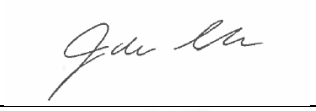
PERENCO UK LIMITED
TYNE INSTALLATIONS
DRAFT DECOMMISSIONING PROGRAMME

Consultation Draft

DOCUMENT CONTROL

Approvals

	Name	Signature	Date
Prepared by	Julie Summerell		11.07.18
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Revision Control

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0	Develop outline programme		24.05.16
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8	Consultation Draft	Additional information requested by BEIS included	11.07.18

Distribution List

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TABLE OF TERMS AND ABBREVIATIONS

Abbreviation	Explanation
BEIS	Department for Business, Energy and Industrial Strategy
BGS	British Geological Society
CA	Comparative Assessment
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
COMOPS	Combined Operations Notification
COP	Cessation of Production
cSAC	Candidate Special Areas of Conservation
DP	Decommissioning Programme
DSV	Diving Support Vessel
EA	Environment Agency
EAGLES	Name of the export pipeline from Trent platform to Bacton (East Anglia Gas And Liquids Evacuation System)
EIA	Environmental Impact Assessment
ESDV	Emergency Shut Down Valve
ETS	Esmond Transmission System
EUNIS	European Nature Information System
FPSO	Floating Production, Storage and Offloading System
HAZ	Hazardous
HC	Hydrocarbon
HLV	Heavy Lift Vessel
HSE	Health and Safety Executive
ICES	International Council for the Exploration of the Seas
JNCC	Joint Nature Conservation Committee
LAT	Lowest Astronomical Tide
LSA	Low Specific Activity
M	Metres
MAT	Master Application Template
MCCS	Murdoch-Cygnus Cable System
MEG	Monoethylene Glycol
MMO	Marine Mammal Observer
MOAB	Mobile Offshore Application Barge
MOD	Ministry of Defence
NFFO	National Federation of Fishermen's Organisations
NIFPO	Northern Ireland Fish Producers Organisation

Abbreviation	Explanation
NMPI	National Marine Plan Interactive
NORM	Naturally Occurring Radioactive Material
NUI	Normally Unattended Installation
OGA	Oil & Gas Authority
OGUK	Oil & Gas UK
OPEP	Oil Pollution Emergency Plan
OSRL	Oil Spill Response Limited
OSPAR	Oslo and Paris Convention
P & A	Plug and Abandonment
PAM	Passive acoustic monitoring
Perenco	Perenco UK Limited
PL	Pipe Line
POB	Personnel on Board
PON	Petroleum Operations Notices
PWA	Pipeline Works Authorisation
pSAC	Possible Special Area of Conservation
QRA	Quantitative Risk Assessment
SAC	Special Area of Conservation
SAT	Subsidiary Application Template
SCI	Site of Community Importance
SEMS	Safety and Environmental Management System
SLV	Sheer Leg Vessels
SNS	Southern North Sea
Te	Tonne
UKD	United Kingdom Digital
VMS	Vessel Monitoring System
SFF	Scottish Fishermen's Federation
UKCS	UK Continental Shelf

A. LIST OF TABLES

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1 EXECUTIVE SUMMARY

1.1 Decommissioning Programme

This document is for the Decommissioning Programme (DP) for the Tyne gas field installations in the Southern North Sea (SNS). There will be a separate document for the Decommissioning Programme for the two pipelines (PL 1220 and PL 1221) for the Tyne gas field.

There is a separate programme for each set of S29 notices.

1.2 Requirement for Decommissioning Programme

In accordance with the Petroleum Act 1998, the section 29 notice holders of the Tyne Installations (see Table 1.2) are applying to the Department for Business, Energy and Industrial Strategy (BEIS) to obtain approval for decommissioning the installations detailed in Section 2.1 and 2.2 of this programme.

In conjunction with public, stakeholder and regulatory consultation, the decommissioning programme is submitted in compliance with national and international regulations and BEIS guidelines. The schedule outlined in this document is for a six year decommissioning project which began in 2016.

1.3 Introduction

The Tyne field was discovered by well 44/18-1 in 1992. Production commenced in November 1996 and the field ceased production in November 2015.

The Tyne field is located in block 44/18a in the Southern North Sea approximately 188km off the coast of Norfolk and 184km off East Yorkshire. The Tyne platform was installed in 1996 and exports wet gas through a 20” line to the Trent Platform Mobile Offshore Application Barge (MOAB). On Trent MOAB the gas is processed, water separated, cleaned up and discharged. After compression the gas is exported to Bacton on the Norfolk coast via the EAGLES pipeline system.

The Tyne field is 57km east north east of Trent field and 122km north of Inde field. The co-ordinates of the Tyne Platform are: Latitude: 54° 26' 57" N, Longitude: 02° 28' 52" E. (See Table 2.1). It is situated within the Dogger Bank, which is a pSAC area.

The Tyne platform is a Normally Unattended Installation (NUI) with maximum personnel on board (POB) of 12 and a temporary overnight shelter.

Perenco explored all avenues for continuing production as described in the Cessation of Production (COP) document and concluded that due to reduction of gas production, continued operations were uneconomical. Therefore, in preparation for decommissioning, COP documentation was submitted to the OGA and approval was granted in November 2015.

The Tyne installations estimated lift weights are; Topsides 738 tonnes, Jacket 479 tonnes (incl. 78 tonnes of marine growth), Jacket Piles 173 tonnes (incl. concrete grout), and the subsea template 13 tonnes (incl. 1 tonne of marine growth). The weight of Jacket Piles left in situ is estimated at 125 tonnes.

The Tyne topside is a conventional carbon steel structure with a cellar deck (+21m), mezzanine deck and weather deck (+29.5m). A helideck is situated above the weather deck (+35.6m) and vent boom (+41.2m). Access between platform levels is provided by ladders and stairways. There are nine well slots of which five have been drilled. The approximate size of the topsides is 21m x 20m x 15.5m high (including helideck).

The Tyne jacket is a conventional four-legged carbon steel structure with a single 48" tubular pile of approximately 51m overall length through the pile sleeve attached to each leg (4 piles in total). The jacket has a single vertical face to facilitate approach of a jack-up rig; the three other faces have a batter. The jacket is in 17.5m of water, the jacket height is 37.4m. The subsea template structure measures 20m x 20m x 1.9m high and is located directly beneath the Tyne Jacket on the seabed. This installation is separate to the jacket.

Following public, stakeholder and regulatory consultation, the decommissioning programme is submitted without derogation and in full compliance with BEIS guidelines. The decommissioning programme explains the principles of the removal activities and is supported by an Environmental Impact Assessment (EIA).

1.4 Overview of Installations being decommissioned

1.4.1 Installations

Table 1.1:Decommissioning Programme			
Field:	Tyne	Production Type (Oil/Gas/Condensate)	Gas
Water Depth (m)	17.5	UKCS block	44/18a
Surface Installation			
Number	Type	Topsides Weight (Te)	Jacket Weight (Te)
1	Small Steel Jacket	738	777
Subsea Installation		**Number of Wells**	
Number	Type	Platform	Subsea
1	Subsea Template (13 tonnes)	5 Platform Wells	0 Subsea Wells
Drill Cuttings pile		**Distance to median**	**Distance from nearest UK coastline**
Number of Piles	Total Estimated volume (m^3)	Km	Km
None	0	334	184

* Jacket weight 479Te plus total pile weight 173Te (incl. marine growth & concrete grout) plus 125Te jacket piles which remain in situ.

Table 1.2 Installation Section 29 Notice Holder(s) Details		
Section 29 Notice Holder	Registration Number	Equity Interest (%)
Perenco UK Limited	04653066	100
ARCO British Limited, LLC	BR001713	0
BP Exploration Operating Company Limited	00305943	0
Decipher Production Limited	SC335305	0

1.5 Summary of Proposed Decommissioning Programme

Table 1.3: Summary of Decommissioning Programme		
Selected Option	**Reason for Selection**	**Proposed Decommissioning Solution**
1. Topsides		
Complete removal and re-use or recycle	Complies with OSPAR requirements and maximizes recycling of materials.	Decontaminate the topside and remove the topside either by HLV or combination of crane vessel and piece small dismantling. Re-use followed by recycle and then landfill will be the prioritised options for the topside.
2. Jacket		
Complete removal and re-use or recycle	Leaves clean seabed, removes a potential obstruction to fishing operations and maximizes recycling of materials, to comply with OSPAR requirements.	Jacket legs will be removed and dismantled at an onshore location. Re-use followed by recycle and then landfill will be the prioritised options. Piles will be severed at least -3.0m below the seabed. If any practical difficulties are encountered Perenco will consult BEIS.
3. Subsea Installations		
Complete removal and re-use or recycle of Subsea template	Leaves clean seabed, removes a potential obstruction to fishing operations and maximizes recycling of materials, to comply with OSPAR requirements.	Removed by HLV and dismantled at an onshore location. Re-use followed by recycle and then landfill will be the prioritised options.
4. Pipelines, Flowlines & Umbilical		
Not covered in this Decommissioning Programme		
5. Wells		
Plug and abandoned to comply with the HSE "Offshore Installations and Wells (Design and Construction, etc.) Regulations 1996" and in accordance with OGUK for the Suspension and Abandonment of Wells (Issue 5, July 2015).	Meets OGA and HSE regulatory requirements	A Master Application Template (MAT) and the supporting Subsidiary Application Template (SAT) will be submitted in support of works carried out. A PON 5 was submitted to the OGA in support of works carried out.
6. Drill Cuttings		
Leave in place to degrade naturally	Cuttings pile is widely dispersed and fall below OSPAR 2006/5 thresholds	Left undisturbed on seabed
7. Interdependences		
There are no cuttings piles around the platforms legs and there are no interdependencies associated with the removal of the drilling template.		

1.6 Field Location Including Field Layout and Adjacent Facilities

Figure 1.1: Tyne location within Southern North Sea

Figure 1.2: Field Layout

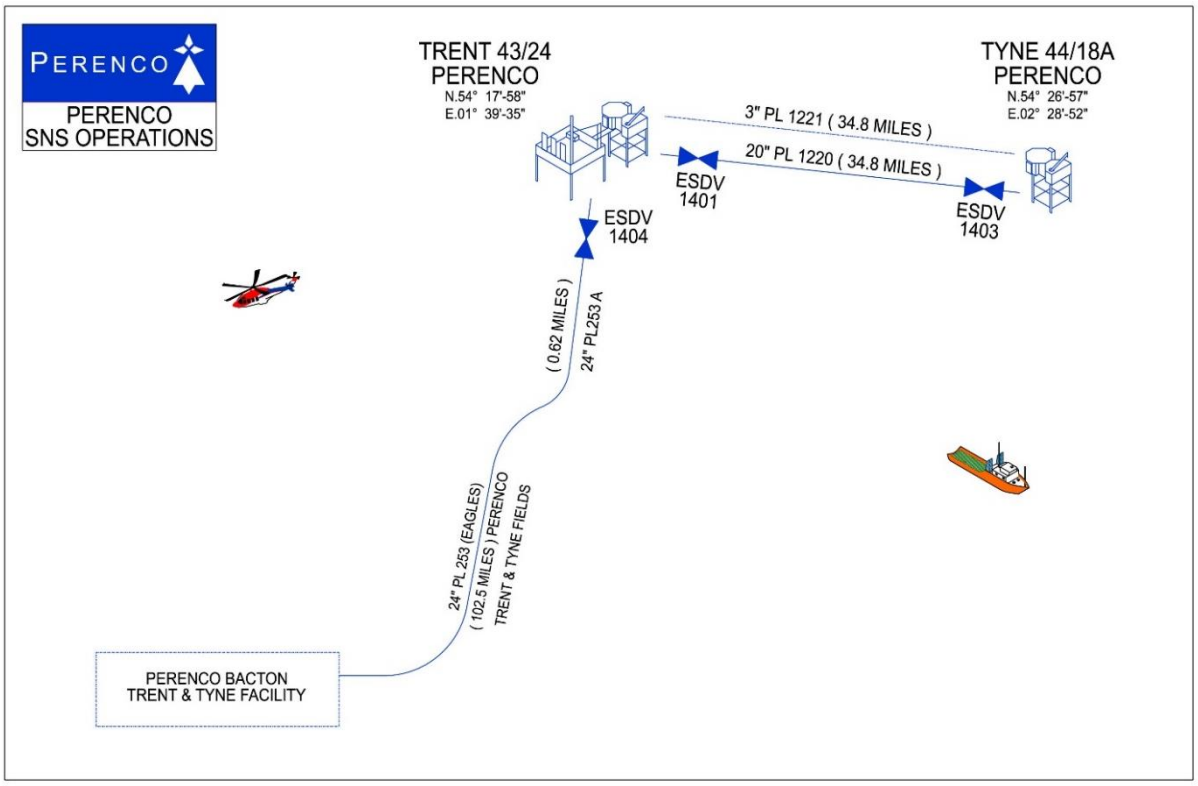
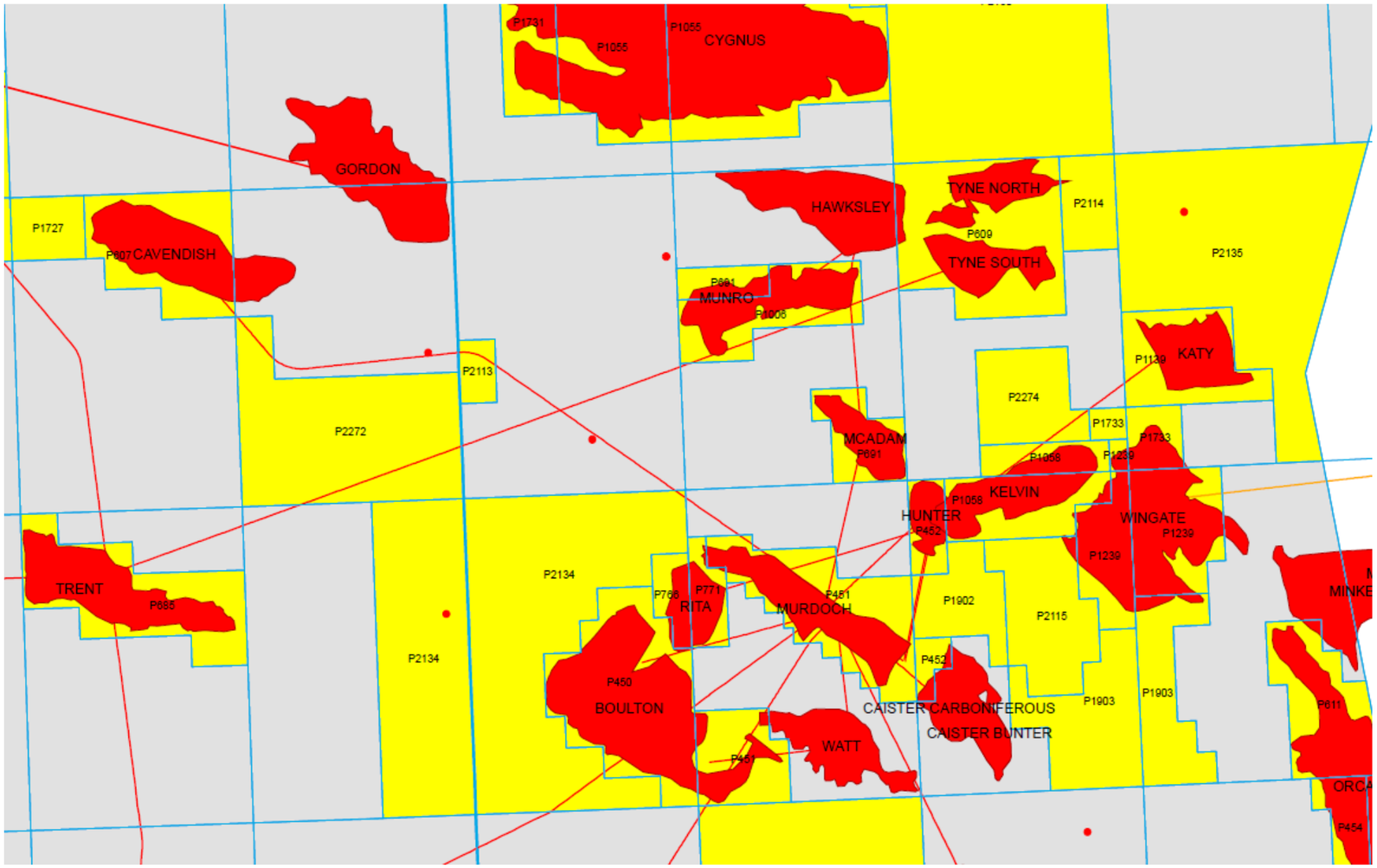


Table 1.4 List of Adjacent Facilities					
Owner	Name	Type	Distance/Direction	Information	Status
Perenco UK Limited	Trent	Platform	From Tyne to Trent is 56.5km South West from Tyne. 54° 17' 59.36" North 01° 39' 34.54" East	Gas production from Tyne wells flow into Trent	Operational
Conoco Phillips U.K. Limited	Katy	Platform	From Tyne to Katy is 12.5km South East from Tyne. 54° 24' 13.34" North 02° 39' 38.44" East	Adjacent platform	Operational
Conoco Phillips U.K. Limited	Kelvin	Platform	From Tyne well to Kelvin is 13km South from Tyne. 54° 20' 01.73" North 02° 28' 50.45" East	Adjacent platform	Operational
Conoco Phillips U.K. Limited	Munro MH	Platform	From Tyne to Munro is 12km South West of Tyne 54˚ 26' 05.11 North 02˚ 18' 00.03 East	Adjacent platform	Operational

Owner	Name	Type	Distance/Direction	Information	Status
Conoco Phillips U.K. Limited	Hawksley EM	Single slot template	From Tyne to Hawksley is 7.6km East of Tyne 54˚ 27' 36.62 North 02˚ 21' 48.97 East	Single slot template tied back to Munro MH and Murdock platform 20km south	Operational
Conoco Phillips U.K. Limited	Murdoch	Platform	From Tyne to Cygnus is 22.5km South, South West of Tyne 54˚ 164' 06.67 North 02˚ 19' 23.99 East	Adjacent platform. Tampnet communications cable and export line PL1922, from Hawksley to Murdoch, crosses Tyne export and MEG pipelines	Operational
Engie E & P UK Limited	Cygnus A	Platform	From Tyne to Cygnus is 18km North West of Tyne 54˚ 34' 11.01 North 02˚ 17' 27.44 East	Adjacent platform	Operational
Wintershall Noordzee B.V.	Wingate	Platform	From Tyne to Wingate is 17km South East of Tyne 54^0 18' 59.79 North 02^0 37' 10.37 East	Adjacent platform	Operational
Ineos UK SNS Limited	Cavendish	Platform	From Tyne to Cavendish is 48km West of Tyne 54^0 28 41 North 01^0 44 20 East	Adjacent Platform	Operational

Impacts of Decommissioning Proposals
Decommissioning of Tyne platform will have no impact on adjacent facilities.

Figure 1.3: Adjacent Facilities and crossings



1.7 Industrial Implications

The project includes the following key activities:

- Well Plugging & Abandonment
- Removal of platform and jacket

The above activities will need to be planned carefully to recognise synergies and efficiencies, however the engineering and planning will be completed to understand the possibilities of potential integration of various activities.

Strategically, suppliers with working vessels and assets on the UKCS will be favoured. All contracts will be tendered according to Perenco UK Limited Procedures.
Perenco have engaged with the OGA Supply Chain team, and it has been agreed that a full Supply Chain Action Plan (SCAP) is not required for the Tyne Installation DP as procurement was already in an advanced stage before the SCAP policy was introduced. However, the OGA will be provided with the Perenco contract strategy and update of major contract awards in respect of this programme.

Current operational contracts for items such as environmental permitting, potential vessel sharing and logistic support will be implemented to support decommissioning activities.

2. DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

2.1 Installation: Surface Facilities

Table 2.1: Surface Facilities Information								
Name	Facility Type	Location WGS84 Format	Topsides/Facilities		Jacket (if applicable)			
			Weight (Te)	No of modules	Weight (Te)	Number of Legs	Number of piles	Weight of piles (Te)
Tyne	Fixed steel jacket	54.44865° N 02.47936° E	738	1	479	4	4	173*

* 125Te of jacket piles will remain in situ

2.2 Installation: Subsea including Stabilisation Features

Table 2.2: Subsea Installations and Stabilisation Features				
Subsea installations and Stabilisation Features	Number	Size/Weight (Te)	Location(s)	Comments/ Status
Jacket Subsea Template	1	20m x 20m x 1.9m (high) /13 Te	Locate on the seabed directly beneath the jacket	
Wellhead(s)	0	N/A	N/A	
Protection Frame(s)	0	N/A	N/A	
Concrete mattresses	0	N/A	N/A	
Grout bags	0	N/A	N/A	
Frond Mats	0	N/A	N/A	
Rock Dump	0	N/A	N/A	
Formwork	0	N/A	N/A	

2.3 Wells

Table 2.3 Well Information			
Platform Wells	Designation	Status	Category of Well *
44/18a-T1Z	Gas Production	Plugged and abandoned	PL1-1-1
44/18a-T2	Gas Production	Plugged and abandoned	PL1-1-1
44/18a-T3A	Gas Production	Plugged and abandoned	PL1-1-1
44/18a-T4A	Gas Production	Plugged and abandoned	PL1-1-1
44/18a-T6	Gas Production	Plugged and abandoned	PL2-2-1
Subsea Wells			
None	N/A	N/A	N/A

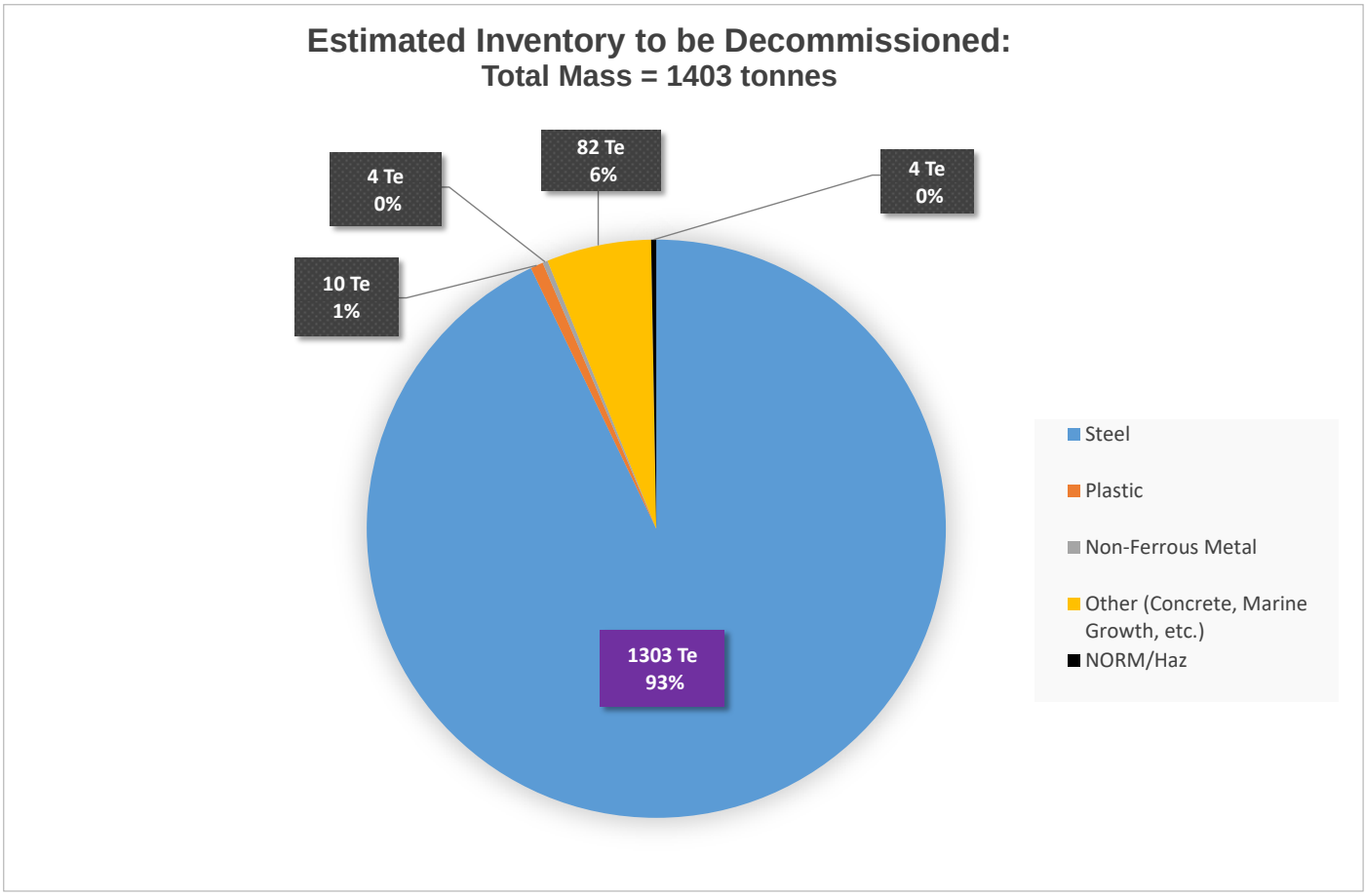
*Category of well as per OGUK Guidelines for the suspension and abandonment of wells, Issue 5, July 2015.

2.4 Drill Cuttings

There is no evidence of drill cuttings associated with the Tyne installations in the area. Drill cuttings that were generated during drilling activity have been distributed widely during drilling due to the local currents. Although there is no evidence of drill cuttings in the immediate vicinity of the wells, Perenco will be carrying out sea bed sampling to verify the absence of cutting debris that may affect the environment.

2.5 Inventory Estimates

Figure 2.1: Pie Chart of Estimated Installations Inventory being Decommissioned



Reference Section 2 of the Environmental Impact Assessment (EIA) for detailed data. NORM / Hazardous Waste reference the supporting evidence in Sections 7 & 9 of the EIA

3. REMOVAL AND DISPOSAL METHODS

Waste will be dealt with in accordance with the Waste Framework Directive and all relevant waste authorities will be consulted accordingly. In line with the waste hierarchy, the re-use of an installation (or parts thereof) was first in the order of preferred decommissioning options for assessment.

Perenco assessed options for extending the producing life of the platform, utilising it as an infrastructure hub for third party tie backs and enhanced recovery programmes, but none proved commercially viable.

Perenco then assessed options for the relocation of the platform as a producing asset and concluded that due to its ageing process technology and the high cost of maintaining the fabric and structural integrity of the platform, no technically viable reuse option was available.

Perenco have reviewed, and will continue to review, the platform's equipment inventories to assess the potential for adding to their existing asset portfolio spares inventory or for resale to the open market.

Recovered material will be landed ashore for disposal by a contractor. It is not possible to forecast the wider reuse market with any accuracy or confidence this far forward. Perenco will continue to track reuse market trends in order to seize reuse opportunities at the appropriate time.

In accordance with the Transfrontier Shipment of Waste Regulations 2007 (as amended), a Transfrontier Shipment of Waste (TFSW) permit for Tyne is likely. In the event that a TFSW is required, Perenco will liaise with the relevant Waste Authority and ensure that all relevant permits and consents are in place.

3.1 Topsides

3.1.1 Topsides Decommissioning Overview

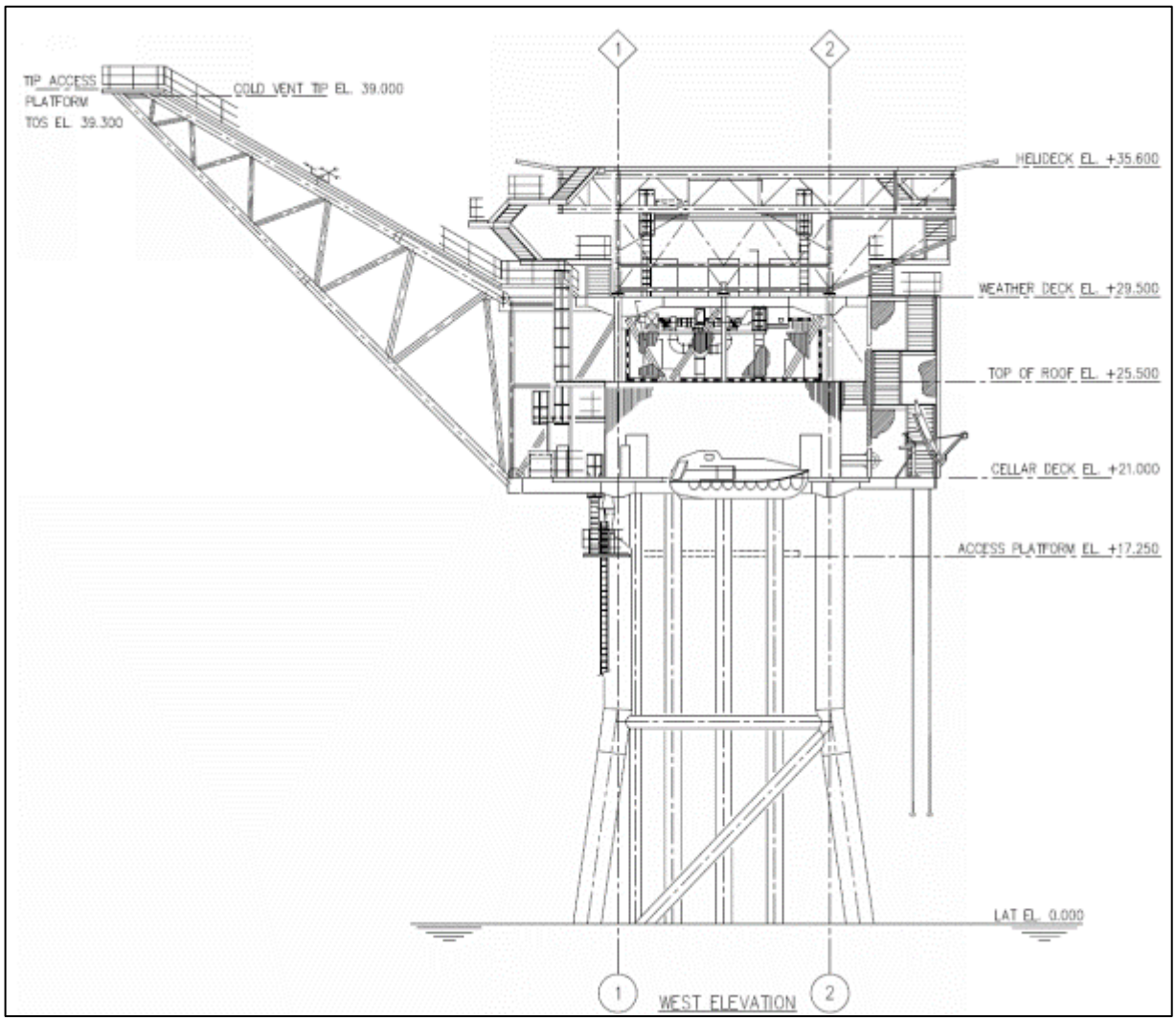
Topsides Description: The Tyne platform is a Normally Unattended Installation (NUI) in block 44/18a in the Southern North Sea.

The Tyne topside is a conventional carbon steel structure with a cellar deck (+21m), mezzanine deck and weather deck (+29.5m). A helideck is situated above the weather deck (+35.6m) and vent boom (+41.2m). Access between platform levels is provided by ladders and stairways. There are nine well slots of which five have been drilled.

The approximate size of the topside is 21m x 20m x 15.5m high (including helideck).

The Tyne topside estimated weight is 738 Te.

Figure 3.1: Diagram of Topsides



3.1.1 Preparation/Cleaning

Table 3.1: Cleaning of Topsides for Removal		
Waste Type	Composition of Waste	Disposal Route
On-board hydrocarbons	Process fluids, fuels and lubricants	Flushed and drained to disposal wells on Tyne.
Other hazardous materials	NORM, and radioactive material, instruments containing heavy metals, batteries	Transported ashore for re-use/disposal by appropriate methods. (May require Transfrontier Shipment of Waste).
Original paint coating	Lead-based paints	May give off toxic fumes/dust if flame-cutting or grinding/blasting is used so appropriate safety measures will be taken. (May require Transfrontier Shipment of Waste).
Asbestos and ceramic fibre		Appropriate control and management will be enforced. Transported ashore for disposal by appropriate methods. (May require Transfrontier Shipment of Waste).

3.12 Topsides Removal Methods

Table 3.2: Topsides Removal Methods	
1) HLV (semi-submersible crane vessel) ☑ 2) Mono-hull crane vessel ☑ 3) SLV ☑ 4) Piece small ☑ 5) Other ☐	
Method	**Description**
Single lift removal by SLV/HLV	Removal of topsides as complete units and transportation to shore for re-use of selected equipment, recycling, break up and/or disposal. Single lift dependant on vessel availability.
Modular removal and re-use/recycle by HLV	Removal of parts/modules of topsides for transportation and reuse in alternate location(s) and/or recycling/disposal.
Offshore removal 'piece small' for onshore reuse/disposal	Removal of topsides by breaking up offshore and transporting to shore using work barge. Items will then be sorted for re-use, recycling or disposal.
Proposed removal method and disposal route	Topsides will be removed to shore and disposed of at selected disposal yard to comply with relevant legislation and company policy. A final decision on decommissioning method will be made following a commercial tendering process. It is likely that the topsides, a combination of the above the methods will be deployed to provide the optimum safety/cost solution. The removal method listed below is based on one of the preferred options – exact removing sequence and methodologies will follow the detailed engineering study.

Note: Preliminary studies have indicated that the following methods are likely to be used.

3.12 Topsides Removal

It is anticipated the Tyne topsides removal method will be a reverse of the installation method. A single lift reusing the padeyes. See Figure 3.2 and 3.3.

Figure 3.2: Anticipated Preparation for Topside Removal

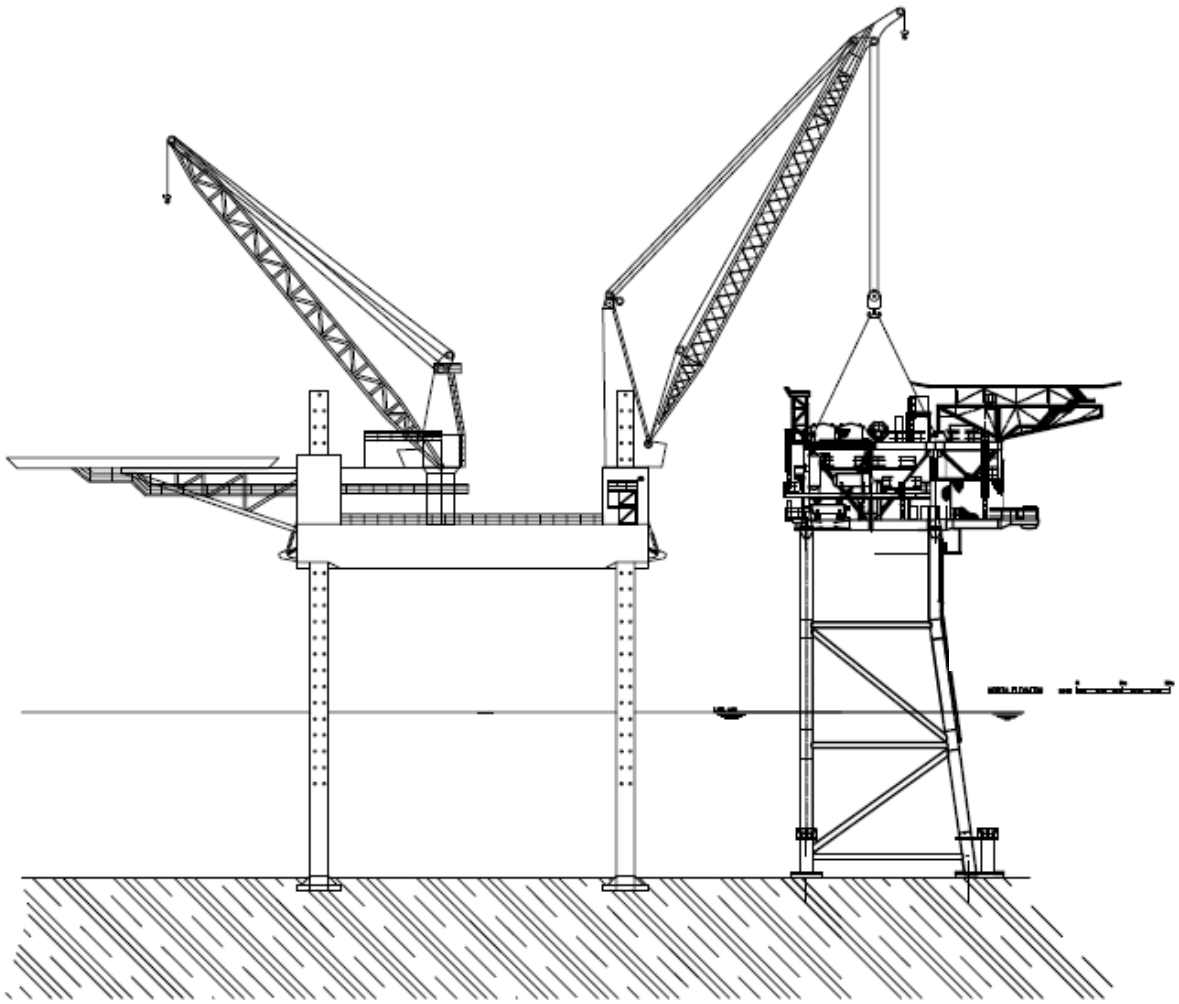
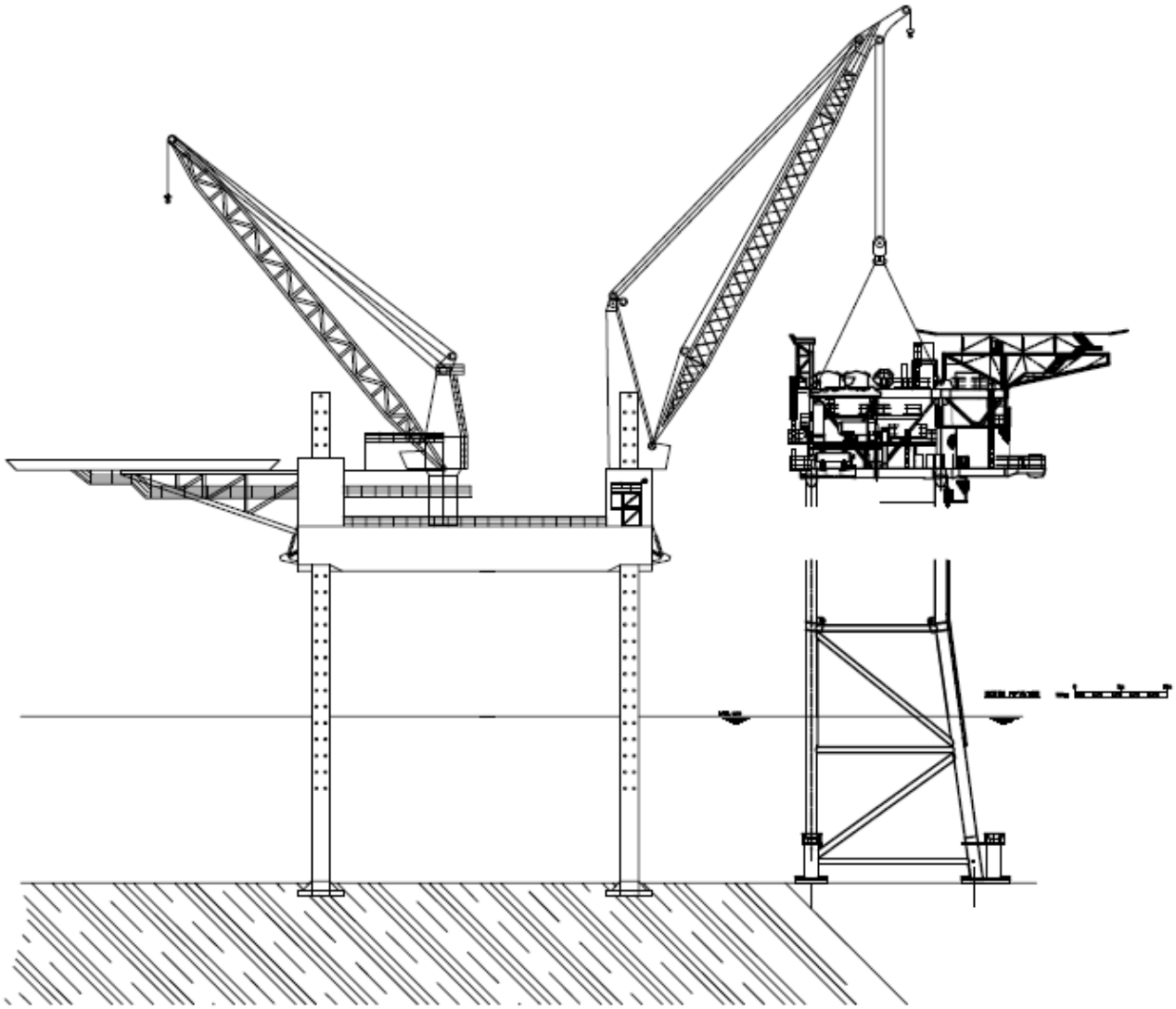


Figure 3.3: Anticipated Topside Removal Method



3.2 Jacket

3.2.1 Jacket Decommissioning Overview

The Jacket will be removed to shore for cleaning and disposal. The pile cuts will be made below the seabed level at such a depth to ensure that any remains are unlikely to become uncovered. The means of cutting could be diamond wire, oxyacetylene or high pressure abrasive water jet cutting. Figure 3.4 illustrates one of the preferred removal options although the exact cutting points and removal method are subject to detailed engineering and commercial tendering.

Tyne jacket is a conventional four-legged carbon steel structure with a single 48" tubular pile of approximately 51m overall length through a pile sleeve attached to each leg. The jacket has a single vertical face to facilitate approach of a jack-up rig; the three other faces have a batter. The jacket is in 17.5m of water, the jacket height is 37.4m.

The approximate lift weight of the jacket is 652 Te (jacket weight 479 Te plus 173 Te of piles) including estimated weight for marine growth and concrete grout. Approximately 125 Te of the jacket piles will remain in situ.

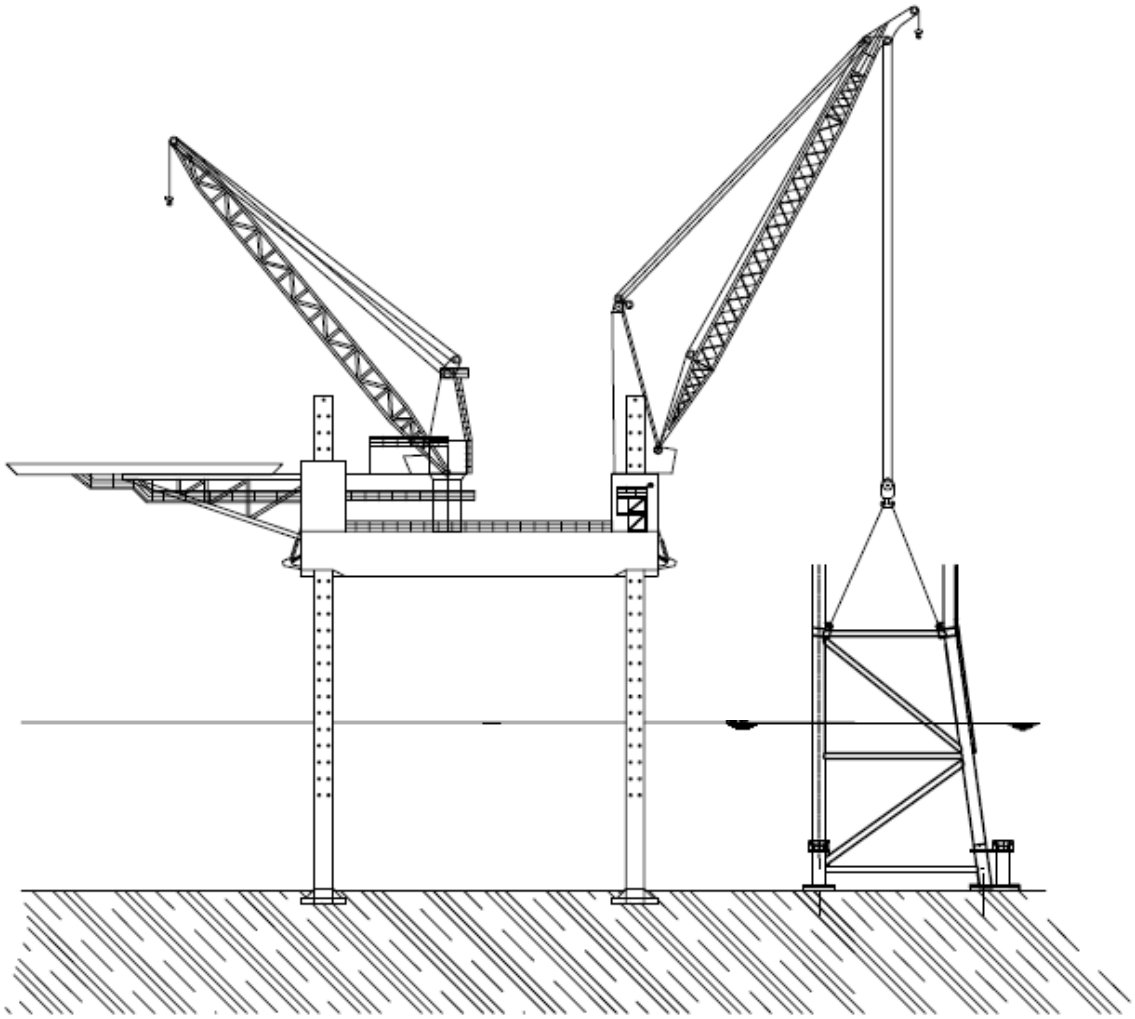
3.2.2 Jacket Removal Methods

Table 3.3: Jacket Removal Methods	
1) HLV (semi-submersible crane vessel) ☑ 2) Monohull crane vessel ☑ 3) SLV ☑ 4) Piece small ☐ 5) Other – (describe briefly) ☑	
Method	**Description**
Onshore disposal using HLV, Monohull crane vessel or SLV	Removal of jacket and transport ashore for break up and recycling of steel.
Other	A pull on barge removal method based on a submersible barge which is submerged on one end to the seabed. The jacket will then be pulled on to the barge/vessel by winch and returned to shore for re-use/recycling.
Proposed removal method and disposal route	Jacket will be removed to shore and disposed of at selected disposal yard to comply with relevant legislation and company policy. The removal method listed in above drawings is one of the preferred options. The exact cutting points and removal methodology will follow the detailed engineering study.

3.2.2 Jacket Removal

It is anticipated the Tyne jacket removal method will be a reverse of the installation method. A single lift reusing the padeyes see Figure 3.4.

Figure 3.4: Anticipated Jacket Removal Method



3.3 Jacket Subsea Template

3.3.1 Subsea Template Decommissioning Overview

The Jacket Subsea Template will be removed to shore for cleaning and disposal. The template sits in 17.5m of water, at the base of the jacket, resting on the seabed with no fixings. The template is a carbon steel rectangular structure (approx. 20m x 20m x 1.9m high) through which the conductors pass. The template is separate to the jacket and once the jacket (including all conductors and casing strings) are removed and the jacket piles are cut at a minimum of 3m below mudline, the template can be readily removed.

The approximate lift weight of the template is 13Te (including marine growth).

3.3.2 Subsea Template Removal Methods

Table 3.4 Subsea Template Removal Methods

1) HLV (semi-submersible crane vessel) √
2) Monohull crane vessel √
3) SLV √
4) Piece small ☐
5) Other – (describe briefly) ☐

Method	Description
Onshore disposal using HLV, Monohull crane vessel or SLV	Removal of the template and transport ashore for dismantling and recycling of steel.
Proposed removal method and disposal route	The template will be removed to shore for dismantling, and recycling at a suitable disposal facility to comply with relevant legislation and company policy. The removal method detailed in the drawing below is the preferred option. The exact removal methodology will follow the detailed engineering study.

3.3.2 Subsea Template Removal

It is anticipated the Tyne subsea template removal method will be a reverse of the installation method, i.e. a single lift reusing the padeyes.

3.4 Wells

Table 3.5: Well Plug and Abandonment

The wells which remain to be abandoned, as listed in Section 2.3 (Table 2.3) will be plugged and abandoned in accordance with Oil and Gas UK Guidelines for the suspension and abandonment of wells, and a PON 5 will be submitted. A Master Application Template (MAT) and supporting Subsidiary Application Templates (SAT) will be submitted in support of any such work carried out.

3.5 Drill Cuttings

Drill Cuttings Decommissioning Options: N / A
(Please refer to Section 2.4).

3.6 Waste Streams

Table 3.6: Waste Stream Management Methods	
Waste Stream	Removal and Disposal method
Bulk liquids	Removed from vessels and discharged to disposal wells or sent to the Trent platform via the export line for disposal. Vessels, pipework and sumps will be drained prior to removal to shore and shipped in accordance with maritime transportation guidelines. Package filtration equipment for disposal of liquids to sea may be utilised and relevant permits will be sought for such operations.
Marine growth	Removed offshore /onshore. Disposed of according to guidelines.
NORM/LSA Scale	Tests for NORM/LSA will occur offshore and will be dealt/disposed with according to guidelines and company policies under the appropriate permit.
Asbestos	Tests for asbestos will occur offshore and will be dealt/disposed with according to guidelines and company policies. Tyne topside is not expected to have any asbestos.
Other hazardous wastes	Detailed survey for other hazardous wastes will be undertaken offshore and will be dealt/disposed with according to guidelines and company policies.
Onshore Dismantling sites	Appropriate licensed sites will be selected. The chosen facility must demonstrate proven disposal track record and waste stream management throughout the deconstruction process and demonstrate their ability to deliver innovative recycling options.

3.7 Inventory Disposition

Table 3.7 Inventory Disposition			
	Total Inventory (Te)	Planned tonnage to shore (Te)	Planned left in situ (Te)
Installations	1,528	1,403	125

Table 3.7 represents the predicted disposal routes for materials taken to shore, by weight. The jacket, topsides and subsea template will largely be recycled. Only a small amount of material (approx. 3%) is expected to be sent to landfill. The marine growth will be sent to a disposal yard where it will be dried and sent to a Recycling Facility and the NORM/hazardous materials will be disposed of in line with the permit requirements for Tyne. Refer to Table 2-8 and 2-9 of the EIA for additional detail.

Table 3.8 Proposed Fate of Tyne Infrastructure Materials		
Infrastructure	Recommended decommissioning option	Destination
Jacket	Complete removal (single lift or piece small)*	Recycling Landfill
Topside	Full removal (single lift)	Reuse Recycling Landfill Incineration NORM Treatment
Subsea Template	Full removal (single lift)	Reuse Recycling Landfill

*Dependent on contract awarded

4 ENVIRONMENTAL IMPACT ASSESSMENT

4.1 Environmental Sensitivities (Summary)

The Environmental Impact Assessment (EIA) provides a review of the key features of the environment in the proposed Tyne Decommissioning Programme Area in Blocks 43/20, 43/24, 43/25, 44/16, 44/17 and 44/18, in the southern North Sea.

Table 4.1: Environmental Sensitivities	
Environmental Receptor	Main Features
Conservation interests	**Annex I Habitats** The Tyne platform, including approximately 42 km (75%) of the PL1220/ PL1221 pipelines, are located within the Dogger Bank Site of Community Importance (SCI), currently under consideration as a UK Special Area of Conservation (SAC). The Dogger Bank SCI has been designated for the presence of the Annex I Habitat 'sandbanks which are slightly covered by seawater all the time'. **Annex II species** The Annex II species harbour porpoise (*Phocoena phocoena*), bottlenose dolphin (*Tursiops truncates*), grey (*Halichoerus grypus*) and harbour (common) (*Phoca vitulina*) seals have been recorded within the Tyne Complex area. Low to very high sightings of harbour porpoise occur throughout the year, bottlenose dolphins are typically present in low abundance during November (UKDMAP, 1998), with low densities of grey and harbour seals (0 to 5 seals per 25 km^2) occurring in the area (Jones *et al.,* 2013). The Tyne complex is located within the southern North Sea proposed SAC (pSAC). The site has been proposed as a pSAC due to it being an area with "predicted persistent high densities of harbour porpoise" (JNCC, 2016). The site covers 36,958 km^2 from the central North Sea, north of the Dogger bank and southwards to the Strait of Dover (JNCC, 2016).
Seabed	**Seabed Sediments** British Geological Survey (BGS) seabed sediment data indicates the seabed in the Tyne Complex area largely consists of silty gravelly sand, sand and gravelly sand (Perenco Environmental Baseline Survey, 2016. A debris survey of the Tyne area observed sandy sediments, with sand ripples to be present locally, with areas of shell and or shell fragments identified around the Tyne platform (N-Sea, 2012). The EUNIS classification system identifies six Level 4 seabed habitats within the area of interest, as: A5.13 - Infralittoral coarse sediment A5.14 - Circalittoral coarse sediment A5.23 - Infralittoral fine sand A5.24 - Infralittoral muddy sand A5.25 - Circalittoral fine sand A5.26 - Circalittoral muddy sand **Benthic Fauna** The benthic fauna in the vicinity of the Tyne platform can be described as typical for fine sand and muddy sand sediments of the southern North Sea. Species typical of these communities include the polychaetes (*Nephtys cirrosa)* and (*Magelona* sp.), mobile amphipods of the genus

Table 4.1: Environmental Sensitivities	
Environmental Receptor	Main Features
	(*Bathyporei*a), the brittlestar (*Amphiura filiformis)*, and bivalve molluscs such as (*Tellina fabula)* and (*Mysella bidentata)* (Wieking & Kröncke, 2001). Epifaunal species include the hermit crab (*Pagurus bernhardus)*, sandeel (*Ammodytes* spp.), plaice (*Pleuronectes a)* and the starfish *Asterias rubens* (JNCC, 2011).
Fisheries	**Fish spawning areas** The Tyne Area coincides with spawning areas for cod (*Gadus morhua*), lemon sole (*Microstomus kitt*), herring (*Clupea harengus*), mackerel (*Scomber scombrus*), *Nephrops* (*Nephrops norvegicus*), plaice (*Pleuronectes platessa*), sandeel (*Ammodytidae marinus*), sole (*Solea solea*) and sprat (*Sprattus sprattus*). The spawning intensities for plaice and sandeel have been recorded as high in this area (Coull *et al*., 1998; Ellis *et al*., 2010). **Fish nursery areas** Nursery areas for anglerfish (*Lophius piscatorius*), blue whiting (*Micromesistius poutassou*), cod, sole, European hake (*Merluccius merluccius*), herring, horse mackerel (*Trachurus trachurus*), ling (*Molva molva*), mackerel, sprat, whiting (*Merlangius merlangus*), lemon sole*, Nephrops,* sandeel, spurdog (*Squalus acanthias*), and tope shark (*Galeorhinus galeus*) occur in the Tyne Complex area. Areas with a high abundance of age 0 fish (juveniles) have been reported for herring and whiting and are considered as high intensity nursery areas for these species (Aires *et al.,* 2014; Coull *et al*., 1998; Ellis *et al*., 2010). **Commercial Fisheries** During 2015, annual landings of fish from the Tyne area (International Council for the Exploration of the Sea [ICES] rectangles 37F1 and 37F2) ranged from 405 tonnes to 1,451 tonnes (Scottish Government, 2015). Fishing effort in ICES rectangles 37F1 and 37F2 ranged from 191 to 633 days respectively during 2015, with effort mainly occurring between June and October (Scottish Government, 2016). Fishing effort in both ICES rectangles was dominated by trawling gears. Demersal and shellfish species dominated the landings from both ICES rectangles, accounting for 405 and 1,415 tonnes respectively. The relative value of catches landed in the UK from ICES rectangles 37F1 and 37F2 during 2015, ranged from £648,479 to £2,514,490 (Scottish Government, 2016). Historical (2009 to 2013) Vessel Monitoring System (VMS) intensity data for the Tyne area illustrates that demersal mobile fishing gear dominate the commercial fisheries activity.
Marine Mammals	Pilot whale (*Globicephala melas*), bottlenose dolphin, white-beaked dolphin (*Lagenorhynchus albirostris*), harbour porpoise, minke whale (*Balaenoptera acutorostrata*), grey and harbour seals have been observed within Quadrants 43 and 44, which encompass the Tyne area, (Reid *et al.,* 2003; UKDMAP, 1998). The main species of conservation interest have been discussed in detail above in the earlier section.
Birds	Within the Tyne area, seabird vulnerability to oil pollution ranges from low to very high (JNCC, 1999). High to very high seabird vulnerability in the area generally occurs from July through to May, with low to moderate vulnerability occurring in July (JNCC, 1999).

Table 4.1: Environmental Sensitivities	
Environmental Receptor	Main Features
	The most common species of seabird found in the Tyne area include: Herring gull (*Larus argentatus*), Great black-backed gull (*Larus marinus*), Sabine's gull (*Xema sabini*), Kittiwake (*Rissa tridactyla*), Guillemot (*Uria aalge*), Fulmar (*Fulmarus glacialis*) and Gannet (*Morus bassanus*) (UKDMAP, 1998).
Onshore Communities	All waste produced from the Tyne decommissioning activities will be transported to an onshore decommissioning facility. Perenco will ensure the chosen site(s) comply with all relevant permitting and legislative requirements. No onshore communities are expected to be affected by the decommissioning program.
Other Users of the Sea	**Shipping** Shipping density in the Tyne area is considered to be high throughout the year (BEIS, 2014). **Oil and Gas Industry** The closest platform to the Tyne is the ConocoPhillips operated Munro MH platform, 2 km northwest of the PL1220/ PL1221 pipelines (UKOilandGasData, 2016). Six active pipelines traverse the PL1220/ 1221 pipelines. In addition, the pipelines are also traversed by the 24" Cygnus to ETS gas pipeline (PL3088), which is currently listed as 'pre-commission' (UKOilandGasData, 2016). **Offshore Wind Farms** The nearest wind farm to the Tyne area is the Hornsea Project Three SPC6 (currently in the pre-planning stages), located approximately 26 km to the southwest (Crown Estate, 2016). The consented Z3 Creyke Beck A wind farm is located approximately 32 km to the north of the PL1220/ PL1221 pipelines (Crown Estate, 2016). Carbon Capture and Storage Projects The nearest carbon capture and storage lease site is located approximately 20 km west of the Trent end of the PL1220/ 1221 pipelines. **Dredging and Dumping Activity** There are no licenced offshore dredging areas or known dumping areas within the Tyne area (Crown Estate, 2016). **Military Activity** The Tyne area is located within two Royal Air Force practice and exercise areas used for air combat and supersonic flight training (Forewind, 2014). A Royal Navy submarine training area, is located approximately 30 km to the south. **Wrecks** The closest wreck to the Tyne area is located approximately 65 m from the PL1220/ PL1221 pipelines. Two 'dangerous wrecks' are located approximately 11 km northeast of the Tyne Platform.

Table 4.1: Environmental Sensitivities	
Environmental Receptor	Main Features
	Telecommunications The MCCS telecommunications cable operated by Tampnet crosses the PL1220/ PL1221 pipelines (NMPI, 2016)
Atmosphere	Local atmospheric emissions will be influenced by vessel movements and associated activities during the proposed decommissioning operations. It is expected that these emissions will be localised to the area of interest.

4.2 Potential Environmental Impacts and their Management

A key consideration when planning and finalising the decommissioning of the Tyne platform is a clear understanding of the surrounding environment. In order to understand the potential for the project to interact with the environment, so that appropriate controls can be adopted to mitigate negative impacts, the physical, biological and socio-economic environments have been assessed.

Environmental Impact Assessment Summary:

The potential environmental impacts associated with the proposed decommissioning activities have been assessed as part of the Tyne Decommissioning EIA which will accompany the Tyne Decommissioning Programme.

The EIA identifies potential environmental impacts by identifying interactions between the proposed decommissioning activities and the associated environmental receptors. Impacts associated with the proposed decommissioning activities have been grouped within the EIA under the following headings:

- Energy use and atmospheric emissions (Section 5);
- Underwater noise (Section 6);
- Seabed impact (Section 7);
- Societal impact (Section 8);
- Discharges to sea (Section 9);
- Accidental events (Section 10); and
- Waste (Section 11)

Any cumulative and transboundary impacts have been assessed within these sections.

The EIA also describes the proposed mitigation measures designed to avoid or reduce the identified potential environmental impacts and how these will be managed in accordance with the Perenco Safety and Environmental Management System (SEMS) while considering responses from stakeholders.

The EIA concludes that the potential environmental impacts associated with the Tyne decommissioning activities can be completed without causing significant adverse impact to the environment, providing the proposed mitigation and management measures, as identified within the EIA, are implemented. In addition, the assessment of potential cumulative impacts indicated that there would be no significant impacts and no significant transboundary impacts expected to occur as a result of the decommissioning operations.

Table 4.2 Environmental Impact Assessment Summary		
Activity	**Main Impacts**	**Management**
Topside Removal	Atmospheric emissions	• All engines, generators on the vessels will be well maintained and correctly operated to ensure that they are working efficiently to minimise energy use and gaseous emissions. • Vessels will be audited as part of selection and pre-mobilisation. • Vessel operations will be minimised where practical, with work programmes planned to optimise vessel time in the field.
	Underwater noise	• A noise assessment will be undertaken to determine the likely impact of noise generated by the proposed operations on marine mammals in the surrounding area. The results of the assessment will be used during the planning of vessel operations. • Offshore vessels will avoid concentrations of marine mammals. • A trained Marine Mammal Observer (MMO) will be present during routine decommissioning operations should the need be required.
	Solid waste	• Materials are reused and recycled where possible. • Compliance with UK waste legislation and duty of care. • Use designated licensed sites only. • Permits and traceable chain of custody for waste management, shipment, treatment and onshore disposal. • Waste Management Plan will be implemented.
	Other users of the sea	• Cutting and lifting operations will occur within the Tyne platform 500 m exclusion zone. • A vessel corridor approach will be used. UK Hydrographical Office and Kingfisher will be informed of all activities. • A post decommissioning debris survey will be conducted and any debris recovered.
	Accidental hydrocarbon release	• Hydrocarbon inventories are to be removed from the topsides prior to commencing removal operations. • Tyne Decommissioning Oil Pollution Emergency Plan (OPEP) and Communications and Interface Plan (CIP) will be in place. • Perenco have UKCS membership with Oil Spill Response (OSRL) for Tier 2/3 incidents.
	Dropped object(s)	• A post decommissioning debris survey will be conducted and any debris recovered. • Adhere to lifting and handling procedures and use of certified equipment for lifting. • Retrieve items of debris from the seabed after operations, in compliance with relevant legislation.

Table 4.2 Environmental Impact Assessment Summary – cont'd		
Activity	**Main Impacts**	**Management**
Jacket Removal	Atmospheric emissions	• All engines, generators on the vessels will be well maintained and correctly operated to ensure that they are working efficiently to minimise energy use and gaseous emissions. • Vessels will be audited as part of selection and pre-mobilisation. • Vessel operations will be minimised where practical, with work programmes planned to optimise vessel time in the field.
	Underwater noise	• A noise assessment will be completed to determine the likely impact of noise generated by the proposed operations on marine mammals in the surrounding area. The results of the assessment will be used during the planning of vessel operations. • Offshore vessels will avoid concentrations of marine mammals. • Underwater cutting could be a potential source of sound, the operation of well-maintained equipment during decommissioning will ensure noise of operating machinery is kept as low as possible. • An MMO/ PAM operator will be on-board the vessel during cutting operations.
	Seabed impacts	• The decommissioning operations will be carefully designed and executed so as to minimise the area of seabed that will be disturbed within the Dogger Bank SCI. • The introduction of new material to the marine environment is to be avoided or minimised throughout the proposed operations.
	Other users of the sea	• Cutting and lifting operations will occur within the Tyne platform 500 m exclusion zone. • A vessel corridor approach will be used. UK Hydrographical Office and Kingfisher will be informed of all activities. • A post decommissioning debris survey will be conducted.
	Damage or loss of fishing gear	• A post decommissioning debris survey will be conducted. • Locations of any remaining footprint of the structure will be accurately mapped and information disseminated via the Hydrographic Office and Kingfisher notification system.
	Solid waste	• Materials are reused and recycled where possible. • Compliance with UK waste legislation and duty of care. • Use of designated licensed sites only. • Permits and traceable chain of custody for waste management, shipment, treatment and onshore disposal. • Waste Management Plan will be implemented
	Accidental hydrocarbon release	• Tyne Decommissioning Oil Pollution Emergency Plan (OPEP) and Communications and Interface Plan will be in place. • Perenco have UKCS membership with Oil Spill Response (OSRL) for Tier 2/3 incidents.

Table 4.2 Environmental Impact Assessment Summary – cont'd		
Activity	**Main Impacts**	**Management**
	Dropped object(s)	• Adhere to lifting and handling procedures and use of certified equipment for lifting. • Retrieve items of debris from the seabed after operations, in compliance with relevant legislation. • A post decommissioning debris survey will be conducted.
Subsea Installations Removal	Not applicable	Not applicable
Decommissioning Drill Cuttings	Not applicable	Not applicable
Decommissioning Pipelines (left in situ)	Atmospheric emissions	Not included in this Decommissioning Programme.
	Underwater noise	
	Seabed impacts	
	Marine discharges	
	Other users of the sea	
	Damage or loss of fishing gear	
	Accidental hydrocarbon release	
	Dropped object(s)	
Decommissioning Stabilisation Features	• Potential snagging hazards to other users of the sea. • Long term degradation of pipeline and release of degraded material to the environment	Not included in this Decommissioning Programme.

5 INTERESTED PARTY CONSULTATIONS

Consultations Summary:
(This section will be updated when the consultation phase is completed).

Table 5.1 Summary of Consultee Comments		
Who	Comment	Response
INFORMAL CONSULTATIONS		
OGA	No comment	N/A
HSE	Liaised with regarding the Lighthouse Phase Safety Case, associated COMOPS (Both have been accepted by the HSE) and the high level plan for the dismantlement of the platform.	N/A
JNCC	Perenco should ensure that activities within the Dogger Bank cSAC/ SCI are considered within a cumulative impact assessment, not just those within the particular blocks of interest. This should include aggregate extraction areas and renewable energy activities. Perenco to monitor use of all explosives used for downhole P&A using MMO and PAMs.	The EIA (section 7) includes the cumulative impact assessment on the Dogger Bank cSAC/ SCI. MMO and PAMs were used during conductor removal. The reports were sent to the JNCC following completion.
NFFO	Suggested that any offshore operations/ site surveys conducted with regards to this DP have an offshore Fisheries Liaison Officer aboard the vessel.	The EIA (section 8) addresses any issues for fisheries arising from offshore operations/ site surveys.
CEFAS	No response received	N/A
MOD	No response received	N/A
EA	Perenco is currently in discussion with the Environment Agency concerning waste management for Perenco decommissioning programmes, and we will formally advise the EA that we plan to apply for Transfrontier Shipment of Waste permit for Tyne.	N/A

STATUTORY CONSULTATIONS		
NFFO		
SFF		
NIFPO		
Global Marine Systems		
Public		

6 PROGRAMME MANAGEMENT

6.1 Project Management and Verification

A Perenco Project Management team will be appointed to manage suitable sub-contractors for the removal of the Tyne installations. Perenco standard procedures for operational control and hazard identification and management will be used. Where possible the work will be coordinated with other decommissioning operations in the SNS. Perenco 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 discussed and agreed with BEIS.

6.2 Post-Decommissioning Debris Clearance and Verification

A post decommissioning site survey will be carried out in 500m radius of Tyne installations site. Oil and gas seabed debris will be recovered for onshore disposal or recycling in line with existing disposal methods. Independent verification of seabed state will be obtained by trawling the platform area. This will be followed by a statement of clearance to all relevant governmental departments and non-governmental organisations.

6.3 Schedule

Project Plan:

Perenco intend to progress the decommissioning of Tyne in stages. The intent is to perform activities on Tyne so that a Hydrocarbon free status can be achieved. Perenco would then look to complete the removal of the topside and jacket within the project timeframe as declared in Section 1.2 but at such time that would be most efficient and cost effective to the project.

Figure 6.1: Gantt chart of Project Plan

Year	2015				2016				2017				2018				2019				2020				2021				2022			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
HC Free																																
Pre-engineering / planning																																
Develop Decom Programme & EIA																																
Decom Programme Preparation & Consultation																																
Approval of DP																																
Dewater export line																																
Drifting tubing, setting bridge plugs in wells																																
Clean export lines to Trent																																
Jack-up barge arrival																																
Well rigless P & A																																
Purge topsides and leave platform black																																
Verify hydrocarbon free																																
Conductor removal																																
Prepare Platform for Removal																																
Dismantling																																
Pre-engineering / planning																																
HLV arrival																																
Topsides and jacket removed																																
Site clearance																																
Approval of completion																																
Contingency																																

Legend

Earliest date task could be completed

Period in which task is to be completed

The completion dates for the project are driven by the availability of the heavy lift vessel for the lift, favourable weather, and market conditions.

6.4 Costs

Table 6.1 – Provisional Decommissioning Programme costs	
Item	Estimated Cost (£m)
Hydrocarbon Free, including conductor removal	Provided to BEIS
Heavy Lift removal and onshore disposal	Provided to BEIS
Seabed clearance	Provided to BEIS
Continuing Liability – Environmental Survey Requirements	Provided to BEIS
TOTAL	Provided to BEIS

6.5 Close Out

In accordance with the BEIS Guidelines, a close out report will be submitted to BEIS explaining any variations, from the Decommissioning Programme (normally within 12 months of the completion of the offshore decommissioning scope) including debris removal and independent verification of seabed clearance and the first post-decommissioning environmental survey. In the close out report, the company responsible for the subsequent management of on-going residual liabilities for any infrastructure left in-situ will be detailed. That company will also be the contact point for any third party claims arising from damage caused by any remains from the Tyne decommissioning programme.

6.6 Post-Decommissioning Monitoring and Evaluation

The results of the environmental sampling survey carried out around the 500m zone of the Tyne installations will be submitted as part of the close out report; using the results from this and previous surveys, Perenco will then develop a risk-based survey strategy following a discussion and agreement with OPRED. This strategy will set out the requirement for any further post-decommissioning surveys and will take into account the results of earlier work.

7 SUPPORTING DOCUMENTS

Table 7.1: Supporting Documents	
Document Number	Title
1	Tyne Environmental Impact Assessment (EIA)

8. PARTNER LETTERS OF SUPPORT

There are no field partners