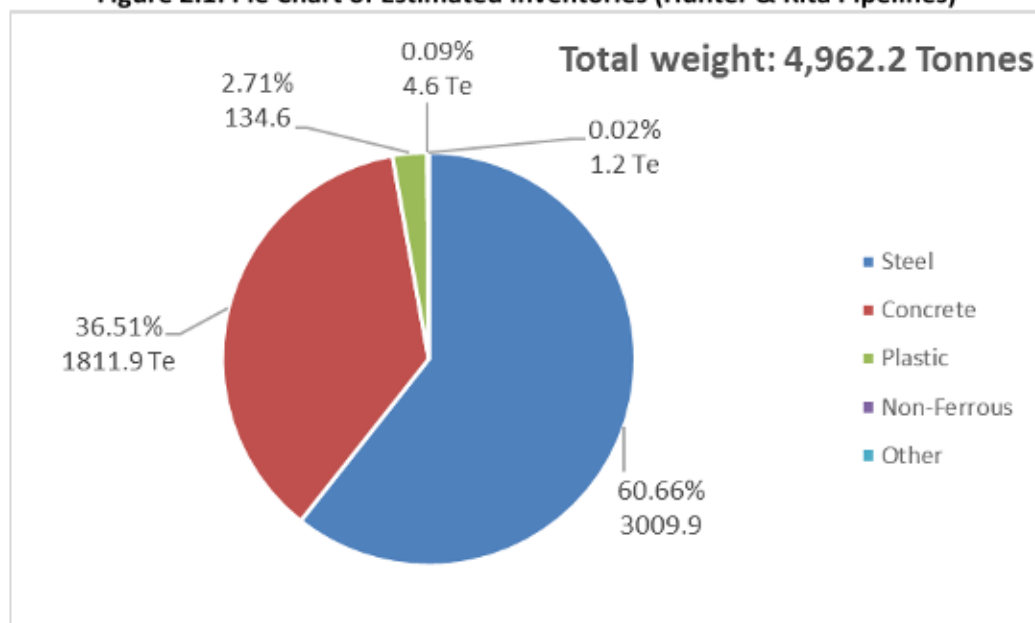
2.5 Inventory Estimates

Table 2.8 provides an estimate of the total weight of materials associated with the Hunter and Rita pipelines.

A further breakdown of the inventory estimates for the Hunter and Rita pipelines is provided in Figure 2.1.

Table 2.8: Inventory of materials associated with Hunter & Rita Pipelines		
Item	Description	Weight Te
Metals	Steel(all grades)	3009.9
	Non-Ferrous (copper, aluminium)	4.6
Concrete	Aggregates (mattresses, UHB structures, etc.)	1811.9
Plastic	Rubbers, polymers	134.6
Hazardous	Residual fluids (hydrocarbons, chemicals)	Trace
	NORM scale	Trace
Other	Bitumen	1.2
Total (Tonnes)		4962.2

Figure 2.1: Pie Chart of Estimated Inventories (Hunter & Rita Pipelines)



Please refer to the Hunter & Rita Decommissioning Environmental Appraisal for further details.

The following items of the Hunter infrastructure were recovered under a Preparatory Works Request in 2019, and are therefore not included in the above inventory:

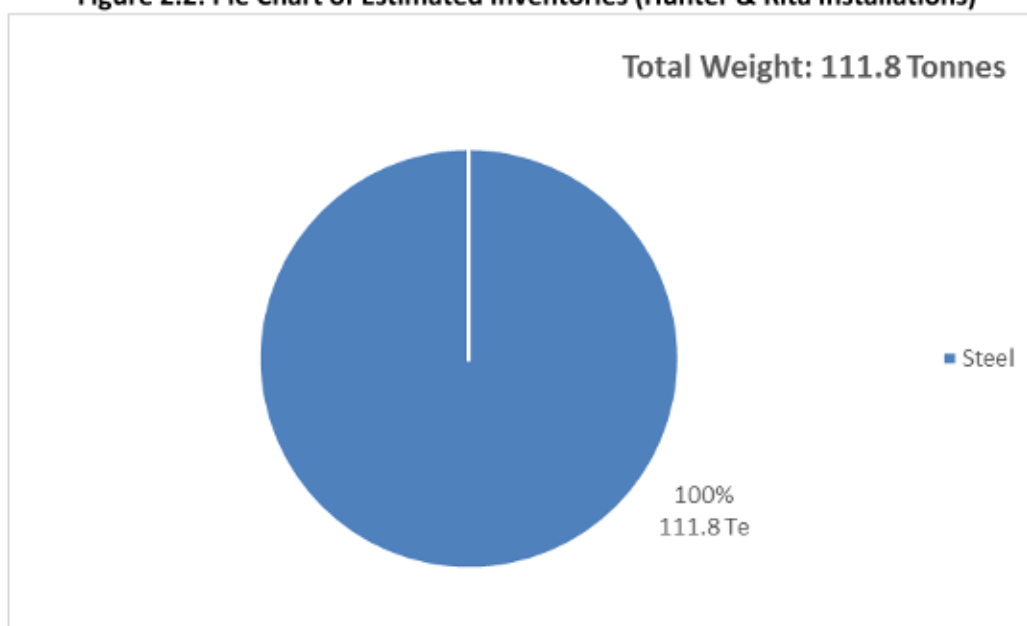
- 1.4m section of PL3005 to Murdoch KM 8" Tie-in Spool
- 1 x UTA-8 with 2m tail of umbilical PLU2138
- 1 off 6m x 3m x 0.3m concrete mattress and 50 grout bags
- 3 x hydraulic and 4 x electrical jumpers
- 3 x methanol jumpers with methanol distribution unit (MDU)

Table 2.9 provides an estimate of the total weight of materials associated with the Hunter and Rita installations.

A further breakdown of the inventory estimates for the Hunter and Rita installations is provided in Figure 2.2.

Table 2.9: Inventory of materials associated with Hunter & Rita Installations		
Item	Description	Weight Te
Metals	Steel(all grades)	111.8
Total (Tonnes)		111.8

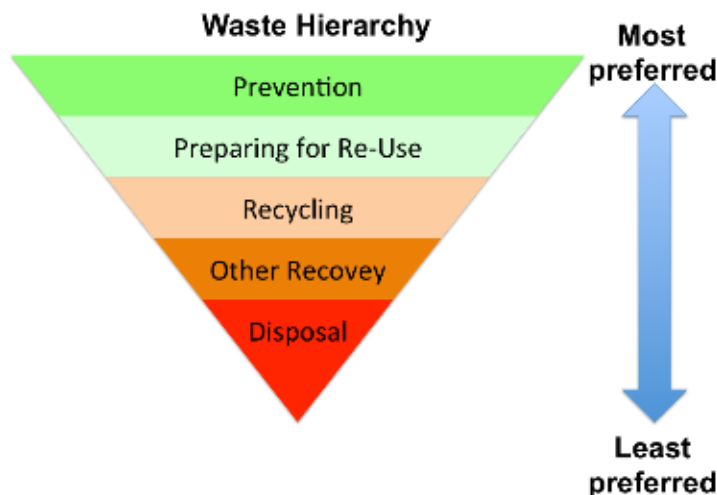
Figure 2.2: Pie Chart of Estimated Inventories (Hunter & Rita Installations)



Please refer to the Hunter & Rita Decommissioning Environmental Appraisal for further details.

3 REMOVAL AND DISPOSAL METHODS

Decommissioning of the Hunter and Rita fields will generate a quantity of waste. Premier Oil is committed to establishing and maintaining environmentally acceptable methods for managing wastes in line with the Waste Framework Directive and principles of the waste hierarchy:



Recovered infrastructure will be returned to shore and transferred to a suitably licenced waste treatment facility. It is expected that the recovered infrastructure, i.e. WHPS, flowlines and umbilicals will be cleaned before being largely recycled.

Concrete mattresses, protection structures and grout bags that are recovered, will be cleaned of marine growth if required, and either reused, recovered as aggregate for infrastructure projects or disposed of in landfill sites.

An appropriately licensed disposal company and yard will be identified through a selection process that will ensure that the chosen facility demonstrates a proven track record of waste stream management throughout the deconstruction process, the ability to deliver innovative reuse / recycling options, and ensure the aims of the waste hierarchy are achieved.

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 regulatory authorities will ensure that any issues with TFSW are addressed.

Premier Oil will engage with other companies and industries to identify potential reuse opportunities. However, Premier Oil believes that such opportunities are best achieved through the tendering and selection of a waste management contractor with the expert knowledge and experience in this area.

3.1 Pipelines

Decommissioning Options:

Key to Options:

- | | | |
|-----------------------------------|-------------------------------------|-------------------------------|
| 1) Re-Use | 2e) Lift and Cut with Deburial | 4c) Remove Exposures |
| 2a) Cut and Lift with Deburial | 3a) Retrench and Bury Entire Line | 4d) Accelerated Decomposition |
| 2b) Reverse Reel without Deburial | 3b) Rock Placement over Entire Line | 5) Remove Ends & Remediate |
| 2c) Reverse Reel with Deburial | 4a) Rock Placement over Exposures | Snag Risk |
| 2d) Lift and Cut without Deburial | 4b) Trench & Bury Exposures | 6) Leave As-is |

Table 3.1: Pipeline or Pipeline Groups Decommissioning Options

Pipeline or Group (as per PWA)	Condition of line/group (Surface laid/Trenched/ Buried/ Spanning)	Whole or part of pipeline/group	Decommissioning Options considered
Group 2: Trenched & Buried Rigid Flowlines PL3005, PL2528	Trenched & Buried (See burial profile in Appendix II)	Whole	2a, 2b, 2c, 2d, 2e, 4d and 5
Group 4: Trenched & Buried Flexible Flowlines & Umbilicals PLU2529	Trenched & Buried	Whole	2a, 2b, 2c, 2d, 2e and 5
Group 5: Trenched & Buried Flexible Flowline (failed) & Umbilical PL2137, PLU2138	Trenched & Buried	Whole	2a, 2b, 2c, 2d, 2e, 4a, 4b and 4c
Group 6: Rigid Spools PL2137, PL3005, PL2528	Surface Laid	Whole	Full Removal

Comparative Assessment Method:

Comparative Assessment is integral to the overall planning and approval of decommissioning options. Premier Oil's strategy for the Comparative Assessment process is aligned with the Oil & Gas UK Guidelines for Comparative Assessment in Decommissioning Programmes and OPRED Guidance Notes for the Decommissioning of Offshore Oil & Gas Installations and Pipelines.

Premier Oil has scoped all of the infrastructure into logical groupings. All feasible decommissioning options for each of the infrastructure groups have been identified, assessed, ranked and screened, utilising the OPRED Guidance Notes: Decommissioning of Offshore Oil and Gas Installations and Pipelines to carry forward credible decommissioning options to be assessed through the comparative assessment process.

The comparative assessment process uses five assessment criteria, which are: Safety, Environment, Technical, Societal and Economic to compare the relative merits of each credible decommissioning option for each group of infrastructure. The assessment criteria are equally weighted to balance and represent the views of each of the stakeholders.

An independent consultancy utilising its bespoke Multi Criteria Decision Analysis (MCDA) process was employed to facilitate comparative assessment workshops. The workshops were attended by specialists from the Operator, Field Partners and representatives from key stakeholders namely:

- Scottish Fishermen’s Federation
- National Federation of Fishermen's Organisations
- Joint Nature Conservation Committee
- Health and Safety Executive
- OPRED EMT
- OPRED ODU (observers)
- Premier Oil E&P UK Limited
- Neptune E&P UKCS Limited

At each workshop, each decommissioning option for each infrastructure grouping was assessed against each of the assessment criteria utilising a pairwise comparison system. The relative importance of each of the criteria was assessed in a qualitative way, supported by quantification where appropriate.

The process provides for differentiation between decommissioning options in each infrastructure group taking account of stakeholder views.

Outcome of Comparative Assessment:

Table 3.2: Outcomes of Comparative Assessment		
Pipeline or Group	Recommended Option*	Justification
Group 2: Trenched & Buried Rigid Flowlines PL3005, PL2528	Option 5 - Remove ends and remediate snag hazards	Option 5 was clearly preferred against the Safety, Environment and Technical criteria. Once the Economics criterion was considered, this strengthens the preference for Option 5. Given that this option eliminates exposures and exposed end, this will be the recommended choice.
Group 4: Trenched & Buried Flexible Flowlines & Umbilicals PLU2529	Option 2b – Reverse reel without Deburial	Option 2b was preferred against the Safety and Societal criteria. Overall, without including economics, there is a small preference for option 2b. Once the Economics criterion was considered, this strengthens the preference for this option.
Group 5: Trenched & Buried Flexible Flowline (failed) & Umbilical PL2137, PLU2138	Option 4c – Remove exposures	Collectively, option 4c was the most preferred option prior to economics being considered. Once the Economics criterion was considered, this option remained the most preferred option.
Group 6: Rigid Spools PL2137, PL3005, PL2528	Full Removal	Items are surface laid and recoverable.

3.2 Subsea Installations and Pipeline Stabilisation Features

Table 3.3: Subsea Installations and Pipeline Stabilisation Features			
Stabilisation features	Number	Option	Disposal Route (if applicable)
Xmas tree & WHPS	2	Full recovery	Recover and transport ashore for recycling or other waste treatment as appropriate.
Concrete mattresses	220	Full recovery - It is intended that the mattresses will be recovered to shore, however, in the event of practical difficulties OPRED will be consulted.	Recover and transport ashore for recycling or other waste treatment as appropriate.
UHB protection structures	18	Full recovery - It is intended that the structures will be recovered to shore, however, in the event of practical difficulties OPRED will be consulted.	Recover and transport ashore for recycling or other waste treatment as appropriate.
Grout bags	150	Full removal is intended with an option to reuse on location.*	Recover and transport ashore for recycling or other waste treatment as appropriate.
Rock Dump (Te)	52,000 (Te)	To remain in place.	N/A

*A number of grout bags may be redeployed/repurposed locally as snagging hazard mitigation.

3.3 Wells

Table 3.4: Well Plug and Abandonment

The wells for the Hunter and Rita Fields covered by this Decommissioning Programmes will be plugged and abandoned, as listed in Section 2.3 (Table 2.6) in accordance with Oil & Gas UK Guidelines for the Suspension and Abandonment of Wells, Issue 6, June 2018.

A WONS application update will be submitted along with an appropriate suite of permit applications, via the UK Energy Portal, in support of each well abandonment.

3.4 Drill Cuttings

The Hunter Field was discovered in 1992, so it is possible that oil-based mud would have been discharged from the exploration well. However, the development well was drilled in 2005, suggesting that there would have been no oil-based discharge associated with drilling this development well. The currently available surveys do not cover the Hunter site so the presence of drill cuttings and the composition of the discharged mud cannot be determined. However, Premier will carry out an Environmental Baseline Survey before commencement of the decommissioning activities.

The Rita Field was discovered in 1996, therefore oil-based mud would not have been discharged to sea during exploration. This is reflected in the low THC and metals concentrations recorded in the 2006 surveys. Because the surveys were conducted before the Rita development well was drilled it is not possible to comment on the effects of the drilling discharges on the seabed fauna, but it is possible to state that oil-based drilling fluid will not be present.

Metals concentrations were generally low across the Rita Field and the survey route to the Boulton H manifold. Indeed, concentrations of the majority of the metals analysed were less than, or comparable to, 'pristine sediment' concentration data given by OSPAR (2005). Barium concentrations were all low, strongly suggesting that the sediments did not contain barite-rich drill cuttings.

3.5 Waste Streams

The Premier Oil Waste Management Strategy specifies the requirements for the contractor waste management plan. The waste management plan will be developed once the contract has been awarded during the project execution phase. The plans shall adhere to the waste stream licensee conditions and controlled accordingly. Discussion with the regulator will ensure that all relevant permits and consents are in place.

Table 3.5: Waste Stream Management Methods	
Waste Stream	Removal and Disposal method
Bulk liquids	N/A (The Hunter and Rita pipelines have been flushed/de-oiled and disconnected in 2019.)
Marine growth	Some marine growth may be removed offshore. Onshore disposal will be managed by the selected waste management contractor.
NORM/LSA Scale	NORM contaminated material may be returned to shore to be disposed of by the selected onshore waste management contractor.
Asbestos	N/A
Other hazardous wastes	Will be recovered to shore and will be managed by the selected waste management contractor and disposed of under the appropriate permit. The inventory of hazardous materials will identify hazardous materials present and Premier Oil's risk management process will be used to prevent spills offshore.
Onshore Dismantling sites	Appropriate licenced contractor and sites will be selected. Facility selected must demonstrate competence and proven disposal track record and waste stream management & traceability throughout the deconstruction process and (preferably) demonstrate their ability to deliver innovative recycling options.

Table 3.6: Inventory Disposition			
	Total Inventory Tonnage	Planned tonnage to shore	Planned left <i>in situ</i>
Hunter pipelines	1575	65	1510
Hunter umbilical	120.5	1.5	119
Rita pipeline	1314	21.5	1292.5
Rita umbilical	222	220.5	1.5

Refer to the Hunter-Rita Decommissioning Environmental Appraisal Report for further details.

All recovered material will be brought onshore for re-use, recycling or disposal. It is not possible to predict the market for reusable materials with any confidence so, the figures in Table 3.7 are disposal aspirations.

Table 3.7: Recovered Inventory Reuse, Recycle, Disposal Aspirations			
	Reuse	Recycle	Disposal
Pipelines	<5%	>95%	<5%
Umbilicals	<5%	>95%	<5%
Subsea Installations	<5%	>95%	<5%

4 ENVIRONMENTAL APPRAISAL

4.1 Environmental Sensitivities (Summary)

Table 4.1: Environmental Sensitivities	
Environmental Receptor	Main Features
Conservation interests	<p>The Hunter and Rita fields are located within the Southern North Sea SAC and Dogger Bank SAC. The Southern North Sea SAC has been designated for the protection of the Annex II species harbour porpoise (<i>Phocoena phocoena</i>) and its relevant habitat. The Dogger Bank SAC has been designated for the protection of the Dogger Bank, a vast shallow sandbank feature characterising the northeast Southern North Sea. The Dogger Bank is an area of Annex I habitat 'Sandbanks which are slightly covered by sea water all the time'.</p> <p>No living specimens of <i>A. islandica</i>, or infaunal siphons were observed during site specific environmental survey data within the Hunter or Rita fields. However, nearby surveys found one adult and seven juvenile ocean quahogs within the Caister and Murdoch fields.</p>
Seabed Habitats and Fauna	<p>Previous survey reports detail the environmental conditions across the Murdoch and Caister fields adjacent the Hunter & Rita field areas and supplement survey data from the pre-development site and route surveys for the Rita field.</p> <p>Water depths across the Rita survey area range from 31.2 m at the north of the site survey extent to 36.2 m at the Boulton manifold approximately 8 km to the south of the Rita well. The seabed across the Murdoch field conformed to EUNIS habitats A5.14 "circalittoral coarse sediment" and A5.25 "circalittoral fine sand", with sediments ranging from very poorly- to moderately well-sorted fine to coarse sand with negligible fines (Gardline, 2007a-d).</p> <p>While there was some evidence of sediment contamination at the Murdoch and Caister fields, there were only very low concentrations of many of the typical indicators of anthropogenic activity at Rita, which suggests that oil and gas activities have not significantly impacted the sediments in this region (Gardline, 2016). Metals concentrations were generally low across the Rita Field and the survey route to the Boulton H manifold. Indeed, concentrations of the majority of the metals analysed were less than, or comparable to, 'pristine sediment' concentration data given by OSPAR (2005).</p> <p>The Hunter and Rita Fields are located on the outer edge of the Dogger Bank. This general area is characterised by the presence of the polychaete species, <i>Ophelia borealis</i> and <i>Goniada maculata</i>, and opportunistic small polychaete species (e.g. <i>Spiophanes bombyx</i>, <i>Scoloplos armiger</i> and <i>Magelona spp.</i>) (Kröncke & Knust, 1995). Macrofauna abundance and the number of taxa present in the Rita site and route surveys was lower than for previous surveys in the area. However, the high number of single and low abundance species, and absence of super-abundant species, is not representative of highly disturbed communities. Moreover, it was determined that the variation in the macrofaunal community across the site was due to natural variation in sediment characteristics rather than disturbance (Gardline, 2007a-d).</p>

Fish	<p>The project area is located within the spawning grounds of cod (<i>Gadus morhua</i>), herring (<i>Clupea harengus</i>), mackerel (<i>Scomber scombrus</i>), Norway lobster (<i>Nephrops norvegicus</i>), plaice (<i>Pleuronectes platessa</i>), sandeel (<i>Ammodytidae spp.</i>), sole (<i>Solea solea</i>), sprat (<i>Sprattus sprattus</i>) and whiting (<i>Merlangius merlangus</i>) (Coull <i>et al.</i>, 1998; Ellis <i>et al.</i>, 2012).</p> <p>The following species have nursery grounds in the vicinity of the project: anglerfish (<i>Lophius piscatorius</i>), blue whiting (<i>Micromesistius poutassou</i>), cod, European hake (<i>Merluccius merluccius</i>), herring, ling (<i>Molva molva</i>), mackerel, Norway lobster, sandeel, sprat, spurdog (<i>Squalus acanthias</i>), tope shark (<i>Galeorhinus galeus</i>) and whiting (Coull <i>et al.</i>, 1998; Ellis <i>et al.</i>, 2012).</p> <p>Aires <i>et al.</i> (2014) provided modelled spatial representations of the predicted distribution of 0 age group fish. The modelling indicates the presence, in low densities, of juvenile fish (less than one year old) for multiple species covering UKCS Blocks 44/22 and 44/23: haddock (<i>Melanogrammus aeglefinus</i>), Norway pout (<i>Trisopterus esmarkii</i>), herring, horse mackerel (<i>Trachurus trachurus</i>) and sprat. The probability of an aggregation of juvenile whiting being in the Hunter/Rita area is slightly higher (probability = 0.2; Aires <i>et al.</i>, 2014).</p>
Marine Mammals	<p>The following cetacean species are known to be sighted frequently or seasonally in the vicinity of the Hunter and Rita Fields: harbour porpoise; minke whale; bottlenose dolphin; Atlantic white-sided dolphin and white-beaked dolphin (Reid <i>et al.</i>, 2003). Of these, harbour porpoise, white-beaked dolphins and minke whales regularly occur within the vicinity of Hunter/Rita (Hammond <i>et al.</i>, 2017).</p> <p>Seal densities are low across the project area due to its distance from shore (SMRU and Marine Scotland, 2017).</p>
Seabirds	<p>Seabirds that may feed offshore within the project area include many cliff nesting birds such as common guillemot (<i>Uria aalge</i>), black-legged kittiwake (<i>Rissa tridactyla</i>), razorbill (<i>Alca torda</i>), northern fulmar (<i>Fulmarus gracilis</i>), northern gannet (<i>Morus bassanus</i>) and Atlantic puffin (<i>Fratercula arctica</i>).</p> <p>In Blocks 44/22 and 44/23 and their surrounding blocks, the sensitivity of seabirds to oil pollution reflected by the SOSI, is medium to extremely high in July, and high to extremely high between November and January (Webb <i>et al.</i>, 2016). There is limited data available in the months of January, February, April, May, October and November for all of the relevant blocks, such that conservative indirect assessments of oiling potential were required (Webb <i>et al.</i>, 2016).</p>
Commercial Fisheries	<p>Hunter and Rita are located in International Council for the Exploration of the Seas (ICES) rectangle 3742 (Scottish Government, 2019a). Between 2014 and 2018, demersal species comprised the greatest total and average live weights, whilst shellfish contributed the most to the value of landings within 37F2 (Scottish Government, 2019). The most commercially important species caught in ICES rectangle 37F2 plaice, Norway lobster, turbot, sole, lemon sole and brill. All the species are caught using either demersal trawl and seine nets (Scottish Government, 2019).</p> <p>Average annual fishing effort was slightly lower than in the UK average across the five most recent published fishing years (2014-2018). The majority of fishing vessel activity in the project area consisted of transiting fishing vessels and some minor trawling. Extensive <i>Nephrops</i> trawling occurs to the north and south of the Hunter and Rita fields.</p>
Other Users of the Sea	<p>In the area comprising the Hunter and Rita fields, sea users other than commercial fisheries mainly relate to offshore oil and gas and offshore wind farm development. The closest oil and gas installation is the Chrysaor operated Boulton platform located 5.2 km southwest of Rita, though the precommissioned Chrysaor project, Kelvin, will be situated within 4.8 km northeast of Hunter.</p>

	<p>There are three renewable energy sites located within 40 km of the project area. The closest wind farm development is the Hornsea 3 offshore wind farm development, which is located 31.9 km to the southeast of the Rita field. Nearby, the Hornsea 2 offshore wind farm development is located 32.9 km to the southwest and Hornsea 1 offshore wind farm is located 36.2 km to the southwest of the Rita field as well (Crown Estate, 2016).</p> <p>Shipping activity across the project area is very moderate across the decommissioning area. Transiting vessels included cargo, passenger and operations vessels. There are no known wrecks within the vicinity of the field.</p>
<p>Atmosphere</p>	<p>The majority of atmospheric emissions for the Hunter/Rita decommissioning relate to vessel time or are associated with the recycling of material returned to shore. As the decommissioning activities proposed are of short duration, this aspect is not anticipated to result in significant impacts. The estimated CO₂ emissions to be generated by the vessel operations associated with the selected decommissioning options are 11,829 Te, this equates to 0.15% of the total UKCS vessel emissions (excluding fishing vessels) in 2017 (7,800,000 Te; BEIS, 2019a). A further 9,997 Te CO₂ will be generated through the life cycle of the project materials; those recovered and not reused or left in situ. This equates to a total CO₂ production of 21,826 Te associated with the proposed decommissioning activities.</p>
<p>Onshore Communities</p>	<p>Waste generated during decommissioning will be transported to shore in an auditable manner through licensed waste contractors, as managed under Hunter and Rita's waste management plan (WMP). Wastes will be treated using the principles of the waste hierarchy, as defined in the WMP, focusing on the reuse and recycling of wastes where possible. Raw materials will be returned to shore with the expectation to recycle the majority of the returned material. There may be instances where infrastructure returned to shore is contaminated (e.g. by NORM, hazardous, and/or special wastes) and cannot be recycled. In these instances, the materials will require disposal. However, the weight and/or volume of such material is not expected to result in substantial landfill use.</p>

4.2 Potential Environmental Impacts and their Management

Environmental Appraisal Summary:

The EA addresses potential environmental and societal impacts by characterising the likelihood and significance of interactions between the proposed decommissioning activities and the local environment, whilst considering stakeholder response. The EA also details mitigation measures designed to abate potential impacts in accordance with Premier’s Environmental Management System (EMS) and Health, Safety, Environment and Security (HSES) Policy.

Key potential environmental and societal impacts which were considered to be ‘potentially significant’, and thus requiring further assessment, were identified through an environmental issues identification (ENVID) workshop; they include: seabed impacts and impacts to commercial fisheries. These potential impacts have undergone detailed assessment within the EA. The following environmental and societal impacts were screened out from further assessment due to existing controls limiting the likelihood of potential significant impacts: impacts to water quality; emissions to air; vessel presence; underwater noise emissions; resource use; onshore activities; waste; and unplanned events. The justifications for screening out these impact pathways are detailed in the accompanying EA.

The EA concludes that the recommended options to decommission the Hunter and Rita Fields’ subsea pipelines and installations can be completed without causing significant impact to environmental or societal receptors.

Overview:

Table 4.2 describes the potential impact pathways identified from the relevant infrastructure to be decommissioned, alongside the proposed management measures in place to mitigate against them.

Table 4.2: Environmental Impact Management		
Activity	Main Impacts	Management
Subsea Installations Removal (incl. Stabilisation Features)	Seabed impacts from: <ul style="list-style-type: none"> excavation of buried infrastructure and stabilisation materials; removal of grout bags and stabilisation materials; and recovery of infrastructure. Impacts to commercial fisheries from project activities excluding access to fishing grounds.	Vessel use will be optimised/minimised for the decommissioning activities and managed per Premier’s existing vessel management procedures, including a vessel work programme. The 500 m safety exclusion zone will remain in operation during the decommissioning activities reducing risk of non-project related vessels entering into the area where decommissioning activities are taking place. This safety exclusion zone will be removed following the completion of the relevant decommissioning activities enabling fisheries to regain access to grounds. Fishing activities have the potential to increase in the area once the 500 m safety zones surrounding the existing substructures are re-assessed. Use of established contractors with appropriate capability, licences and maintenance procedures will be selected and audited. Other sea users will be notified in advance of activities occurring and Premier keeps manned bridges.

		<p>The infrastructure is currently shown on Admiralty Charts and the FishSafe system. When decommissioning activity has been completed, updated information will be made available to update Admiralty Charts and FishSafe system.</p> <p>All pipeline routes and installation sites will be the subject of oilfield debris clearance and as-left verification surveys when decommissioning activity has concluded.</p>
<p>Decommissioning Rigid Flowlines (incl. Stabilisation Features)</p>	<p>Seabed impacts from decommissioning of rigid flowlines <i>in situ</i>:</p> <ul style="list-style-type: none"> • cutting ends and recovery of lengths of flowlines; and • deposition of new rock armour to protect ends and previously cut exposures (where required). <p>Snagging risk to commercial fisheries associated with pipelines decommissioned <i>in situ</i>.</p>	<p>Operations will be conducted as carefully as possible to minimise sediment disturbance, avoiding dragging of items on the seabed where possible. No sediment will be removed from the seabed as a result of the proposed activities.</p> <p>Rock dumping will be carefully managed (e.g. through use of an ROV to limit the areas covered) thereby reducing unnecessary spreading and depth of coverage to that required to ensure no snagging hazards remain. Where possible, rock bags will be reused as stabilisation materials during decommissioning.</p> <p>The infrastructure is currently shown on Admiralty Charts and the FishSafe system. When decommissioning activity has been completed, updated information will be made available to update Admiralty Charts and FishSafe system.</p> <p>Any snagging risk to other sea users will be minimised by continual monitoring of degrading structures or free spans (type and frequency to be determined through a risk-based approach but will be agreed with OPRED).</p> <p>All pipeline routes and installation sites will be the subject of oilfield debris clearance and as-left verification surveys when decommissioning activity has concluded.</p>
<p>Decommissioning Surface-laid and Buried Flexible Flowlines (incl. Stabilisation Features)</p>	<p>Seabed impacts from:</p> <ul style="list-style-type: none"> • cutting ends and recovery of lengths of flowlines • reverse-reeling of surface-laid and buried flexible flowlines; and • removal of stabilisation features. <p>Impacts to commercial fisheries from project activities excluding access to fishing grounds.</p>	<p>Operations will be conducted as carefully as possible to minimise sediment disturbance, avoiding dragging of items on the seabed where possible. No sediment will be removed from the seabed as a result of the proposed activities.</p> <p>Rock dumping will be carefully managed (e.g. through use of an ROV to limit the areas covered) thereby reducing unnecessary spreading and depth of coverage to that required to ensure no snagging hazards remain. Where possible, rock bags will be reused as stabilisation materials during decommissioning.</p> <p>Excavated areas remediated and any berms created profiled to mitigate snagging risks to other sea users.</p> <p>Vessel use will be optimised/minimised for the decommissioning activities and managed per Premier's existing vessel management procedures, including a vessel work programme.</p>

		<p>The 500 m safety exclusion zone will remain in operation during the decommissioning activities reducing risk of non-project related vessels entering into the area where decommissioning activities are taking place. This safety exclusion zone will be removed following the completion of the relevant decommissioning activities enabling fisheries to regain access to grounds.</p> <p>Use of established contractors with appropriate capability, licences and maintenance procedures will be selected and audited. Other sea users will be notified in advance of activities occurring and Premier keeps manned bridges.</p> <p>The infrastructure is currently shown on Admiralty Charts and the FishSafe system. When decommissioning activity has been completed, updated information will be made available to update Admiralty Charts and FishSafe system.</p> <p>All pipeline routes and installation sites will be the subject of oilfield debris clearance and as-left verification surveys when decommissioning activity has concluded.</p>
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5 INTERESTED PARTY CONSULTATIONS

Consultations Summary:

Table 5.1: Summary of Stakeholder Comments		
Who	Comment	Response
Informal Consultations		
Scottish Fishermen's Federation National Federation of Fishermen's Organisations Joint Nature Conservation Committee Health and Safety Executive OPRED EMT OPRED ODU (observers) Premier Oil E&P UK Limited Neptune E&P UKCS Limited	<p>Premier Oil has engaged with interested parties and stakeholders who participated in Comparative Assessment workshops, as detailed in the column on the left.</p> <p>Furthermore, CA workshop invites were issued to the Environment Agency, the Scottish Environment Protection Agency, Marine Scotland and the Oil and Gas Authority, but these organisations were unable to attend.</p>	N/A
Statutory Consultations		
Various Statutory Consultees	<p>Following statutory consultation (7th December 2020 – 17th January 2021) Premier received a number of guidance notes, questions and actions relating to the Hunter and Rita Decommissioning Programmes and supporting documents from the consultees.</p>	All consultee comments have been satisfactorily addressed throughout OPRED's process and minor updates to the Decommissioning Programmes and supporting documents have been implemented where appropriate.
Public	No comments received	N/A

6 PROGRAMME MANAGEMENT

6.1 Project Management and Verification

A Project Management team will be appointed to manage suitable contractors for the decommissioning of the Hunter-Rita infrastructure. Standard procedures for operational control and hazard identification and management will be used. The Project Management team will monitor and track the process of consents and the consultations required as part of this process. Any changes in detail to the offshore removal programme will be controlled by the Premier Oil Management of Change processes and discussed and agreed with OPRED.

6.2 Post-Decommissioning Debris Clearance and Verification

During site clearance activities, reasonable endeavours will be made to recover any dropped objects and items subject to any outstanding Petroleum Operations Notices. All recovered seabed debris related to offshore oil and gas activities will be returned for onshore disposal or recycling in line with existing disposal arrangements. A post decommissioning site survey, to verify decommissioning activities have been completed, will be carried out across the designated 500m safety zones of installation sites and a 100m corridor (50m either side) along each pipeline over its length.

The clear seabed will be validated by an independent verification trawl over the installation sites and pipeline corridors, non over-trawl techniques such as Side Scan Sonar (SSS) / ROV or by the post decommissioning survey. The most appropriate validation method(s) will be discussed and agreed with OPRED nearer the time this activity is due to take place.

6.3 Schedule

Project Plan:

The high level Gantt chart Figure 6.1 provides the overall schedule for the Hunter and Rita fields programme of decommissioning activities.

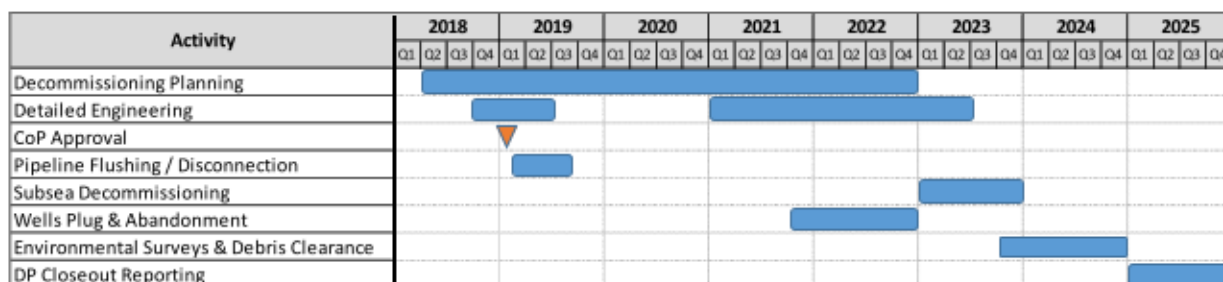


Figure 6.1: Gantt Chart of Project Plan

6.4 Costs

An overall cost estimate following UK Oil & Gas Guidelines on Decommissioning Cost Estimation (Issue 3, October 2013) will be provided to OPRED.

6.5 Close Out

In accordance with the OPRED Guideline Notes, a close out report will be submitted to OPRED and posted on the Premier Oil website reconciling any variations from the Decommissioning Programme within one year of the completion of the offshore decommissioning scope. This includes debris removal and, where applicable independent verification of seabed clearance, and the first post-decommissioning environmental survey.

6.6 Post-Decommissioning Monitoring and Evaluation

A post-decommissioning environmental seabed survey, centred around the well locations, will be carried out. The survey will focus on chemical, physical and biological changes, disturbances and will be compared with the pre decommissioning survey. Results of this survey will be available once the work is complete, with a copy forwarded to OPRED.

All pipeline routes and installation sites will be the subject of oilfield debris clearance and as-left verification surveys when decommissioning activity has concluded. All snag hazards created by drilling and/or production related activities will be removed or mitigated as part of the execution of the Decommissioning Programmes.

The main risk from infrastructure remaining in situ is the potential for interaction with other users of the sea, specifically from fishing related activities. Where the infrastructure is trenched below seabed level or trenched & buried below, the effect of interaction with other users of the sea is considered to be negligible.

The infrastructure is currently shown on Admiralty Charts and the FishSafe system. When decommissioning activity has been completed, updated information will be made available to update Admiralty Charts and FishSafe system.

When decommissioning activities have been completed, and where applicable, the safety zones around offshore infrastructure will be removed.

The licence holders recognise their commitment to undertake post-decommissioning monitoring of infrastructure left *in situ*. After the post-decommissioning survey reports have been submitted to OPRED and reviewed, a post-decommissioning monitoring survey regime, scope and frequency, will be agreed with OPRED.

7 SUPPORTING DOCUMENTS

Document Number	Title
AB-HR-XGL-LL-SU-RP-0004	Hunter / Rita Fields Decommissioning Environmental Appraisal
AB-HR-XGL-LL-SU-RP-0002	Hunter / Rita Fields Comparative Assessment Report

8 PARTNER LETTERS OF SUPPORT

Neptune E&P UKCS Limited



Offshore Petroleum Regulator for Environment and Decommissioning
Department for Business, Energy and Industrial Strategy
Crimon Place
Aberdeen
AB10 1BJ

FAO: Mrs. Debbie Taylor

13 April 2021

Dear Sirs,

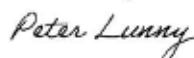
Letter of Support: Hunter & Rita Decommissioning Programmes

Neptune E&P UKCS Limited hereby confirm that Premier Oil E&P UK Limited ("Premier") is authorised to submit, on our behalf, the abandonment programmes relating to the Hunter and Rita Fields subsea installations and pipelines, as detailed in document no. AB-HR-PMO-LL-PM-PG-0001 revision B05, dated March 2021 and titled "Hunter & Rita Decommissioning Programmes", as directed by the Secretary of State in your letter of 29 March 2021.

We confirm our agreement to the proposals detailed in the Hunter & Rita Decommissioning Programmes dated 30 March 2021, which is to be submitted by Premier, in so far as they relate to those facilities in respect of which we are instructed to submit a programme under Section 29 of the Petroleum Act 1998.

Yours faithfully

Electronic signature



Peter Lunny
Director of Commercial and Business Development
Neptune E&P UKCS Limited

Neptune E&P UKCS Limited
16 North Esplanade West
Aberdeen AB11 5RJ
United Kingdom
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F: +44(0)1224 281025
www.neptuneenergy.com

Company No. 03386464
Registered in England and Wales at:
Nova North, 11 Bressenden Place
London SW1E 5BY
United Kingdom

Neptune Energy International



Offshore Petroleum Regulator for Environment and Decommissioning
Department for Business, Energy and Industrial Strategy
Crimon Place
Aberdeen
AB10 1BJ

FAO: Mrs. Debbie Taylor

13 April 2021

Dear Sirs,

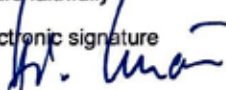
Letter of Support: Hunter & Rita Decommissioning Programmes

Neptune Energy International S.A hereby confirm that Premier Oil E&P UK Limited ("Premier") is authorised to submit, on our behalf, the abandonment programmes relating to the Hunter and Rita Fields subsea installations and pipelines, as detailed in document no. AB-HR-PMO-LL-PM-PG-0001 revision B05, dated March 2021 and titled "Hunter & Rita Decommissioning Programmes", as directed by the Secretary of State in your letter of 29 March 2021.

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Yours faithfully

Electronic signature

A handwritten electronic signature in blue ink, appearing to read "H. Knoeb".

Harald Knoeb
Deputy Managing Director
Neptune Energy International S.A.

Neptune Energy International S.A.
Tour EGEE, 9/11 allée de l'Arche
92671 Courbevoie Cedex, France
www.neptuneenergy.com
SA au capital de 456 955 835 Euros
RCS Nanterre 479 920 134

Premier Oil PLC

DocuSign Envelope ID: C1A53006-6D57-40B2-BE37-9CAF96DAA10C



Premier Oil plc
Upper Denburn House
Prime Four Business Park
Kingswells Causeway
Kingswells
Aberdeen AB15 8PU

Telephone +44 (0)1224 618 000
Fax +44 (0)1224 615 999
Email premier@premier-oil.com
Website www.premier-oil.com

Offshore Petroleum Regulator for Environment and Decommissioning
Department for Business, Energy and Industrial Strategy
Crimon Place
Aberdeen
AB10 1BJ

FAO: Mrs. Debbie Taylor

31 March 2021

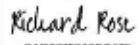
Dear Sirs,

Letter of Support: Hunter & Rita Decommissioning Programmes

Premier Oil PLC hereby confirm that Premier Oil E&P UK Limited ("Premier") is authorised to submit, on our behalf, the abandonment programmes relating to the Hunter and Rita Fields subsea installations and pipelines, as detailed in document no. AB-HR-PMO-LL-PM-PG-0001 revision B05, dated March 2021 and titled "Hunter & Rita Decommissioning Programmes", as directed by the Secretary of State in your letters of 29 March 2021.

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Yours faithfully

DocuSigned by:

B4D777269CC479...

Richard Rose
Director
Premier Oil PLC

APPENDIX I - COPIES OF THE PUBLIC NOTICES

The Press and Journal:

PUBLIC NOTICE

The Petroleum Act 1998

Decommissioning Programmes for the Hunter and Rita subsea installations and pipelines

In accordance with the provisions of the Petroleum Act 1998, Premier Oil E&P UK Limited (Premier) has submitted, for the consideration of the Secretary of State for Business, Energy & Industrial Strategy, the draft Decommissioning Programmes for the Hunter and Rita subsea installations and pipelines. It is a requirement of the Act that interested parties be consulted on such decommissioning proposals.

The Hunter and Rita Fields are located in the Caister Murdoch System (CMS) Area, in blocks 44/23a, 44/21b and 44/21c of the Southern North Sea, approximately 160 km north-east of the Lincolnshire coast. The Hunter Field was developed as a subsea tieback to Murdoch K, with the Rita Field developed as a subsea tieback to the Hunter Field.

The facilities covered by the Hunter and Rita Decommissioning Programmes are:

- All subsea installations, and
- All subsea pipelines associated with the Hunter and Rita Fields.

Premier hereby gives notice that the Decommissioning Programmes for the Hunter and Rita Fields is available on its website at www.premier-oil.com, or alternatively a hard copy of the document may be requested by contacting Premier during office hours on 01224 618900.

Representations regarding the Decommissioning Programmes for the Hunter and Rita Fields should be submitted in writing to the person named at the address below, or via email to abzdecommissioning@premier-oil.com, by the consultation closing date of 17th January 2021. Submissions should state the grounds upon which any representations are being made.

Date: 7th December 2020

Pieter voor de Poorte
Premier Oil,
Upper Denburn House,
Prime Four Business Park,
Kingswells Causeway, Kingswells,
Aberdeen, AB15 8PU

The Daily Telegraph:

PUBLIC NOTICE

The Petroleum Act 1998

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Date: 7th December 2020

Pieter voor de Poorte
Premier Oil,
Upper Denburn House, Prime Four Business Park,
Kingswells Causeway, Kingswells,
Aberdeen, AB15 8PU

APPENDIX II – DEPTH OF BURIAL PROFILES

