Seven Seas Wellhead Protection Structure Decommissioning Programme

December 2024

Consultation Draft

SPIRIT ENERGY

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DOCUMENT 'HOLD' REGISTER

HOLD No.	DESCRIPTION	REFERENCE
1.	Section 29 Notice Holders Letters of Support – To be provided as part of DP approval process.	Section 7
2.	Public Notices - To be provided as part of DP approval process.	Appendix A

TABLE OF TERMS AND ABBREVIATIONS

ABBREVIATION	EXPLANATION
~	Approximately
COP	Cessation of Production
CSV	Construction Support Vessel
DESNZ	Department for Energy Security and Net Zero
DP	Decommissioning Programme
DSV	Diving Support Vessel
EA	Environmental Appraisal
EAJ	Environmental Assessment Justification
EMS	Environmental Management System
HSE	Health and Safety Executive
IWS	International Waste Shipments
JNCC	Joint Nature Conservation Committee
Km	Kilometre
m	Metre(s)
MAT	Master Application Template
n/a	Not Applicable
NFFO	National Federation of Fishermen's Organisations
NIFPO	Northern Ireland Fish Producers Organisation
NORM	Naturally Occurring Radioactive Material
NSTA	North Sea Transition Authority
OEUK	Offshore Energies UK
OPEP	Oil Pollution Emergency Plan
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	Oslo Paris Convention (The Convention for the Protection of the Marine Environment of the North-East Atlantic (the 'OSPAR Convention')
P&A	Plug and Abandon
Perenco	Perenco U.K. Limited
PL	Pipeline Identification numbers (UK)
PON	Petroleum Operations Notice
PWAV	Pipeline Works Authorisation Variation
SAC	Special Area of Conservation
SAT	Supplementary Application Template
SFF	Scottish Fishermen's Federation
Spirit Energy	Spirit Energy Resources Limited
UK	United Kingdom

ABBREVIATION	EXPLANATION
UKCS	United Kingdom Continental Shelf
VCS	Valve Control Skid
WGS84	World Geodetic System 1984

1. EXECUTIVE SUMMARY

1.1 Installation Decommissioning Programme

This document contains one Decommissioning Programme (DP) for the wellhead protection structure (WHPS) and associated Seven Seas production well xmas tree.

Spirit Energy Resources Limited (Spirit Energy) has identified a potential early opportunity to plug and abandon the single Seven Seas subsea production well, which requires removal of the WHPS. To facilitate this potential early opportunity, the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) has agreed that this standalone DP can be submitted to cover this specific decommissioning scope.

A separate DP document will also be submitted to OPRED in early 2025 covering the decommissioning proposals for the remaining Seven Seas infrastructure and those in the Eris and Ceres fields (the Eris, Ceres and Seven Seas DP).

Therefore, this standalone document contains one DP covering the Seven Seas WHPS and the associated xmas tree.

In the event that the potential early opportunity to remove the Seven Seas WHPS and plug and abandon its production well does not materialise, Spirit Energy will continue to explore cost saving synergies with other projects, including the future Eris, Ceres and Seven Seas DP.

1.2 Requirement for Decommissioning Programme

Installation:

In accordance with the Petroleum Act 1998, Spirit Energy, as operator of the Seven Seas field, and on behalf of the Section 29 notice holders (Table 1.4.2), are applying to OPRED to obtain approval for decommissioning the installation detailed in Section 2.1 of this document. (See also Section 7 – Partner Letter(s) of Support).

In conjunction with public, stakeholder and regulatory consultation, the decommissioning programme is submitted in compliance with national and international regulations and OPRED guidelines. The schedule outlined in this document (see Figure 6.3.1) is for a 3-year decommissioning project plan which could commence offshore as early as Q1 2025 if the potential early decommissioning opportunities materialise. If not, the schedule may extend to the end of 2027 to allow for campaigning synergies with other projects.

1.3 Introduction

The WHPS is located in block 48/7c of the Seven Seas field within the Southern North Sea, approximately 80km from the East Yorkshire coast, in a water depth of around 33m. The single subsea well is tied-back via the Newsham subsea development to the West Sole Alpha Platform, then onwards to Dimlington Terminal. (Note that Newsham, West Sole and the Dimlington Terminal are operated by Perenco). Gas is exported from the Seven Seas well via 6” tie-in spools to the Seven Seas valve control skid (VCS) and then via an 8”, 8.2km trenched pipeline to the Newsham valve control skid (VCS). Newsham is then tied back to the West Sole platform via an 8” gas export pipeline and onwards to shore via a 16” gas export pipeline. Control and chemical injection are provided by an existing umbilical from the West Sole Alpha platform to the Newsham VCS, then a separate umbilical to the Seven Seas VCS, then jumpers to the well (see Figure 1.6.2). Production commenced in 2012.

Following a subsea equipment failure and subsequent discussion with the NSTA, Spirit Energy completed an evaluation of repair options and determined a repair would be uneconomic, therefore Spirit Energy have concluded it is likely the field will become economically non-viable and date of cessation of production will be confirmed with the NSTA in due course.

Following public, stakeholder and regulatory consultation, the decommissioning programme is submitted without derogation and in full compliance with the Department for Energy Security and Net Zero (DESNZ) guidelines.

Removal of the WHPS is required to allow well P&A activities to be performed should suitable vessels and schedules become available. Decommissioning of the other Spirit Energy facilities in the Seven Seas field, namely the Seven Seas VCS, 8-inch production pipeline (PL2641), controls umbilical (PL2642) & associated spools, jumpers, protection and stabilisation will be covered under a separate DP which will be supported by a Comparative Assessment (CA) and an Environmental Appraisal (EA).[1]. The Eris, Ceres and Seven Seas DP is planned for issue to OPRED in Q1, 2025.

1.4 Overview of Installation Being Decommissioned

1.4.1 Installation

Table 1.4.1: Installation Being Decommissioned			
Field(s):	Seven Seas	**Production Type**	Gas
Water Depth (m)	Approx. 33m	**UKCS Block**	48/7c
Distance to median (km)	~103	**Distance from nearest UK coastline (km)**	~80
Subsea Installation(s)		**Number of Wells**	
Number	Type	Platform	Subsea
1	WHPS (piled)	n/a	1
1	Xmas tree		
Drill Cuttings Pile			
Number of Piles	n/a	Total Estimated volume (m^3)	n/a

Table 1.4.2: Installation Section 29 Notice Holders Details		
Section 29 Notice Holder	**Registration Number**	**Equity Interest (%)**
Spirit Energy Resources Limited	02855151	90
Rockrose (UKCS3) Limited	04620801	10
GB Gas Holdings Limited	03186121	0
Sojitz Corporation	JP5010401049977	0

[1] The Newsham VCS (which the Seven Seas pipeline and umbilical tie into) is the responsibility of Perenco, as are the other downstream facilities back to the West Sole Alpha platform.

1.5 Summary of Proposed Decommissioning Programme

Table 1.5.1: Summary of Decommissioning Programme		
Selected Option	**Reason for Selection**	**Proposed Decommissioning Solution**
1. Subsea Installation		
Complete removal to shore for reuse, recycling or disposal.	To comply with OSPAR requirements leaving clear seabed. Removes a potential obstruction to fishing operations and maximises recycling of materials	The xmas tree and separate WHPS will be completely removed from the seabed and recovered to shore for reuse, recycling or disposal. The WHPS is a piled structure, and the piles will be cut to 3m below adjacent seabed level.
2. Well		
Well conductor will be cut to -3m below seabed. Plugged and abandoned to comply with HSE "Offshore Installations and Wells Design and Construction Regulations 1996" and in accordance with the latest edition of OEUK Guidelines for the Abandonment of Wells.	Meets HSE regulatory requirements and is in accordance with OEUK and NSTA guidelines and licence conditions.	A Master Application Template (MAT) and the supporting Subsidiary Application Template (SAT) will be submitted in support of activities carried out. A PON5 will also be submitted to NSTA for application to abandon the well. Additionally, planned work will be reviewed by a well examiner then submitted to the HSE for review.
3. Interdependencies		
The rigid tie-in spool (PL6494 – ref. PWAV PA/5160) and the associated control jumper (PLU2642 – ref. PWAV PA/5239) between the well and the Seven Seas VCS have been disconnected. No spools or jumpers will be recovered at this stage and the decommissioning of these will be included within the future Eris, Ceres and Seven Seas DP to be submitted for OPRED review in 2025. To protect and to mitigate against the effects of scour, concrete blocks, grout gabions, mattresses and grout bags were installed around the WHPS legs and tie-in spool & control jumper locations. These items may need to be safely repositioned to facilitate safe and efficient recovery of the WHPS. They will not be recovered at this stage and the decommissioning of these will be included within the future Eris, Ceres and Seven Seas DP to be submitted for OPRED review in 2025.		

1.6 Field Location including Field Layout and Adjacent Facilities

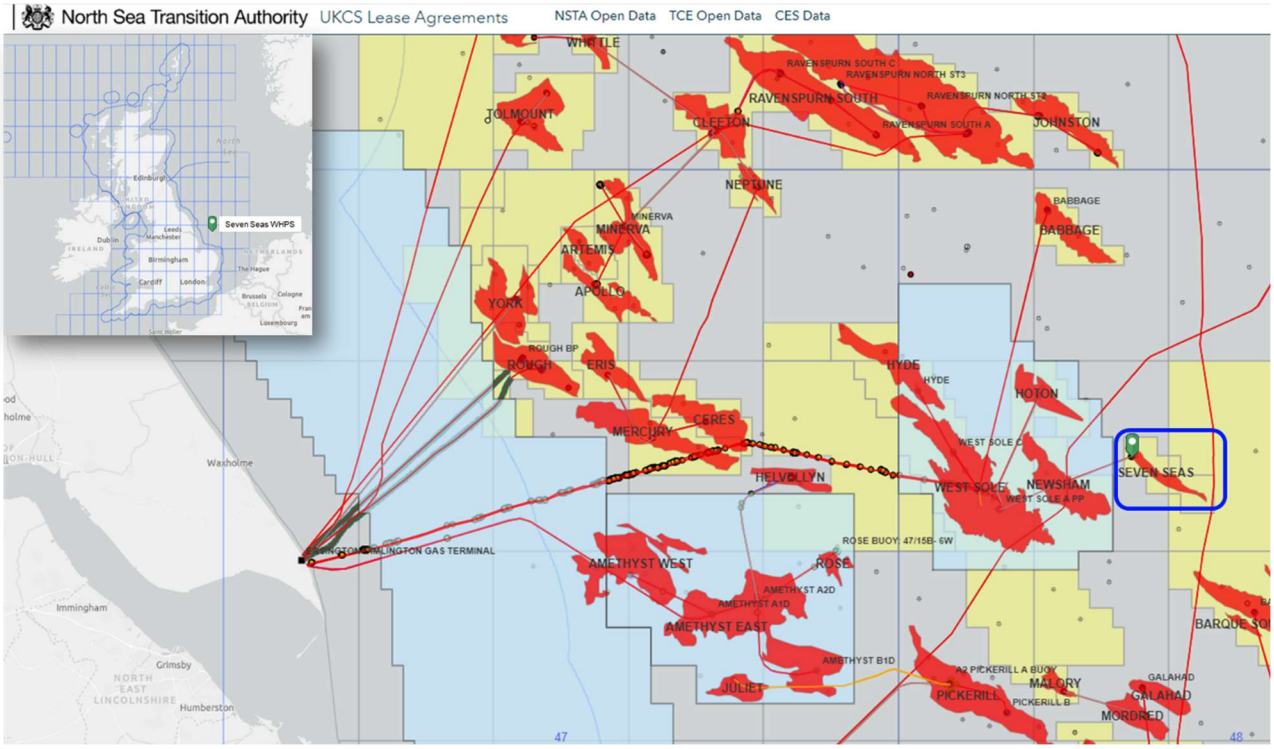


Figure 1.6.1: Field Location in UKCS and Adjacent Facilities

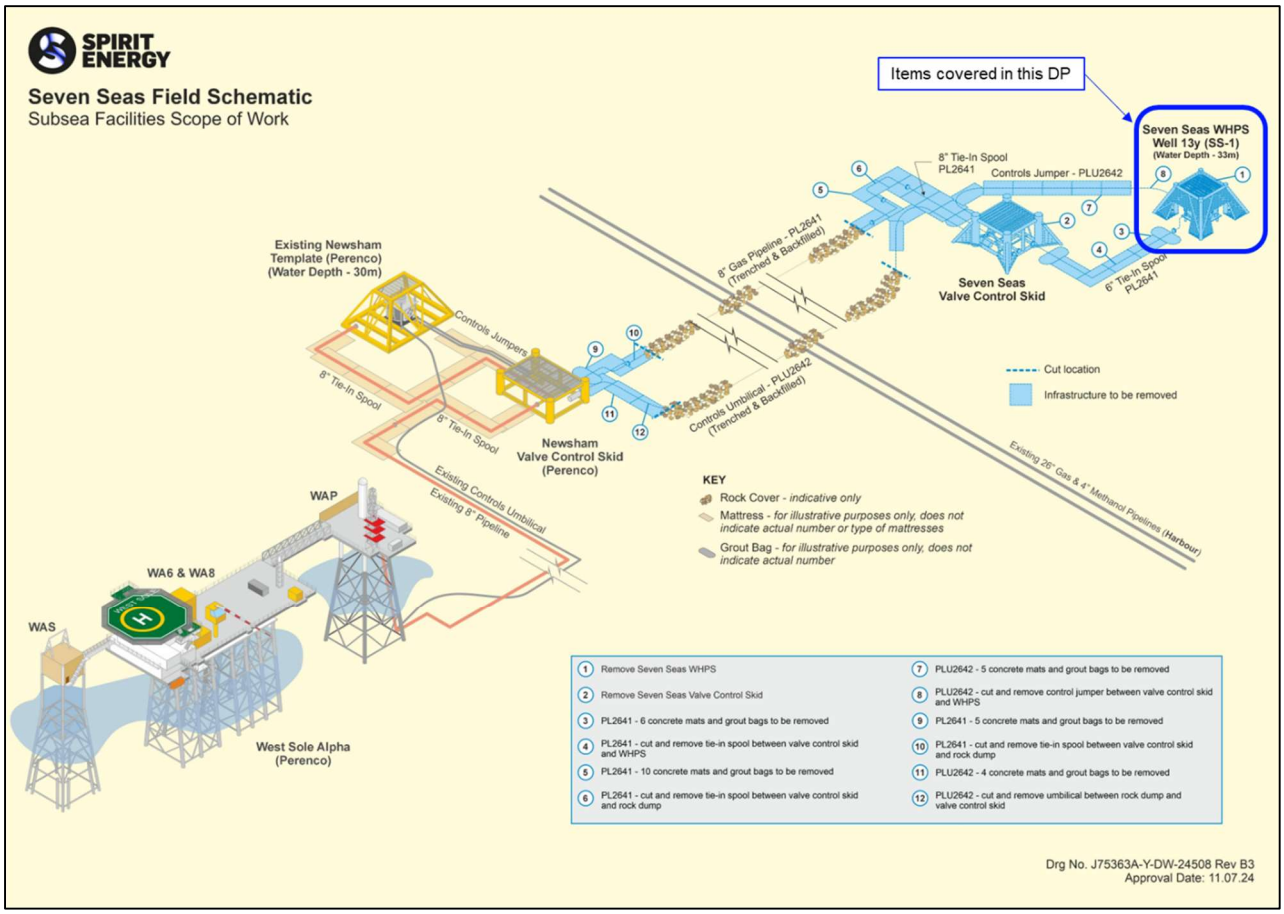


Figure 1.6.2: Seven Seas Facilities Schematic

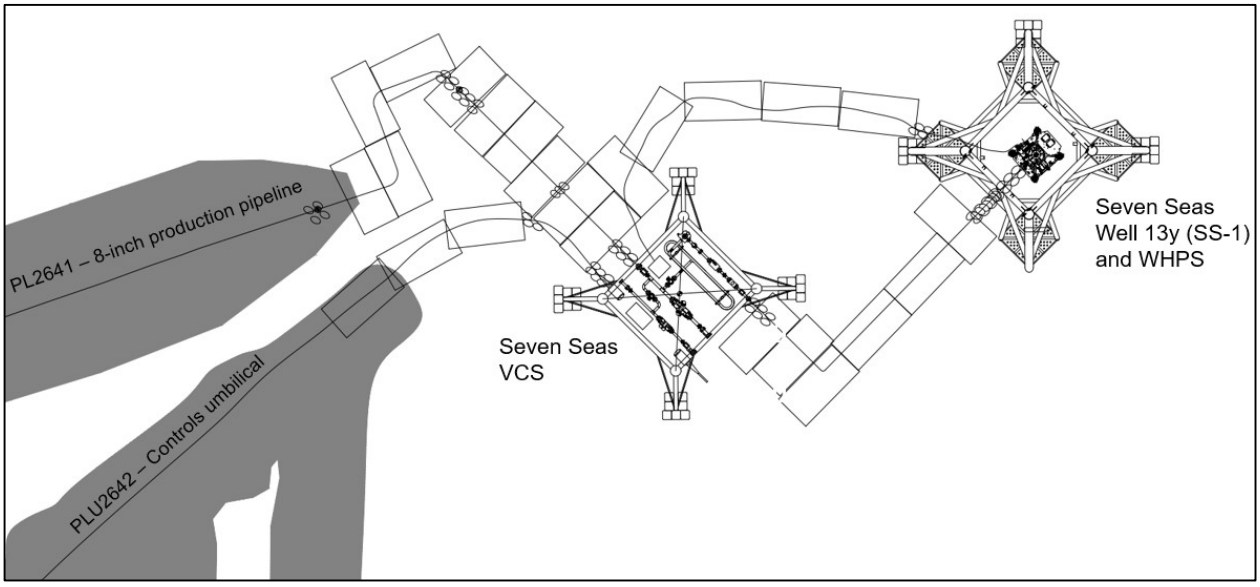


Figure 1.6.3: Seven Seas WHPS Layout

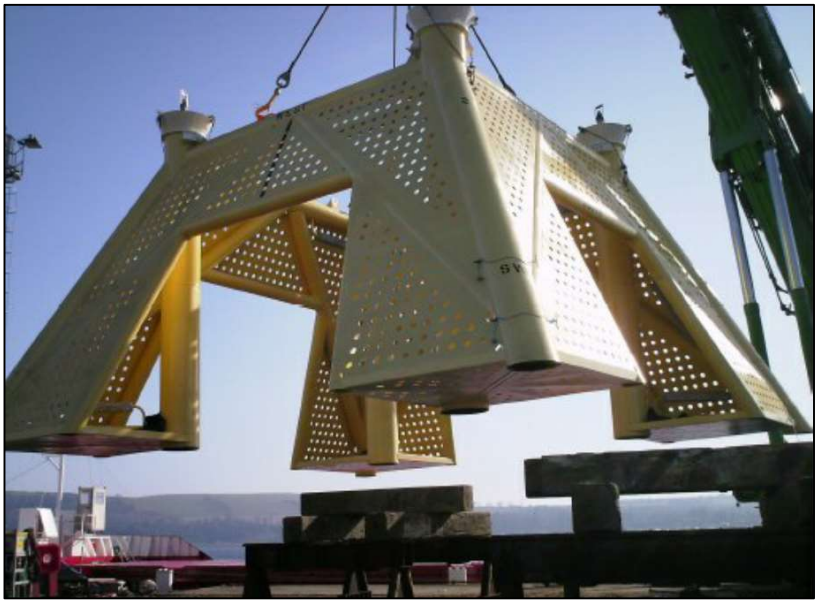


Figure 1.6.4: Seven Seas WHPS

Table 1.6.1: Adjacent Facilities

Owner	Name	Type	Distance/Direction	Information	Status
Perenco	Dimlington Terminal	Onshore Facility	60km west of Seven Seas		Operational
Perenco	Newsham	VCS	8km SW of Seven Seas		Operational
Perenco	Newsham	Template	8km SW of Seven Seas		Operational
Perenco	West Sole Alpha	Platform Group	13.9km SW of Seven Seas		Operational

Table 1.6.1: Adjacent Facilities					
Owner	**Name**	**Type**	**Distance/Direction**	**Information**	**Status**
Chrysaor Production (U.K.) Limited	PL929	26” gas pipeline	Crossing located ~ 6.8km SW of Seven Seas	Cross under PL2641 & PLU2642	Not in use
Chrysaor Production (U.K.) Limited	PL930	4” methanol pipeline	Crossing located ~ 6.8km SW of Seven Seas		Not in use
Impacts of Decommissioning Proposals					
There are no direct impacts on adjacent facilities from the decommissioning and removal of the WHPS. Short term environmental impacts associated with this activity are detailed in Section 4. The Seven Seas pipelines cross over two 3rd party pipelines (PL929 and PLU930). However, these will be covered in a separate DP and will not be included here, as there are no impacts from the decommissioning of the WHPS.					

1.7 Industrial Implications

Well abandonment activities will be completed using a drilling rig and / or well intervention vessel. Decommissioning work will be carried out by a Dive Support Vessel (DSV) or a Construction Support Vessel (CSV) or a combination of vessels. A survey vessel may be utilised for post-decommissioning surveying.

Spirit Energy has developed a contract strategy and Supply Chain Action Plan that will result in an efficient and cost-effective execution of the decommissioning works. Spirit Energy will seek to combine the decommissioning activities with other development or decommissioning activities to reduce mobilisation costs should the opportunity arise. The decommissioning schedule is extended to allow flexibility for when decommissioning operations are carried out and completed.

2. DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

2.1 Installations: Subsea Including Stabilisation Features

Table 2.1.1: Seven Seas Subsea Installations and Stabilisation Features

Subsea Installations Including Stabilisation Features	No.	Mass (Te) / Size (m)	Location		Comments/Status
			WGS84 Decimal	WGS84 Decimal Minute	
Seven Seas Xmas tree	1	15.9 3.5 x 3.2 x 2.6	53.749811° N 1.345408° E	53° 44.988667" N 1° 20.724500" E	
Seven Seas WHPS	1	107[1] 13.6 x 13.6 x 7.4			Piled with 4 No. piles

NOTES:

1. WHPS mass is inclusive of the removeable roof panel and the 4 No. piles.
2. Concrete blocks, grout gabions, mattresses and grout bags were installed at the WHPS corners and tie-in spool & control jumper locations for protection and to protect against scour. These stabilisation items are not included within this DP as, although they may be repositioned to facilitate safe and efficient recovery of the WHPS, they will not be recovered at this stage. Any repositioning of these items will still be within the existing subsea safety zone which will not be relinquished until clear seabed verification has been completed.

2.2 Well

Table 2.2.1: Well Information

Well ID	Designation	Status	Category of Well
48/7c-13y (SS-1)	Gas production	Shut-in	4-3-3

NOTES:
1. For details of well categorisation please refer the latest version of the OEUK Guidelines for the Decommissioning of Wells.
2. NSTA guideline: https://www.nstauthority.co.uk/media/8246/nsta-wons-guide_final_accessible_3006.pdf

2.3 Drill Cuttings

There are no drill cuttings piles associated with these facilities.

2.4 Inventory Estimates

The inventory estimates are shown in Figure 2.4.1. Note that the estimates do not include marine growth.

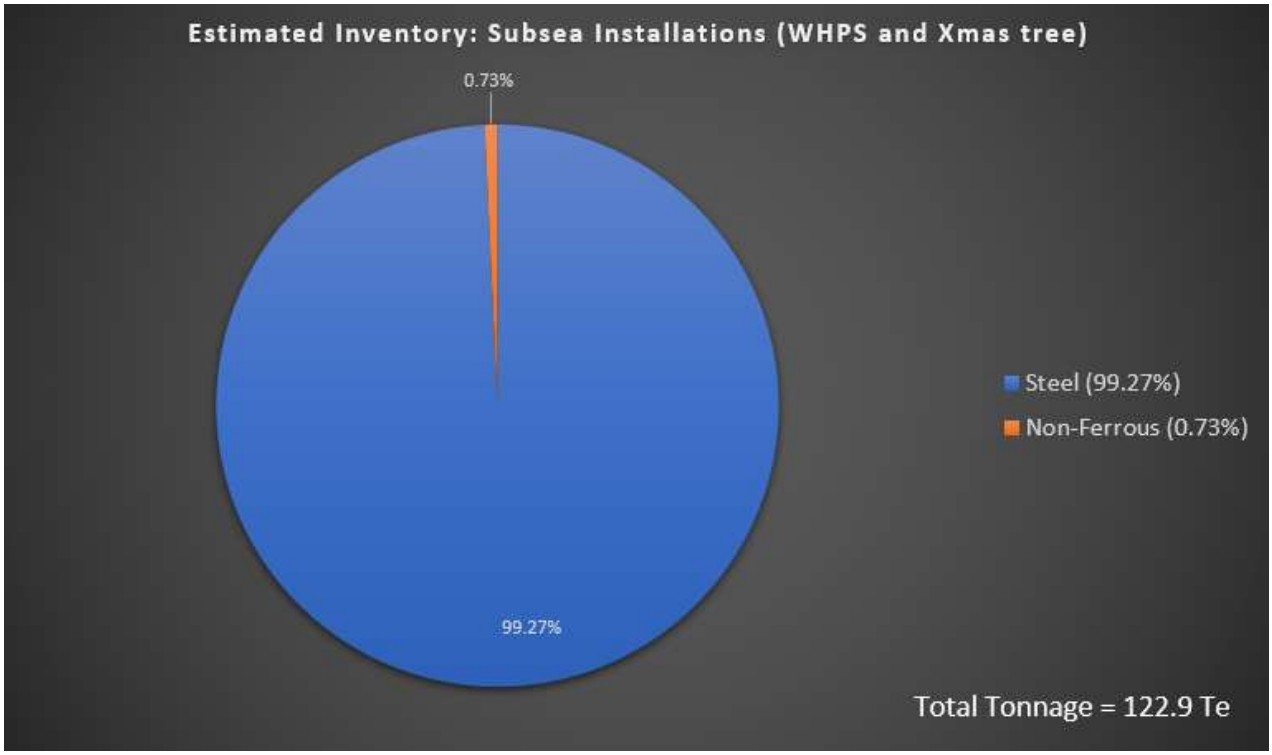


Figure 2.4.1: Pie Chart of Estimated Inventory (Installations)

3. REMOVAL AND DISPOSAL METHODS

Waste will be dealt with in accordance with the Waste Framework Directive. The re-use of an installation is first in the order of preferred decommissioning options and such options are currently under investigation. Waste generated during decommissioning will be segregated by type and periodically transported to shore in an auditable manner through licensed waste contractors. Steel and other recyclable metals are estimated to account for the greatest proportion of the materials inventory.

Geographic locations of potential disposal yard options may require the consideration of International Waste Shipments (IWS), including hazardous materials. Early engagement with the relevant waste regulatory authorities will ensure that any issues with IWS are addressed. OPRED shall be informed once the disposal yard is selected.

Materials for which no re-use or recycling opportunities are available will be tracked through to final disposal.

3.1 Subsea Installations and Stabilisation Features

Table 3.1.1: Subsea Installations and Stabilisation Features Decommissioning Options

Subsea installations and stabilisation features	Quantity	Option	Disposal Route (if applicable)
Xmas tree and wellhead	1	Full recovery	Return to shore for reuse, recycling or disposal.
WHPS	1	Full recovery. Piles will be cut 3m below seabed.	Return to shore for reuse, recycling or disposal.

The rigid tie-in spool (PL6494 – ref. PWAV PA/5160) and the associated control jumper (PLU2642 – ref. PWAV PA/5239) between the well and the Seven Seas VCS have been disconnected. No spools or jumpers will be recovered at this stage and will be included within a future DP.

To protect the facilities and mitigate against the effects of scour, stabilisation features (concrete blocks, grout gabions, mattresses and grout bags) were installed around the WHPS legs and tie-in spool / control jumper locations. These items may need to be repositioned to facilitate safe and efficient recovery of the WHPS. They will not be recovered at this stage and will be included within a future DP.

The WHPS piles were swaged in place following installation and so each pile will need to be cut twice for recovery. The first cut will be to around seabed level, at which point the WHPS complete with roof panel will be recovered to the vessel deck. The second cut will be to recover the remaining piles to a depth of 3m below adjacent seabed level.

There will be a period of time between the WHPS removal and the completion of well P&A. The well is at the centre of the Seven Seas 500m subsea safety zone, which will remain in place until the wider Seven Seas decommissioning activities have been completed, providing ongoing mitigation against potential fishing interaction.

3.2 Wells

Table 3.2.1: Well Decommissioning
The well, as listed in Section 2.2 (Table 2.2.1) will be plugged and abandoned in accordance with the latest versions of the Offshore Installations and Wells (Design and Construction, etc.) Regulations and OEUK Well Decommissioning Guidelines. A Master Application Template and the supporting Supplementary Application Template will be submitted in support of works carried out. An application to decommission the well will be made via the online Well Operations Notification System (WONS) on the NSTA Energy Portal. Well decommissioning will be scheduled in accordance with the outline schedule presented in Section 6.3.

3.3 Waste Streams

Table 3.3.1: Waste Stream Management Methods	
Waste Stream	**Removal and Disposal method**
Bulk liquids	Processing of any fluids or chemical associated with decommissioning of the well will be managed under existing well intervention permits. Recovery of the WHPS will not require any use or discharge of chemicals or result in oil discharges to sea. Chemical discharges associated with the umbilical disconnection will be assessed under existing permits.
Marine growth	Where necessary and practicable to allow access, some marine growth will be removed offshore. Remnant growth will be brought to shore and disposed of under the appropriate permit and managed in accordance with guidelines and company policies. A conservative value of 50Te marine growth (60mm thickness covering all steel surfaces) has been estimated.
NORM / LSA Scale	Although NORM is not expected, tests will be performed offshore, and any NORM encountered will be dealt with and disposed of in accordance with guidelines and company policies and under the appropriate permit and managed in accordance with guidelines and company policies.
Asbestos	No asbestos is expected, however any such material found will be dealt with and disposed of in accordance with guidelines and company policies.
Other hazardous wastes	Will be recovered to shore and disposed of according to guidelines and company policies and under appropriate permit.
Onshore Dismantling sites	Appropriate licensed sites will be selected. The dismantling site must demonstrate proven disposal track record and waste stream management throughout the deconstruction process and demonstrate their ability to deliver reuse and recycling options.

Table 3.3.2: Inventory Disposition			
Inventory	**Total Inventory (Te)**	**Planned tonnage to shore (Te)**	**Planned left *in situ* (Te)**
Subsea Installations	122.9	107.8	15.1
Notes: 1. Marine growth is not included. 2. Tonnage left *in-situ* is for the pile sections remaining (below -3m).			

Table 3.3.3: Reuse, Recycle & Disposal Aspirations for Recovered Material			
Inventory	**Reuse**	**Recycle**	**Disposal (e.g. landfill)**
Subsea Installations	<2%	>98%	<2%

All recovered material will be transported onshore for reuse, recycling or disposal. It is not possible to predict the market for reusable materials with any confidence, so the figures presented here are aspirational.

4. ENVIRONMENTAL APPRAISAL

4.1 Environmental Sensitivities (Summary)

The environmental sensitivities in the area in which the decommissioning activities will take place are summarised in Table 4.1.1.

Table 4.1.1: Environmental Sensitivities

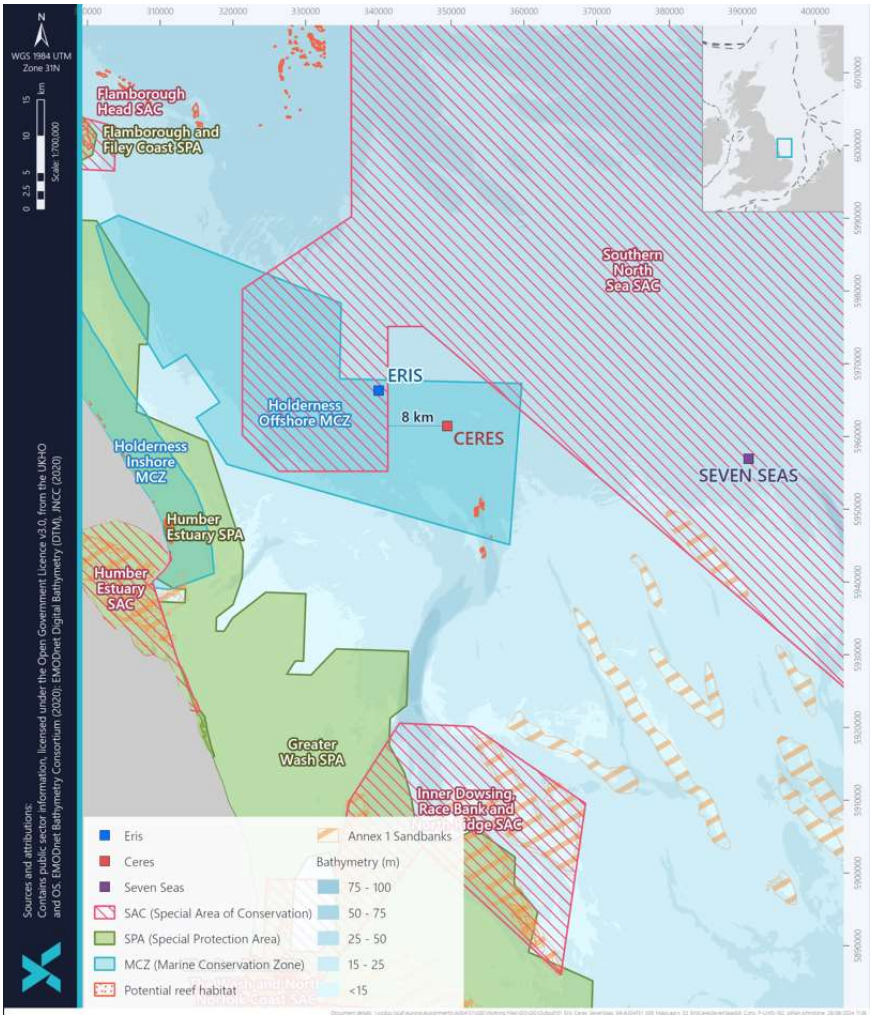
Environmental Receptor	Main Features
Conservation Interests	Seven Seas is located within the Southern North Sea Special Area of Conservation (SAC) (summer), designated for harbour porpoise. The area is 16km from the boundary of the North Norfolk Sandbanks and Saturn Reef SAC, 32km from the Holderness Offshore Marine Conservation Zone (MCZ) and 54km from the Greater Wash SPA. No Annex I habitats or evidence of threatened and/or declining habitats listed under OSPAR (2008) were observed within the Seven Seas survey area (Gardline 2008a, b, 2024). 
Seabed	The seabed in the area is relatively flat, and surveys undertaken at Seven Seas recorded megarippled silty sand around the well and to the north and east, becoming slightly gravelly shelly silty sand with numerous cobbles/boulders to the west and south (Gardline 2008a,b); initial results from the pre-decommissioning survey at Seven Seas (Gardline 2024) confirms this, with silty sand and sand ripples observed. Using the EUNIS classification, the Seven Seas is within an area of Atlantic Offshore Circalittoral Sand.

Table 4.1.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
Fish	The Seven Seas WHPS/xmas tree lie within ICES rectangle 36F1. 9 species (8 fish, 1 shellfish) have reported spawning grounds (Coull *et al*. 1999, Ellis *et al*. 2012, Gonzalez-Irusta & Wright 2016); Herring (Aug-Oct); Lemon sole (Apr-Sept); Mackerel (May-Aug – low intensity); Sandeel (Nov-Feb – low); Whiting (Feb-Jun – low); Plaice (Dec – Mar – high); Sprat (May-Aug); Cod (Jan-Apr – occasional / low intensity) and *Nephrops.*
Fisheries	Fisheries effort data is low in comparison to the wider area, and ICES 36F1 only accounts for around 1% of the UK total; it should also be noted that effort will not be uniform across the rectangle. Demersal gear and traps are the predominant gear types used. No seasonal sensitivity is associated with this aspect; activities will be undertaken within existing 500m exclusion zones from which fishing vessels are already excluded.
Marine Mammals	Seven Seas is located within the SCANS IV survey stratum NS-C (previously stratum O in SCANS III) and from the most recent data (SCANS IV (Gilles *et al* 2023)), harbour porpoise (density of animals = 0.6027/km^2), white-beaked dolphin (0.0149/km^2), bottlenose dolphin (0.0419/km^2),common dolphin (0.0032/km^2) and minke whale (0.0068/km^2) were recorded within the strata; white-sided dolphin were not recorded. Two species of seal (grey seal and harbour seal) live and breed in UK waters. While both species tend to be concentrated close to shore, particularly during pupping and moulting seasons, they will feed inshore and offshore depending on the distribution of prey species. The movement of harbour seals are generally restricted to *ca*. 40-50km range of their haul-out sites, while grey seal movements can involve larger distances, with trips of several hundred kilometres being recorded. Given the location of the Seven Seas (~80km) the presence of either species is expected to be low.
Birds	Seven Seas can be considered of relatively moderate importance for seabirds, this is related to distance from breeding colonies and availability of prey; the main prey of many seabird species is sandeels, and the southern North Sea has a high sandeel density. Species present offshore varies seasonally and given the distance from the coast (80km) and the distance from the closest Special Protection Area (SPA) (54km), birds present can include those transiting through the area during migration, non-breeding juveniles, post-breeding dispersion from colonies as well as foraging birds during the breeding season.
Onshore Communities	Spirit Energy will select onshore decommissioning facilities that comply with all regulatory requirements to ensure that potential impacts are appropriately controlled.
Other Users of the Sea	Seven Seas is located in an area of extensive gas development with a number of installations located nearby. Shipping intensity is high, this traffic mainly consisting of energy (oil and gas) supply and tanker vessel activity and vessel activity associated with decommissioning. There are also a growing number of offshore areas for renewable or other energy related development, including carbon dioxide transport and storage, and vessel activity is also associated with these, particularly those developments in the construction phase, which can include surveying. Seven Seas is 2km from a carbon storage licence area and 1km from the Hornsea Project export cable corridor.
Atmosphere	The primary source of atmospheric emissions will be from vessel activity during decommissioning activities.

4.2 Potential Environmental Impacts and their Management

The following overview of potential impacts is based upon the removal of the WHPS/xmas tree only. Potential impacts associated with the wider decommissioning of Seven Seas will be addressed in an Environmental Assessment supporting a separate Decommissioning Programme. The potential impacts of these operations will be assessed in the MAT EAJ that will be submitted prior to the work commencing. A summary of the impacts and control measures is detailed in Table 4.2.1. These impacts are expected to be short-term, localised and of low significance provided the proposed mitigation measures are in place.

Table 4.2.1: Environmental Impact Management

<table>
<tr><th>Main Impacts</th><th>Impact Assessment</th><th>Management</th></tr>
<tr><td>Seabed disturbance</td><td>
The operation to cut and recover the WHPS/xmas tree has the potential to impact the seabed. This may result in potential loss of habitat within the footprint of the WHPS and indirect disturbance through sediment re-suspension.

The WHPS will be removed using a DSV and the piles will be cut to -3m below seabed, most likely using internal pile cutting techniques. Abrasive sand may be required for cutting operations. Temporary relocation of mattresses may cause local disturbance to the seabed that has been assessed as worst case.

The seabed disturbance associated with the WHPS/xmas tree removal is expected to be localised with a maximum area of 0.000145km^2. The maximum area of permanent seabed disturbance related to the deposit of abrasive sand to undertake cutting operations to remove the WHPS will be a maximum of 0.000012km^2.

Following completion of the work, natural physical processes of sediment transportation will be expected restoring the seabed to its original condition. It is not expected that the operations will result in persistent or significant changes to benthic communities in the surrounding area. The Seven Seas area have reported spawning grounds for 8 fish species and 1 shellfish species, however given the proposed operations are localised and temporary in nature, they are not expected to have a significant impact.
<table>
<tr><th>Activity</th><th>Dimensions (m)</th><th>Length (m) or number removed</th><th>Area of Temporary Seabed Disturbance (km^2)</th><th>Area of Permanent Seabed Disturbance (km^2)</th></tr>
<tr><td>WHPS piles and leg remnants</td><td>7.4 (H) x 3 x 1</td><td>4 Items</td><td>0.000012</td><td>-</td></tr>
<tr><td>Abrasive sand for cutting operations*</td><td>20 Te</td><td>-</td><td>-</td><td>0.000012</td></tr>
<tr><td>Stabilisation feature relocation</td><td>6 x 3
1 x 1</td><td>7 items
7 items</td><td>0.000126
0.000007</td><td>-</td></tr>
</table>
* The areal seabed disturbance associated with abrasive sand deposition is included within the area that is estimated for wellhead removal.
</td><td>
Seabed disturbance will be fully assessed in the environmental permits submitted to OPRED once details are known.

No explosives will be used to cut the piles of the WHPS. Vessels will be positioned using dynamic positioning wherever possible.
</td></tr>
<tr><td>Physical presence – other users of the sea</td><td>The operations will be carried out within existing 500m safety zones. Disruption to fishing or shipping during vessel transits is expected to be minimal.</td><td>The area will be verified by a clear seabed survey conducted using suitable techniques in agreement with OPRED.</td></tr>
<tr><td>Physical presence –</td><td>The Seven Seas WHPS is located within the Southern North Sea SAC; the protected features of which is harbour porpoise. These are observed throughout the year but most frequently from April-October. The activity to remove</td><td>Risk assessments will be undertaken for the work at key stages throughout planning and execution. Activities will be planned to be executed as efficiently as</td></tr>
</table>

<table>
<tr><th colspan="3">Table 4.2.1: Environmental Impact Management</th></tr>
<tr><th>Main Impacts</th><th>Impact Assessment</th><th>Management</th></tr>
<tr><td>biological receptors</td><td>the WHPS will generate a minor noise source that will not significantly impact this feature, with noise sources restricted to vessel noise and use of cutting tools over a maximum period of 8 days.

A localised area of temporary seabed disturbance will occur during the recovery of the WHPS. The area of seabed temporarily impacted (including the in-combination temporary impact from the well abandonment) is approximately 0.00036% of the overall SNS SAC (36,951 km^2). Vessel transits are limited to one transit for the removal of the WHPS therefore the potential to cause displacement of marine mammals in the SNS SAC is considered extremely low.</td><td>possible, minimising cutting durations to reduce potential noise impacts.</td></tr>
<tr><td>Energy use and atmospheric emissions</td><td>Atmospheric emissions will be generated by vessels used in the proposed operations. These have the potential to impact local air quality or contribute to regional and global effects. No supply trips or standby vessel are required as part of the scope, therefore, the only contributing emissions will be from the DSV vessel. Total fuel usage for the DSV is estimated to be 144 tonnes (fuel use per day (18 tonnes) x maximum number of days on location (8)).

Estimated atmospheric emissions as follows:
<table>
<tr><th></th><th>CO_2</th><th>CO</th><th>NOx</th><th>N_2O</th><th>SO_2</th><th>CH_4</th><th>VOC</th></tr>
<tr><td>Emissions Factor</td><td>3.17</td><td>0.0157</td><td>0.059</td><td>0.00022</td><td>0.002</td><td>0.00018</td><td>0.0024</td></tr>
<tr><td>Total Mass</td><td>456.48</td><td>2.260</td><td>8.496</td><td>0.031</td><td>0.288</td><td>0.025</td><td>0.345</td></tr>
<tr><td>GWP</td><td>1</td><td>1.6</td><td>0</td><td>273</td><td>0</td><td>29.8</td><td>5.6</td></tr>
<tr><td>CO_2e Emissions</td><td>456.48</td><td>3.617</td><td>0</td><td>8.648</td><td>0</td><td>0.772</td><td>1.935</td></tr>
<tr><td>Total CO_2e Emissions</td><td colspan="7">471.45</td></tr>
</table>
The total emissions from the proposed operations are considered negligible in comparison to total OEUK Exploration and Production (E&P) figure for 2022 which is 14,300,000 tonnes of CO_2e. Taking into consideration the total emissions from the shipping industry in 2023 as outlined in the 2024 Climate Change Committee progress report (11MtCO_2e) the emission from the proposed operations is approximately 0.004% of this total.</td><td>Vessels will be managed in accordance with Spirit Energy's Marine Assurance Standard and will be managed such that durations are minimised, and on-board operational practices address fuel efficiency. It is anticipated that emissions will be negligible, however the impacts will be further assessed in the environmental permits submitted to OPRED.</td></tr>
<tr><td>Underwater noise</td><td>Some noise will be generated from vessels during transit and cutting operations. There is no published information on the response of marine mammals or fish to sound generated by underwater cutting. However, reported source levels are relatively low compared with those generated by vessels such that any noise generated from cutting operations is not likely to cause significant disturbance to marine fauna.</td><td>Risk assessments will be undertaken for the work at key stages throughout planning and execution. Activities will be planned to be executed as efficiently as possible, minimising cutting durations to reduce potential noise impacts.</td></tr>
<tr><td>Generation of waste materials</td><td>The waste generated as part of the removal will be primarily steel that will be recycled, along with small amount of marine growth (a maximum of 50 tonnes). Limited amounts of hazardous waste are anticipated as part of the project, and these will be managed by an appropriately licenced facility.</td><td>The waste hierarchy will be followed and only if other options are not possible will waste material be sent to landfill. Spirit</td></tr>
</table>

<table>
<tr><th colspan="3">Table 4.2.1: Environmental Impact Management</th></tr>
<tr><th>Main Impacts</th><th>Impact Assessment</th><th>Management</th></tr>
<tr><td></td><td></td><td>Energy will monitor the performance of contractors throughout operational activities and will comply with EU and UK waste legislation and the requirements of duty of care. The selected receiving port and waste handling facility will be able to demonstrate a proven disposal track record and waste stream management throughout the process.</td></tr>
<tr><td>Accidental event – release of hydrocarbons</td><td>A spill of hydrocarbons is highly unlikely during the proposed operations as the well is isolated and pipelines have been disconnected. There is a minor potential for unplanned release of diesel from vessels. However, the vessels will have a Shipboard Oil Pollution Emergency Plan (SOPEP) in place.</td><td>As part of the OPEP, specialist oil spill management and response services will be in place, to minimise impacts from potential releases to the marine environment.</td></tr>
<tr><td>Transboundary & Cumulative Impacts (including in-combination effects)</td><td>Work undertaken at Seven Seas will be within existing 500m exclusion zones, therefore activities will be localised in a relatively small area with no transboundary impacts.
The following in-combination effects have been assessed:
A rig will be used to carry out well abandonment once the WHPS has been removed. The area of temporary disturbance associated with well abandonment, including spud can placement, is expected to be approximately 0.01328km^2. Permanent disturbance from rock placement to enable rig stabilisation is approximately 0.001km^2 (this is installed to prevent potential toppling). It is not yet known whether rock will be required as a pre-rig arrival survey will determine stability, however a full assessment will be made in the environmental permits submitted to OPRED. Spud cans used to stabilise the drilling rig will result in seabed disturbance which has been assessed as worst case.
<table>
<tr><th>Activity</th><th>Dimensions (m)</th><th>Length (m) or number removed</th><th>Area of Temporary Seabed Disturbance (km^2)</th><th>Area of Permanent Seabed Disturbance (km^2)</th></tr>
<tr><td>Well abandonment including spud cans and anchor placement**</td><td>Based on a previous project</td><td>-</td><td>0.01328</td><td>0.001</td></tr>
</table>
** Seabed disturbance associated with temporary work baskets and anchor chains is included within this area. Estimated that a maximum of 1,000Te of rock will be required for rig stabilisation. 1m^2 is assumed for every 1Te of rock (0.001km^2).</td><td>Pre-rig arrival surveys will be conducted. In-combination effects will be fully assessed in environmental permits submitted to OPRED once details are known.
The assessment of potential cumulative impacts concludes that these are not anticipated to be significant.</td></tr>
</table>

Table 4.2.1: Environmental Impact Management

Main Impacts	Impact Assessment	Management

The in-combination impact of permanent deposits is related to the rig stabilisation only and it is not yet known if this stabilisation will be required. If permanent deposits are needed, it will have a minimal impact on the overall area of the SNS SAC (0.000027%).

Total fuel usage for the rig carrying out well abandonment is estimated to be 245 tonnes (fuel use per day (7 tonnes) x maximum days on location (35)).

Estimated atmospheric emissions as follows:

	CO_2	CO	NOx	N_2O	SO_2	CH_4	VOC
Emissions Factor	3.17	0.0157	0.059	0.00022	0.002	0.00018	0.0024
Total Mass	776.65	3.846	14.455	0.053	0.49	0.044	0.588
GWP	1	1.6	0	273	0	29.8	5.6
CO_2e Emissions	776.65	6.154	0	14.714	0	1.314	3.292
Total CO_2e Emissions	802.12						

Total in-combination emissions from the project amount to 1,273.57 tonnes, which is approximately 0.0115% of total emissions from the shipping industry in 2023 (outlined in the 2024 Climate Change Committee progress report (11MtCO_2e)).

Other in-combination impacts, for example, the use of chemicals in the well abandonment programme are unlikely to have any cumulative impact as they will be temporary and managed under existing environmental permits.

In terms of cumulative impacts within the SNS SAC, Spirit Energy is not aware of any decommissioning works occurring that could have an impact in-combination with the proposed operations at Seven Seas. The Hornsea 3 wind farm development is proposed within the SNS SAC and surveys may be ongoing at the same time as the operations at Seven Seas. However, the relatively low impact from the proposed work at Seven Seas is unlikely to cause a significant cumulative increased impact on the SNS SAC overall. The minor impacts identified as a result of the proposed activities, are not likely to have a cumulative impact given the temporal and spatial extent of the activities.

5. INTERESTED PARTY CONSULTATIONS

5.1 General

Table 5.1.1: Summary of Stakeholder Comments		
Who	**Comment**	**Response**
INFORMAL CONSULTATIONS		
Perenco	Decommissioning proposals are being presented to Perenco as part of regular engagement meetings.	No adverse comments have been raised to date.
Rockrose		
Harbour		
NFFO	NFFO were updated on all projects including Seven Seas on 03 July 2024.	No adverse comments received.
STATUTORY CONSULTATIONS		
NSTA		
NFFO		
NIFPO		
SFF		
GMG		
OTHER CONSULTATIONS		
Public		

6. PROGRAMME MANAGEMENT

6.1 Project Management and Verification

Spirit Energy's project management team will manage the operations of competent contractors selected for all decommissioning activities. The team will ensure the decommissioning is executed safely, in accordance with legislation and Spirit Energy Health and Safety principles. Required changes to the DP will be discussed with OPRED, with any necessary approvals sought.

6.2 Post-Decommissioning Debris Clearance and Verification

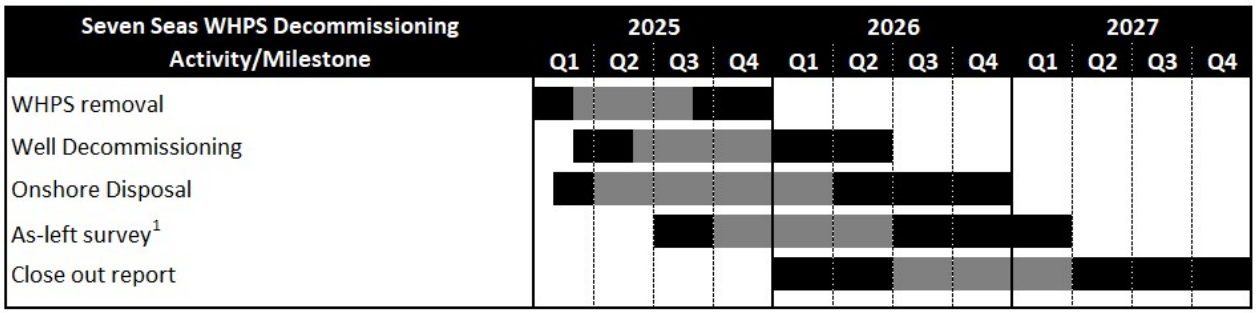
This DP covers removal of the WHPS/xmas tree as part of the Seven Seas well decommissioning campaign. Upon completion, an as-left survey will be carried out to ensure that no snag hazards or risks to other users of the sea remain. Any items left *in-situ* until the wider Seven Seas field decommissioning[2] is complete will be monitored and appropriate mitigation put in place. Post-decommissioning debris surveys and seabed verification will be carried out after full decommissioning of the Seven Seas development.[2]

6.3 Schedule

The proposed schedule for the decommissioning of the Seven Seas WHPS/xmas tree is provided in Figure 6.3.1.

The activities are subject to the acceptance of the DP presented in this document and any unavoidable constraints (e.g. vessel availability) that may be encountered whilst executing the decommissioning activities. Therefore, activity schedule windows have been included to account for this uncertainty. The WHPS removal activities will not be performed unless there is a rig contract and agreed execution schedule window in place for the well P&A.

The commencement of wider offshore decommissioning activities will depend on commercial agreements, commitments and timelines. Spirit Energy will also examine the possibility of including the offshore work in a wider campaign of subsea works to reduce costs.



Notes:

1. An as-left survey will be performed after WHPS removal and Well P&A activities. Post-decommissioning debris surveys and subsea verification will be carried out after full decommissioning of the Seven Seas development.

Key

Most likely period of activity

Activity window to allow campaigning flexibility

Figure 6.3.1: Gantt Chart of Project Plan

[2] A separate DP document will be submitted to OPRED in 2025 with the decommissioning proposals for the remaining wider Seven Seas field infrastructure and the Eris and Ceres field infrastructure.

6.4 Costs

Decommissioning costs will be provided separately to OPRED.

6.5 Close Out

In accordance with the OPRED Guidelines, a close out report will be submitted to OPRED within 12 months of the completion of the scope within this decommissioning programme.

6.6 Post-Decommissioning Liability, Monitoring and Evaluation

This Decommissioning Programme concerns the removal of the WHPS and the associated Seven Seas xmas tree. Following completion of the wider Eris, Ceres and Seven Seas fields decommissioning scopes (to be covered by a separate future decommissioning programme document to be submitted to OPRED) the various survey findings specific to this Seven Seas WHPS DP (i.e. as-left status, environmental and clear seabed surveys) will be sent to OPRED in a standalone Seven Seas WHPS close out report. The frequency of future surveys will be agreed with OPRED and supported with a risk assessment.

Residual liability for the facilities will remain with the Section 29 holders. Unless agreed otherwise in advance with OPRED, Spirit Energy will remain the focal point for this matter including any change in ownership, for example.

7. SECTION 29 NOTICE HOLDERS LETTER(S) OF SUPPORT (HOLD 1)

APPENDIX A PUBLIC NOTICE (HOLD 2)