

Enterprise Oil Limited



# **Pierce WI Well Decommissioning Programme**

**Submitted to the Offshore Petroleum Regulator for Environment and Decommissioning**

**Shell Report Number PIE-SHELL-S-AA-8203-00001**

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Abbreviations and Glossary	
CoP	Cessation of Production
EAJ	Environmental Assessment Justification
HSE	Health and Safety Executive
LWIV	Light Well Intervention Vessel
MDS	Main Drill Site
NSTA	North Sea Transition Authority
OEUK	Offshore Energies United Kingdom
OPRED	Offshore Petroleum Regulator for Environment & Decommissioning
P&A	Plug and Abandonment
P&L	Plug and Lubricate
SCAP	Supply Chain Action Plan
SDS	Satellite Drill Site
UKCS	United Kingdom Continental Shelf
WI	Water Injection
XT	Christmas Tree

HOLDS:

1. HOLD 1 – statutory consultee comments to be added to approval revision
2. HOLD 2 – partners’ letters of support to be added to approval revision

## **1 EXECUTIVE SUMMARY**

### **1.1 Decommissioning Programme**

This document contains the Decommissioning Programme for six Pierce Water Injection wells: 23/22A-A7z (A7z), 23/22-A8z (A8z), 23/22a-A13Y (A13Y), 23/27-B3 (B3), 23/27-B4 (B4) and 23/27-B4A (B4A). These wells are suspended and are required to be fully plugged and abandoned in accordance with regulatory timelines. Production will continue from the Pierce Field with no other infrastructure being decommissioned until closer to Cessation of Production (CoP).

### **1.2 Requirement for Decommissioning Programme**

#### **Installation(s):**

In accordance with the Petroleum Act 1998, the Section 29 Notice Holders of the Pierce Field (Table 1-2) are applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for the removals associated with decommissioning wells 23/22A-A7z (A7z), 23/22-A8z (A8z), 23/22a-A13Y (A13Y), 23/27-B3 (B3), 23/27-B4 (B4) and 23/27-B4A (B4A), described fully in Section 2 of this programme (see also Section 8 – Section 29 Notice Holders' Letters of Support).

This Decommissioning Programme is submitted by Enterprise Oil Limited. Enterprise Oil Limited is a member of the Shell Group and is the legal entity that operates the Pierce Installations. Throughout this document the terms "Shell", "we" and "our" refer to the execution of the decommissioning scope on behalf of all the Section 29 Notice Holders.

In conjunction with stakeholder and regulatory consultation, the Decommissioning Programme is submitted in compliance with national and international regulations and OPRED guidelines. The schedule outlined in this document is for a six-year decommissioning project starting in 2023. The plug and abandonment scope, including the removal of the Christmas Trees (XTs), is expected to take 2-3 weeks per well. However, there are several campaigns planned throughout the upcoming period and the removal activities will be assigned to one of these campaigns to maximise project efficiency.

The scope outlined within this Programme, including Close Out reporting, is expected to be completed by the end of 2028. Should the opportunity to execute the scopes for wells A7z and A13Y not be realised within this window, the wells will be decommissioned with the wider Pierce subsea portfolio following Field Cessation of Production.

### **1.3 Introduction**

The Pierce Field is located in Blocks 23/22a and 23/27 in the Central North Sea (CNS), circa 245km from the Scottish coastline (Peterhead) and circa 1km from the UK / Norwegian medial line (Figure 1-1) and in water depths of circa 85m.

The Pierce Field has undergone three main phases of development, initially with six horizontal wells and two gas injectors to re-inject all produced gas (minus fuel gas and flaring). In 2005/6 water injection was introduced to South Pierce to provide increased pressure support and sweep. To maximise oil recovery, additional wells were drilled between 2007 and 2016. The Field comprises two drill centres: the Main Drill Site (MDS) located in Block 23/22 and the Satellite Drill Site (SDS) located in Block 23/27.

This Decommissioning Programme covers the decommissioning of six water injection wells at Pierce across the following campaigns.

The A8z water injection well (Figure 1-2) was plugged and lubricated (P&L) in a combined campaign between Q4 2023 and Q1 2024. A separate Light Well Intervention Vessel (LWIV) campaign in June 2024 completed P&L at wells B3 and B4a. During these campaigns, the XTs and tree caps from two wells (A8z and B3) were recovered. On well B4A, the tree / cap was initially left in place due to the lack of second down-hole barrier at this well.

A plug and abandonment (P&A) campaign is scheduled from Q3 2024 to Q1 2025 for wells A8z, B3 and B4A. The XT at B4A will be recovered during this P&A campaign.

Well B4 was never completed and therefore no P&L or P&A is required, and there is no XT to be recovered. Well B4 requires wellhead severance and removal only.

Due to technical difficulties during initial development drilling, wells A7z and A13Y were never completed and therefore have no XT in place. There may be an opportunity to include the P&A and wellhead severance of these two wells within portfolio campaigns, as follows:

- P&A of A7z may be executed as part of a wider campaign from Q2 to Q4 2025; followed by wellhead severance from Q3 to Q4 2026.
- Well A13Y may be P&A'd as part of a wider campaign in 2026 and wellhead severance in 2027.
- Neither A7z or A13Y currently have XTs.

To enable this opportunity, wells A7z and A13Y have been included in this DP. Should the opportunity to complete P&A and wellhead severance for these wells within the noted campaigns not be realised, wells A7z and A13Y will be decommissioned with the wider Pierce subsea portfolio following Field Cessation of Production.

No structure, spool, jumper or concrete mattresses will be recovered to shore as part of this scope.

## 1.4 Overview of Installation(s) Being Decommissioned

Table 1-1: Installations Being Decommissioned			
Field(s)	Pierce Field	Production Type	Oil
Water Depth (m)	85m	UKCS block	23/22a and 23/27
Distance to median (km)	1 (Norway)	Distance from nearest UK coastline (km)	245 (Peterhead)
Subsea Installation(s)		Number of Wells	
Number	Type	Platform	Subsea
9	3-off XTs 6-off Wellheads	0	6
Drill Cuttings Pile(s)		Distance to Median (km)	Distance from nearest UK coastline (km)
Number of Piles	Total Estimated Volume (m <sup>3</sup> )		
N/A	N/A	1	245

Note that Table 1-1 has been completed for the scope of this Decommissioning Programme only; the numbers are not intended to reflect the scope of the wider Pierce Field. Decommissioning Programmes will be prepared and submitted for the Pierce Field at a later date when the Field is approaching Cessation of Production.

Table 1-2: Installation(s) Section 29 Notice Holders' Details		
Section 29 Notice Holders	Registration Number	Equity Interest (%)
BG Great Britain Limited	00909162	20
Bluewater (Haewene Brim) B.V.	NL57520402	0
Enterprise Oil Limited	01682048	42.79 (Operator)
Ithaca Energy (UK) Limited	SC272009	0
Ithaca SP E&P Limited	01504603	7.48
Shell EP Offshore Ventures Limited	01682052	19.73
Shell Upstream Overseas Services (I) Limited	07657243	10

## 1.5 Summary of Proposed Decommissioning Programme

Table 1-3: Summary of Decommissioning Programme		
Selected Option	Reason for Selection	Proposed Decommissioning Solution
<b>1. Subsea Installation(s)</b>		
<p>XTs and wellheads at wells A8z, B3 and B4A</p> <p>Wellheads only at A7z, A13Y and B4</p>	To leave a clear seabed	Fully remove for dismantling, recycling and disposal
<b>2. Wells</b>		
<p>Wells A7z, A8z, A13Y, B3, B4 and B4A will be decommissioned in accordance with the Offshore Energy UK (OEUK) Well Decommissioning Guidelines (Issue 7, November 2022). This will include removal of the associated XT, wellheads and top of each conductor.</p>	Meets HSE and NSTA regulatory requirements	<p>Plug and lubricate, where required, will be performed from a Light Well Intervention Vessel (LWIV). The LWIV will also recover the associated XT and tree cap.</p> <p>Plug and abandon will be performed from a drill rig.</p> <p>A later campaign will execute the cut and removal of each wellhead to a minimum of 3m below mean seabed level.</p> <p>All removed equipment will be returned to shore for recycling or disposal.</p>
<b>3. Interdependencies</b>		
<p>The associated pipeline spools and jumpers have been flushed and disconnected from the XTs to allow the wells to be decommissioned, and XTs removed. The disconnected spools and jumpers will remain in situ until the Pierce Field commences decommissioning.</p>		

## 1.6 Field Location Including Field Layout and Adjacent Facilities

Figure 1-1: Location of the Pierce Field

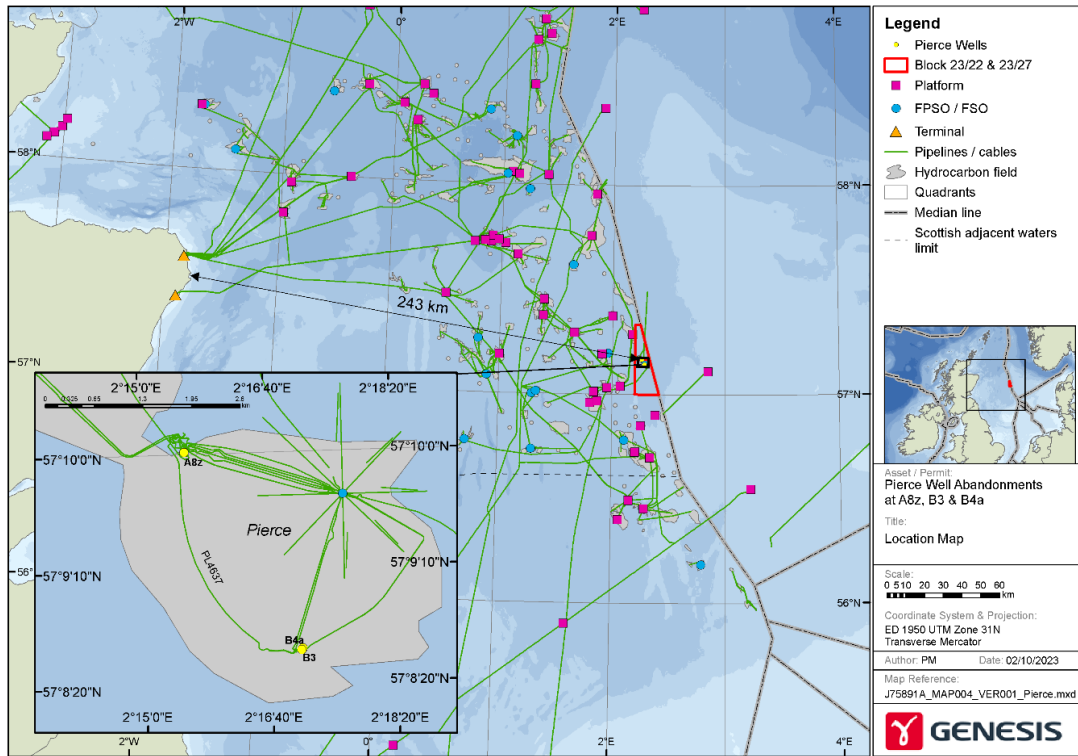


Figure 1-2: Location of Wells Within Pierce Field

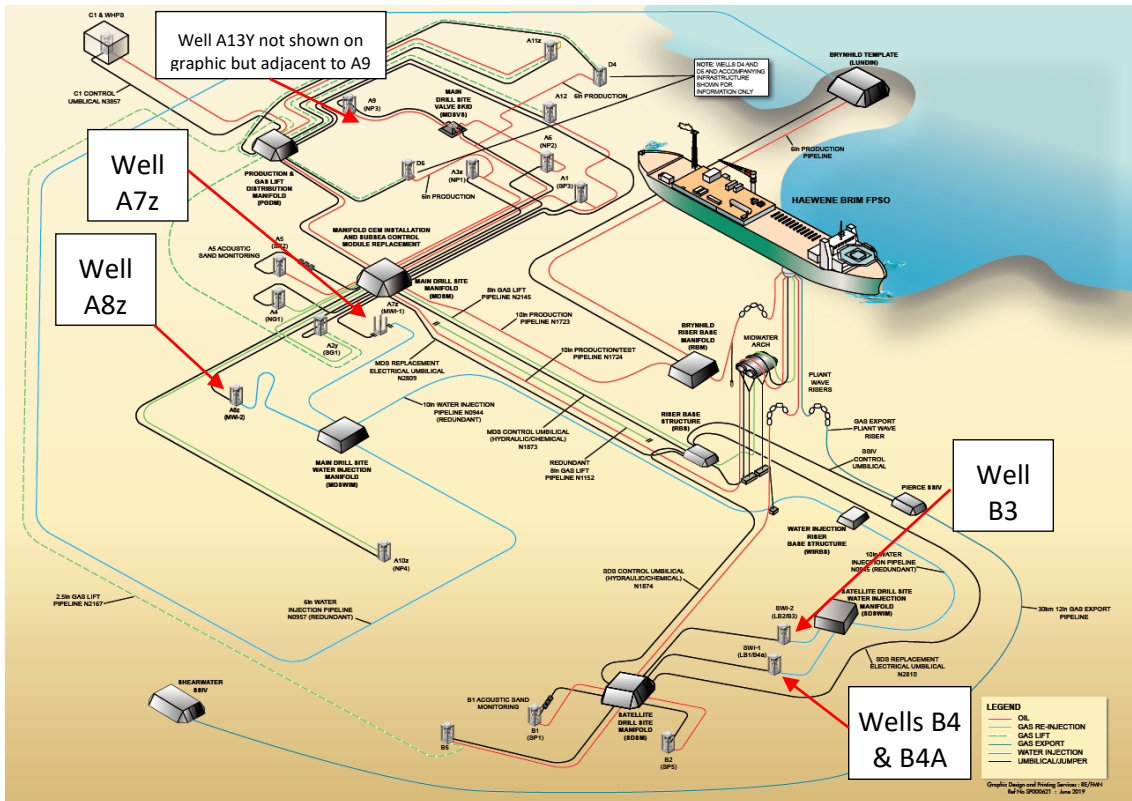




Table 1-4: Adjacent Facilities					
Owner	Name	Type	Distance/Direction	Information	Status
Infrastructure associated with the Pierce Field has not been listed here as Adjacent Facilities. Refer to Figure 1-2 for a Field layout, showing the infrastructure associated with the Pierce Field – noting that the Field will continue to produce following P&A of the A7z, A8z, A13Y, B3, B4 and B4A wells. Subsea safety zones associated with the Pierce Field will continue to operate until Field decommissioning is complete.					
Harbour	Lomond	Platform	13km North	Production platform	Active
Total	Culzean	Platform	20km West	Wellhead Platform and Production Platform	Active
Shell UK Limited	Shearwater	Platform	22km Southwest	Two production platforms	Active
Ithaca	Erskine	Platform	15km Southwest	Production platform	Active
Total	Elgin	Platform	29km Southwest	Production platform	Active
Total	Franklin	Platform	30km Southwest	Wellhead platform	Active
Shell UK Limited	Jackdaw	Jacket	29km South	Jacket only installed	In development
ConocoPhillips (Harbour)	Jade	Platform	31km South	Normally Unattended Installation	Active
Impacts of Decommissioning Proposals					
There are no direct impacts on adjacent facilities from the decommissioning of the A7z, A8z, A13Y, B3, B4 and B4A water injection wells. Plug and abandonment of these wells is required by regulation, and its execution does not preclude any decommissioning solutions for the remaining Installations or Pipelines covered by the Pierce Field Section 29 Notices.					

## 1.7 Industrial Implications

The decommissioning of wells A7z, A8z, A13Y, B3, B4 and B4A have been, or will be, contracted within the wider Shell well decommissioning portfolio. Following competitive tenders, the P&L scope for A8z, B3, B4 and B4A will be executed from the Well Enhancer LWIV; and the P&A scope will be executed from a rig.

Following competitive tender, Shell awarded a contract for a portfolio campaign of wellhead severances including at A8z, B3, B4 and B4A to Mermaid Subsea Services (UK) Limited.

The execution of work at A7z and A13Y has not yet been contracted.

Shell will engage with the NSTA to confirm the most appropriate method for capturing relevant Supply Chain data for this bundled scope in the most efficient manner.

## 2 DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

No pipelines are associated with this scope.

### 2.1 Installations

Table 2-1: Christmas Trees (XTs)				
Well Identification	Number	Size / weight m / Te	Location WGS84 Decimal	Comments
23/22A-A7z	1	Wellhead: 1.6m x 1.6m x 20.1m 29 Tonnes	57° 10' 0.311" N 2° 15' 32.2623" E	All XTs and wellheads will be recovered to shore for dismantling, recycling and disposal
23/22-A8z	2	XT: 3.9m x 3.7m x 3.7m 35 Tonnes	57° 10' 0.909"N 02° 15' 35.678"E	
		Wellhead: 1.6m x 1.6m x 20.1m 29 Tonnes		
23/22a-A13Y	1	Wellhead: 1.6m x 1.6m x 20.1m 29 Tonnes	57° 10' 2.8706" N 2° 15' 21.6868" E	
23/27-B3	2	XT: 3.9m x 3.7m x 3.7m 35 Tonnes	57° 8' 35.111"N 02° 17' 5.054"E	
		Wellhead: 1.6m x 1.6m x 20.1m 29 Tonnes		
23/27-B4	1	Wellhead: 1.6m x 1.6m x 20.1m 29 Tonnes	57° 8' 32.6942" N 2° 16' 57.9723" E	
23/27-B4A	2	XT: 3.9m x 3.7m x 3.7m 37.5 Tonnes	57° 8' 34.395"N 02° 17' 4.391"E	
		Wellhead: 1.6m x 1.6m x 20.1m 29 Tonnes		

## 2.2 Wells

Six wells are being decommissioned, details of which are provided in Table 2-2. Details of the XTs and wellheads associated with these wells are contained in Table 2-1.

Table 2-2: Wells			
Well Identification	Designation	Status	Category of well
23/22-A8z	Water injection	Suspended	SS 3-3-3
23/27-B3	Water injection	Suspended	SS 3-3-3
23/27-B4	Water injection	Non-Producing	SS 3-3-3
23/27-B4A	Water injection	Suspended	SS 0-1-1
23/22A-A7z	Water injection	AB1	SS 0-3-3
23/22a-A13Y	Water injection	Suspended	SS 1-3-3

## 2.3 Inventory Estimates

The three XTs and six wellheads to be recovered as part of this scope are broken down into estimated waste streams in Table 2-3. No other infrastructure such as pipeline spools, concrete mattresses or grout bags are scheduled to be recovered at this time. The remaining infrastructure will be included in the Decommissioning Programmes covering full Field decommissioning at CoP.

Table 2-3: Material Inventory			
Material	Total weight (tonnes)	Weight to be recovered (tonnes)	Weight to be left in situ (tonnes)
Steel	276	155	121
Non-ferrous metal	4.3	4.3	0
Other non-hazardous	1.1	1.1	0

The total inventory associated with this Decommissioning Programme is 281.5 tonnes. Of this, approximately 57% will be recovered to the surface to be dismantled, recycled and disposed as appropriate.

The material to be left in situ represents the section of wellheads which are left buried within the seabed when the upper wellheads are cut and removed. Per the OEUK Well Abandonment Guidelines and OPRED Guidance Notes on Decommissioning, each wellhead will be removed to a depth of at least 3m below mean seabed level.

In addition to the inventory noted above, there is likely to be a small amount of marine growth adhered to the recovered infrastructure. This has not been included in the weight estimates above.

### 3 WASTE STREAMS

Approval methods for the three XTs and six wellheads within this scope are detailed within the approved Environmental Assessment Justification [1].

Shell's decommissioning projects set a target to recycle and re-use at least 97% by weight of all the equipment and materials that is retrieved to shore.

The waste arising from the recovery of the three XTs and six wellheads within this scope will be recovered as part of amalgamated campaigns across Shell's decommissioning portfolio. The waste will be returned to shore for dismantling, recycling and disposal utilising existing framework contracts. Duty of Care audits are performed at all contractors handling Shell waste, in line with Shell's Waste Control Framework.

<b>Waste Stream</b>	<b>Removal and Disposal method</b>
Steel/plastics/other materials	Removed to shore and recycled or disposed of as appropriate.
Marine growth	Marine growth that remains attached to the subsea equipment after load-in to the onshore dismantling site will be removed. It will be disposed of in accordance with the regulations in force at the site following the site operator's licences and procedures (e.g. decommissioning yard's Waste Management Plan)
NORM	All recovered material will be monitored for NORM contamination and, where encountered, managed in accordance with Shell's control framework and the Environmental Authorisations (Scotland) Regulations 2018.
Other hazardous wastes	No other hazardous materials have been identified for this scope. Should additional hazardous waste(s) be identified during the execution phase, the waste shall be identified, labelled, segregated, treated and disposed in full compliance with relevant regulations and permits conditions.
Onshore Dismantling sites	Appropriately licenced UK sites are to be used to receive recovered materials. No trans-frontier shipment of waste is planned.

#### **4 ENVIRONMENTAL SENSITIVITIES/POTENTIAL ENVIRONMENTAL IMPACTS & THEIR MANAGEMENT**

Agreed with OPRED that this section is not required at this time. Environmental conditions and potential impacts are covered within the approved Environmental Assessment Justification (EAJ) that is submitted in support of the Marine License covering the removal activities. Please refer to the EAJ issued in support of WIA/1576 and ML/1056 [1].

A pre-decommissioning environmental survey and environmental appraisal will be developed to support the main Field Decommissioning Programmes submitted at CoP.

## 5 INTERESTED PARTY CONSULTATIONS

Table 5-1: Summary of Stakeholder Comments		
Consultee	Comment	Response
<b>Informal Stakeholder Consultations</b>		
SFF	HOLD 1	
<b>Statutory Consultations</b>		
National Federation of Fishermen's Organisation		
Scottish Fishermen's Federation		
Northern Ireland Fish Producers Organisation		
Global Marine Systems Limited		
North Sea Transition Authority		
<b>Public</b>		
TBC		

## **6 PROGRAMME MANAGEMENT**

### **6.1 Project Management and Verification**

Shell is undertaking a number of well decommissioning campaigns over the coming years. Resources are identified to support each campaign and to manage suitable sub-contractors. Separate contractors and sub-contractors may be appointed to execute the P&L, P&A and removal scopes. Where possible, this work will be coordinated with other decommissioning operations in the Central North Sea to secure schedule and cost efficiencies.

The process of consents and the engagements required to execute the decommissioning of the six wells in-scope of this Programme have commenced and will be fully managed and monitored. In the event of any changes in the detail of the offshore removal scope being required, these will be discussed and agreed with OPRED in advance.

### **6.2 Post-Decommissioning Debris Clearance and Verification**

On the completion of well decommissioning, the contractor will undertake a debris survey within a 70m radius of each wellhead in line with the OEUK Well Decommissioning Guidelines.

Any items of debris which cannot be removed at this time will be recorded within Shell's Commitments Register for inclusion in the debris campaigns associated with the full Field Decommissioning Programmes, to be developed at CoP of the Pierce Field.

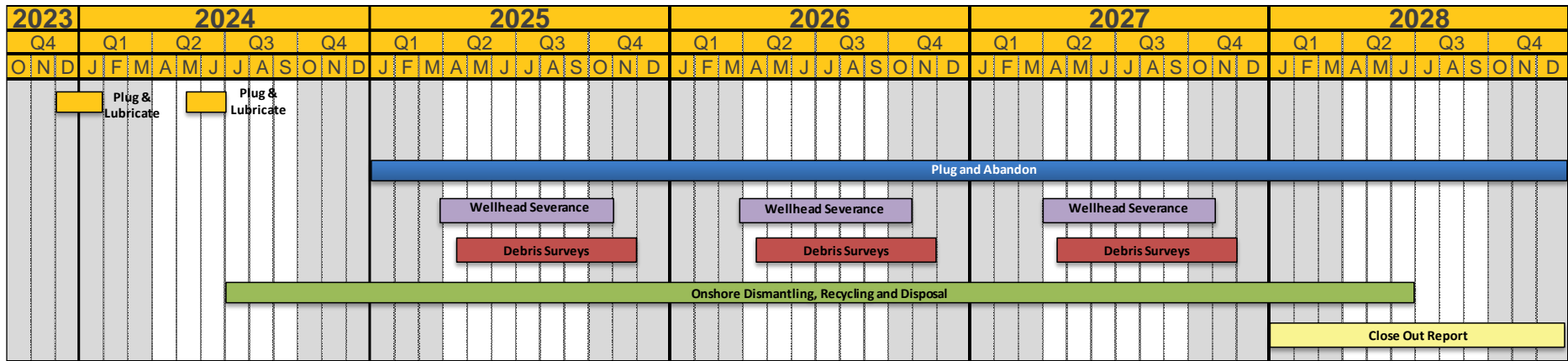
Active 500m exclusion zones are active at each well location and will remain in place to protect the infrastructure that remains in place to support ongoing production.



### 6.3 Schedule

An indicative schedule for the scope of this Programme is provided in Figure 6-1.

Figure 6-1: Gantt Chart of Project Plan



Note that the timings provided are indicative windows of proposed upcoming campaigns. Each of the scopes for wells 23/22a-A7z, 23/22-A8z, 23/22a-A13Y, 23/27-B3, 23/27-B4 and 23/27-B4A may take place within these indicative windows to maximise project efficiency. The windows are not intended to indicate total execution duration. For example, onshore dismantling may take place at any time within the advised window depending on when the plug and abandon or wellhead severance scopes are executed within their own advised windows.

Should the opportunity to complete P&A and wellhead severance for wells 23/22a-A7z and 23/22a-A13Y within the noted campaigns not be realised, they will be decommissioned with the wider Pierce subsea portfolio following Field Cessation of Production.

## **6.4 Costs**

Costs will be provided to OPRED in a separate CONFIDENTIAL email prior to consultation and at submission for approval. These costs can be shared with ODU Finance and NSTA Decommissioning only. Costs cannot be shared further without written consent from Shell.

## **6.5 Close Out**

A Close Out Report will be submitted on completion of the scope contained herein. This Close Out Report will be submitted within 12 months of the completion of execution.

Shell will submit a Progress Report at appropriate milestones agreed with OPRED throughout the campaigns outlined in Section 6.3. The Progress Report(s) will be submitted to OPRED confirming the infrastructure which has been recovered and the status of the seabed.

## **6.6 Post-Decommissioning Monitoring and Evaluation**

Production will continue from the Pierce Field following decommissioning of the six WI wells covered by this Programme. Monitoring of the remaining infrastructure and the associated 500m exclusion zones will continue on a risk basis.

Of the infrastructure associated with this Programme, i.e. the three XTs and six wellheads noted above, everything on or above the seabed will be recovered to shore and nothing will remain in situ on the seabed which requires future monitoring. The lower sections of the wellheads, below the cut points 3m below mean seabed, will be decommissioned in situ per the OEUK Well Abandonment Guidelines and OPRED Guidance Notes.

## 7 SUPPORTING DOCUMENTS

Table 7-1: Supporting Documents	
<i>Document Number</i>	<i>Title</i>
1	Environmental Assessment Justification issued in support of WIA/1576; <i>Pierce A8z, B3 and B4a Well Abandonments</i>

This document is available as follows:

1. At the Shell website at <https://www.shell.co.uk/about-us/sustainability/decommissioning.html>
2. Electronic copies may be requested by emailing [SUKEP-Shell-Decommissioning-Correspondence@shell.com](mailto:SUKEP-Shell-Decommissioning-Correspondence@shell.com) or by writing to Decommissioning Business Opportunity Manager, Decommissioning Strategy, Shell U.K. Limited, The Silver Fin Building, 455 Union Street, Aberdeen, AB11 6DB

## **8 SECTION 29 NOTICE HOLDERS' LETTERS OF SUPPORT**

HOLD 2