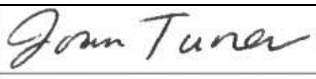
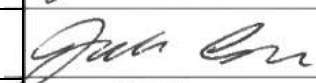
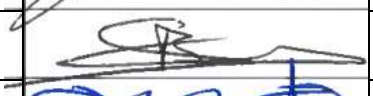
PERENCO UK LIMITED

Indefatigable 18A Topsides Decommissioning Programme

Final Version

DOCUMENT CONTROL

Approvals

	Name	Signature	Date
Prepared by	Joanne Turner		29/10/21
Reviewed by	Julie Summerell		29/10/21
Reviewed by	Eric Baudon		29/10/21
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Distribution List

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A Table of Terms and Abbreviations

Abbreviation	Explanation
A	Alpha
AtoN	Aid to Navigation
BAT	Best available techniques
BEIS	Department for Business, Energy & Industrial Strategy
BEP	Best environmental practices
BGT	Bacton Gas Terminal
BP	British Petroleum
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CIP	Communications and Interface Plan
CON	Combined Operation Notifications
COP	Cessation of Production
CtL	Consent to Locate
DP	Decommissioning Programme
E	East
EA	Environmental Appraisal
EAJ	Environmental Assessment Justifications
EEGR	East of England Energy Group
EL	Elevation
EU	European Union
ESDV	Emergency Shutdown Valve
ft	Foot
HCF	Hydrocarbon Free
HLV	Heavy Lift Vessel
HSE	Health and Safety Executive
JNCC	Joint Nature Conservation Committee
JUB	Jack-Up Barge
km	Kilometres
km2	Kilometres Squared
LAT	Lowest Astronomical Tide
LON	Longitude
LSA	Low Specific Activity
m	Metres
m3	Cubic metre
MCZ	Marine Conservations Zones
MAT	Master Application Template
N	North
N/A	Not Applicable

Abbreviation	Explanation
NFFO	National Federation of Fishermen's Organisations
NIFPO	Northern Ireland Fish Producers' Organisation
NORM	Naturally Occurring Radioactive Material
NUI	Normally Unattended Installation
OGA	Oil & Gas Authority
OGUK	Oil & Gas UK
OIM	Offshore Installation Manager
OPRED	Offshore Petroleum Regulator for Environment & Decommissioning
OPEP	Oil Pollution Emergency Plan
OSPAR	Oslo and Paris Convention
PERENCO	Perenco (UK) Limited
P&A	Plug and Abandonment
PETS	Portal Environmental Tracking System
PL	Pipeline
PDO	Potential Dropped Object
PSR	Pipeline Safety Regulations 1996
PWA	Pipeline Work Authorisations
SAC	Special Area of Conservation
SAT	Subsidiary Application Template
SCAP	Supply Chain Action Plan
SFF	The Scottish Fishermen's Federation
SLV	Sheer Leg Vessels
SNS	Southern North Sea
Te	Tonne
TFSW	Transfrontier Shipment of Waste
TR	Temporary Refuge
UK	United Kingdom
UKCS	UK Continental Shelf
W2W	Walk to Work

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1.0 Executive Summary

1.1 Decommissioning Programme

This document is the Decommissioning Programme for the removal of the topsides of the Indefatigable (Inde) Gas Field Installations 18A AD and AP in the Southern North Sea (SNS).

In accordance with Regulation 14 of the Pipeline Safety Regulations 1996 (PSR), Perenco UK Limited (Perenco) will notify the Health and Safety Executive (HSE) of the decommissioning of the pipelines and submit the required variations to the Pipeline Work Authorisations (PWA) to the Oil & Gas Authority (OGA) carry out the flushing and disconnection activities.

Following public, stakeholder and regulatory consultation, this topsides removal decommissioning programme (Topsides DP) is submitted without derogation and in full compliance with OPRED guidelines. The Topsides DP explains the principles of the Topsides removal activities. The removal of the Topsides will not preclude available decommissioning options for the Inde 18A AD and AP Jackets.

1.2 Requirement for Decommissioning Programme

Topsides: In accordance with the Petroleum Act 1998, the section 29 notice holders of the Inde 18A Installations Table 1.2 are applying to the Offshore Petroleum Regulator for Environment & Decommissioning (OPRED) to obtain approval for decommissioning the Inde 18A AD and AP platform topsides detailed in Section 2.1 of this programme. Partner letters of support will be provided directly to OPRED.

In conjunction with public, stakeholder and regulatory consultation, this Topsides DP is submitted in compliance with national and international regulations and OPRED guidelines. The schedule outlined in this document is for the decommissioning of the Inde 18A AD and AP installations topsides, commencing in Q4 2021.

This Topsides DP will cover the decommissioning of the Inde 18A AP and AD topsides. This will cover the removal of some modules and equipment from AP and AD topsides during the Hydrocarbon Free (HCF) campaign Q4 2021. It will also cover the full topsides removal for AP and AD during a later campaign currently expected in 2024; preferred mean of removal looking to be a Heavy Lift Vessel (HLV) but still need to be confirmed through dismantlement engineering.

Subject to regulatory approval, the current plan is to use a decommissioning jack-up barge (JUB) to plug and abandon (P&A) the platform wells, make the platforms HCF, and remove a number of topside modules and other equipment on Inde 18A. Subject to regulatory approval and completed engineering design, the preferred current plan will be to use a decommissioning HLV to remove the remaining topside modules.

In this respect, disturbance of the seabed during removal of the Topsides facilities will be limited to the deployment of the JUB on the seabed during the HCF campaign and the deployment of the HLV during the topside and jacket removal campaign.

Perenco anticipates that the deposit of stabilisation material can be avoided with additional preloading of the JUB and HLV during the jacking down procedure.

The Inde platforms are not located within the boundary of any marine protected areas but are adjacent to the North Norfolk Sandbanks and Saturn Reef (Appendix 1).

As the Topsides Decommissioning Programme will result in minimal environmental interactions (i.e. solely seabed disturbance and atmospheric emissions) from the JUB and HLV, Perenco plans to assess these impacts via an Environmental Assessment Justifications (EAJ) Document, which will be attached to the Consent to Locate (CtL) Supplementary Assessment Templates (SATs), under the existing Inde 18A Production Master Application Templates (MATs) for the HCF campaign.

Perenco will then undertake an EAJ to support the Decommissioning Programmes for the jacket removal and pipeline decommissioning activities.

Jacket: There will be a separate installation Decommissioning Programme for the decommissioning of the Inde 18A installation jackets.

Pipelines: There will be a separate Pipeline Decommissioning Programme for the decommissioning of pipelines (PL76) a gas export pipeline associated with the Inde 18A AD and AP Installations.

The pipelines are flushed during the HCF campaign using seawater in accordance with industry good practice and will be assessed against the principles of best available techniques (BAT) and best environmental practices (BEP). Once flushed, they are isolated and physically air-gapped when they come onto the Inde 18A platforms.

1.3 Introduction

The Inde hub is located in the United Kingdom Continental Shelf (UKCS). The development consists of, Inde 49/18A, Inde 49/18B, Inde 49/23D, Inde 49/23C, Inde 49/23A, Bessemer 49/23E and Davy 49/30A. Only Inde 49/23A remains as a manned installation.

- Inde 18A (Latitude: 53° 21' 48.6646" N, Longitude: 02° 34' 11.2378" E)
- Inde 18B (Latitude: 53° 23' 33.2668" N, Longitude: 02° 31' 30.4093" E)
- Inde 23A (Latitude: 53° 19' 27.2844" N, Longitude: 02° 34' 32.8898" E)
- Inde 23C (Latitude: 53° 18' 28.4800" N, Longitude: 02° 34' 03.7153" E)
- Inde 23D (Latitude: 53° 18' 08.9248" N, Longitude: 02° 30' 00.9076" E)
- Bessemer (Latitude: 53° 11' 53.5128" N, Longitude: 02° 29' 09.0123" E)
- Davy (Latitude: 53° 00' 18.7099" N, Longitude: 02° 53' 46.1406" E)

The Inde 49/18A installation comprises two bridge-linked platforms which form a natural gas production complex, located approximately 70 miles north-east of Bacton Gas Terminal (BGT).

In the third quarter of 2003, the Inde 49/18A was modified to convert it to a Normally Unattended Installation (NUI). Process systems were simplified to leave a straight through process system from the platform wells to export pipeline and onwards to Inde 49/23A installation.

In 2003 the field operatorship was handed over from BP to Perenco. Perenco have explored all avenues for continuing production and have concluded that due to high operational costs and a reduction of gas production, continued operations are uneconomical. The Cessation of Production (COP) documentation was accepted by OGA on the 5th May 2021.

As shown in Figure 1.1, Inde 18A is connected to Inde 23A via export gas pipeline PL76, then via Leman 27B platform, through the 63 mile 30'' pipeline system to the BGT.

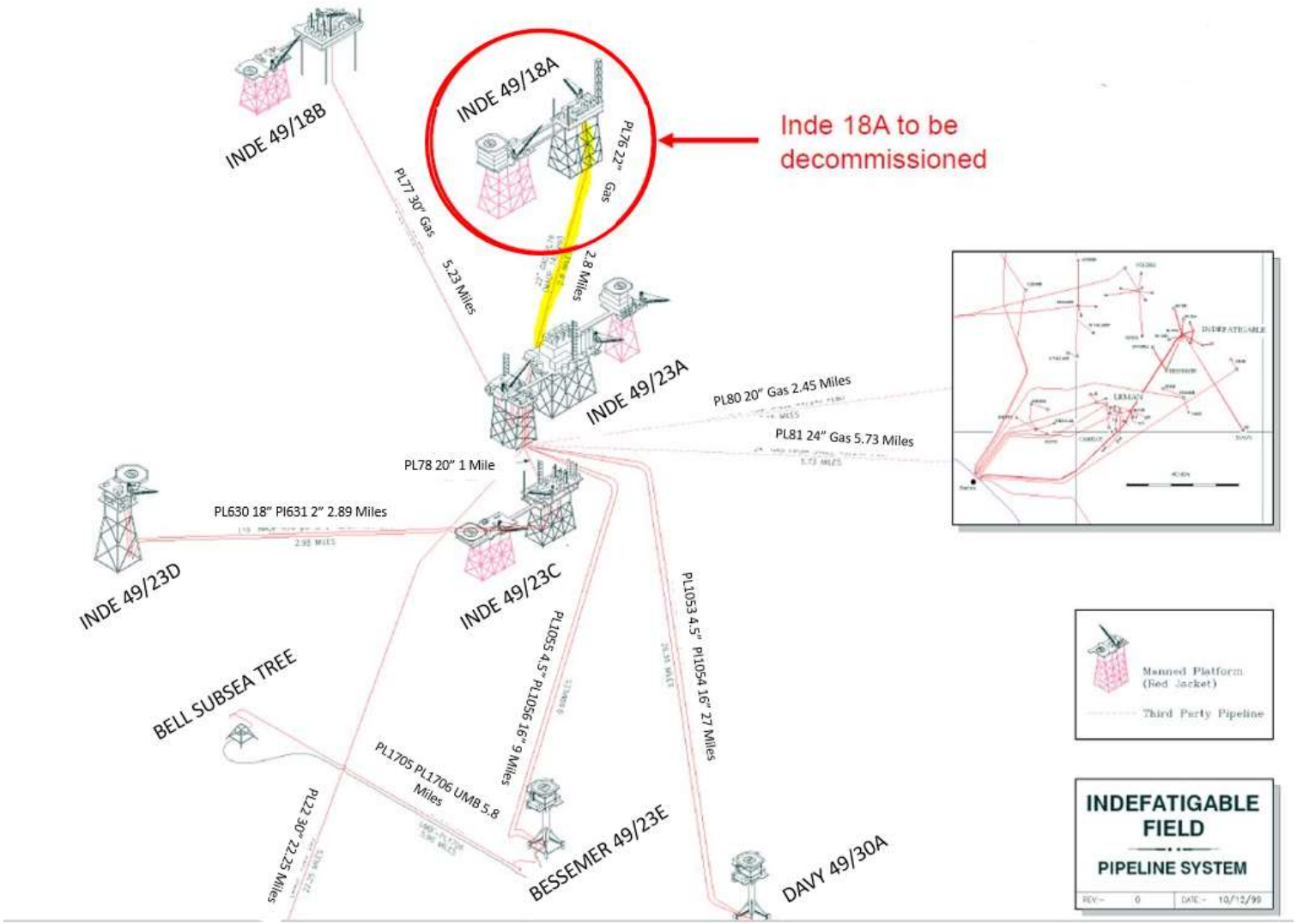


Figure 1.1: Inde Field Layout

Platform Descriptions:

The two Inde 18A platforms, Drilling (AD), installed July 1968 and Production (AP), installed June 1971, are connected by two 45.7m long bridges, east and west. Both platforms are of similar construction comprising steel jackets, piled into the seabed, supporting steel deck modules.

Topsides:

The Inde 18A AD platform comprises of a cellar deck, main deck, and helideck. The Inde 18A AP platform consists of a cellar deck, main deck and upper deck.

The old accommodation (AP Cellar Deck) was abandoned and ready for final decommissioning. An overnight shelter was installed within the old compression module (below the helideck). The Offshore Installation Manager (OIM) office on the (AD main deck), was converted to the Temporary Refuge (TR).

Further information on the Topsides sizes, weights and elevations are provided in section 3.1, Table 3.1.

The Topsides Decommissioning Programme includes the following key activities:

- **Hydrocarbon Free Campaign** - The following activities are undertaken with the support of a decommissioning JUB to render the installation hydrocarbon free:
  - Platform wells plugged and abandoned to Phase 2, as defined in the OGUK Well Decommissioning Guidelines.
  - Flushing and flooding of connecting pipelines, in accordance with Regulation 14 of the Pipeline Safety Regulations 1996.
  - Flushing and purging of Topsides process equipment.
  - Structural survey to ensure that the structural integrity of the installation will be maintained throughout the decommissioning programme.

- **Partial Removal and Dismantlement Preparations** - The following activities are undertaken with the support of a decommissioning JUB:
  - Removal of jacket appurtenances (see note below) which connect the jackets to the Topsides including:
    - Clamps and guides for risers, caissons and drain lines.
    - Escape to Sea ladders.
    - Scaffold starter brackets, etc.
  - Removal of tertiary structures which may present an obstruction during the lifting operation; this may include:
    - Vent boom.
    - Helideck (full or partial removal).
    - Supply hoses (i.e. fresh water and diesel).
  - Removal/partial removal of interface items between Topsides and Jackets which may obstruct separation of Topsides and Jackets, including:
    - Risers and j-tubes.

        - Caissons, i.e. seawater lift, seawater dump, black water dump (and associated tanks and lift pumps).
        - Conductor centralisers, etc.

    - Removal/securing of process equipment unsecured for skidding, including:
        - Pig receiver.
        - ESDVs.

    - Removal of some Topsides modules and transport onshore for disposal.

- **Preparation for Lighthouse Mode** - The following activities are undertaken with the support of a decommissioning JUB once the platform is verified as hydrocarbon free to prepare the platform for lighthouse mode:

    - Disconnection of pipelines, j-tubes, and power cables from platforms.
    - Positive isolation of Topsides and safety equipment to make equipment redundant; redundant equipment may be recovered for re-use on another installation.
    - Platform wells plugged and abandoned to 'Phase 3' as defined in the OGUK Well Decommissioning Guidelines Issue 6, June 2018.
    - Solar powered self-contained AtoNs (Aids to Navigation) will be positioned on both the AP and AD topsides. They will be commissioned and tested prior to the departure of the jack-up barge
    - Removal of potential dropped objects (PDOs) including:
        - Jacket spider deck (i.e. gratings and handrails).
        - Corroded pipe and cable support.
        - Platform signs, etc. (excluding the installation Name Sign).

- **Topsides Removal and Dismantlement Campaign** – Following Lighthouse Mode, the following activities are undertaken with the support of either a decommissioning JUB or HLV:

    - Removal of remaining Topsides and transport onshore to disposal yard.
    - Installation of separate AtoNs on one leg of both the AD and AP jackets and commissioning prior to departure of the JUB/HLV.
    - Onshore dismantlement of Topsides at disposal yard for reuse and recycling.

Any required remediation works to the jacket will be completed by either basket transfer or rope access from the JUB/HLV.

The structural surveys will be completed for each Inde 18A platforms during the HCF campaign. These surveys will include an assessment of the jacket to ensure that its structural integrity will be maintained for the proposed 5 years.

The work proposed in this Topsides Decommissioning Programme will be assessed under the Inde Hub Field Oil Pollution Emergency Plan (OPEP), the appropriate Non-Production Installation OPEP for the JUB and HLV, and the Communication and Interface Plans (CIPs) for the HCF campaign and Heavy Lift campaign; these will be prepared and submitted prior to commencement of the campaigns.

Currently it is anticipated that the Inde 18A platforms AD and AP will go into Lighthouse Mode immediately after the completion of the HCF campaign. Prior to the departure of the JUB/HLV, self-contained solar powered AtoNs are installed on the Topsides and are commissioned.

The AtoNs provide marine coverage for the duration of the lighthouse mode and are monitored remotely from a Perenco Gas Terminal by Perenco Operators to ensure the AtoNs remain functional. In the event of failure of the AtoNs, a contingency plan will be put in place; this includes the use of a stand-by vessel until the AtoNs can either be repaired or replaced using either a Walk to Work (W2W) vessel or a jack-up barge.

At the end of the Lighthouse Phase, the Topsides and Jackets will be removed.

The following phases are excluded from the Topsides Decommissioning Programme and will be part of the Jacket Decommissioning Programme and Pipeline Decommissioning Programme:

1. Jacket Dismantlement Phase: Successful tenderer(s) remove the jacket and transport the module to an onshore dismantlement yard, for reuse, recycling or disposal.
2. Seabed clearance and verification: Post-decommissioning environmental surveys undertaken following platform removal.

Jacket:

The Inde 18A jackets are an open steel framework design, comprising eight legs in two rows of four, connected and cross-braced by horizontal and diagonal steel members. The jacket secured to the seabed by steel piles driven through the platform legs to a depth of between 30.48m (100 ft) and 45.72m (150 ft), including insert piles.

Inde 18A AD

- Dimensions at seabed: 33.5m (110 ft) x 24.4m (80 ft) 8 inch.
- Dimensions at top: 33.5m (110 ft) x 12.5m (41 ft) 4 inch.
- Height: 36m (118 ft).
- Height above LAT: 4.6m (15 ft).
- Depth below LAT: 31.4m (103 ft).
- Weight: 467 Te (1030 Kips).
- Batter - Frames 1 and 2: 1:6.

Inde 18A AP

- Dimensions at seabed: 45.1m (148 ft) 3-inch x 20.7m (68 ft) 3-inch.
- Dimensions at top: 36.9m (121 ft) x 12.2m (40 ft).
- Height: 32.9m (108 ft) 10-inch.
- Height above LAT: 1.5m (5 ft) 10-inch.
- Depth below LAT: 31.4m (103 ft).
- Weight: 500 Te (1104 Kips).

This Topsides Decommissioning Programme only covers the decommissioning and removal of the Inde 18A platform Topsides. Further details of the jacket will be provided in the subsequent Jacket Decommissioning Programme.

Pipelines:

Decommissioning of the pipelines will be dealt with in a separate DP, however jacket risers, j-tubes, and caissons will be partially removed prior to the Topsides removal. Pipelines will be air gapped and flushed during the HCF campaign, prior to the removal of the risers.

1.4 Overview of Topsides Being Decommissioned

Table 1.1a: Decommissioning Programme Inde 18A AD			
Field	Indefatigable	**Production Type (Oil/Gas/Condensate)**	Gas
Water Depth (m)	36.1	**UKCS Block**	49/18a
Surface Installation			
Number	**Type**	**Topsides Weight (Te)**	
1	Fixed Leg Steel NUI Platform	1420	
Subsea Installation		**Number of Wells**	
Number	**Type**	**Platform**	**Subsea**
0	N/A	14	0
Drill Cuttings Pile		**Distance to Median**	**Distance from Nearest UK Coastline**
Number of Piles	**Total Estimated Volume (m^3)**	**km**	**km**
N/A	N/A	31.5	114

Table 1.1b: Decommissioning Programme Inde 18A AP			
Field	Indefatigable	**Production Type (Oil/Gas/Condensate)**	Gas
Water Depth (m)	36.1	**UKCS Block**	49/18a
Surface Installation			
Number	**Type**	**Topsides Weight (Te)**	
1	Fixed Leg Steel NUI Platform	1828	
Subsea Installation		**Number of Wells**	
Number	**Type**	**Platform**	**Subsea**
0	N/A	N/A	N/A
Drill Cuttings Pile		**Distance to Median**	**Distance from Nearest UK Coastline**
Number of Piles	**Total Estimated Volume (m^3)**	**km**	**km**
N/A	N/A	31.5	114

1.5 Section 29 Notice Holders

Table 1.2: Installation Section 29 Notice Holders Details		
Section 29 Notice Holder (S)	**Registration Number**	**Equity Interest (%)**
Perenco UK Limited	04653066	76.92%
Rockrose UK CS 15 Limited	SC375371	23.08%
Amoco (U.K.) Exploration Company, LLC	SF000790 BR005086	0
Amoco U.K. Petroleum Limited	00799710	0
BG International Limited	00902239	0
Enterprise Oil Limited	001682048	0
Hess Limited	00807346	0

1.6 Summary of Proposed Decommissioning Programme

Table 1.3: Summary of Decommissioning Programme		
Selected Option	**Reason for Selection**	**Proposed Decommissioning Solution**
1. Topsides		
Complete removal, re-use or disposal.	Complies with OSPAR requirements and OPRED guidelines and maximises recycling of materials.	The Topsides will be rendered HCF using a decommissioning JUB during the HCF campaign. A number of Topside modules will be removed by piece meal during HCF Campaign using the JUB. Remaining Topside modules will be removed either by (1) through a combination of crane vessel lift and piece small dismantling, (2) HLV, (3) Skidding. Re-use followed by recycle and other recovery routes before disposal as a final option is considered.

Table 1.3: Summary of Decommissioning Programme		
2. Jacket		
Not covered in this Decommissioning Programme.		
3. Subsea Installations		
None.		
4. Pipelines, Flowlines & Umbilical		
Not covered in this Decommissioning Programme.		
5. Wells		
Permanent well Plug and Abandonment (P&A)	Meets HSE regulatory requirements and is in accordance with OGUK and OGA guidelines.	Plug and abandoned to comply with the HSE regulation, i.e. “The Offshore Installations and Wells (design and construction etc.) Regulations 1996”, and in accordance with OGUK Well Decommissioning Guidelines, Issue 6, June 2018
6. Drill Cuttings		
No evidence of significant drilling cuttings in place. Leave in place to degrade naturally.	Cuttings pile is widely dispersed and fall below OSPAR 2006/5 thresholds.	Any drill cuttings will remain in situ and may be disturbed during the decommissioning programme; however, will result in no significant environmental impact.
7. Interdependences		
Inde 18A is connected to Inde 23A via export gas pipeline PL76		

1.7 Field Location Including Field Layout and Adjacent Facilities

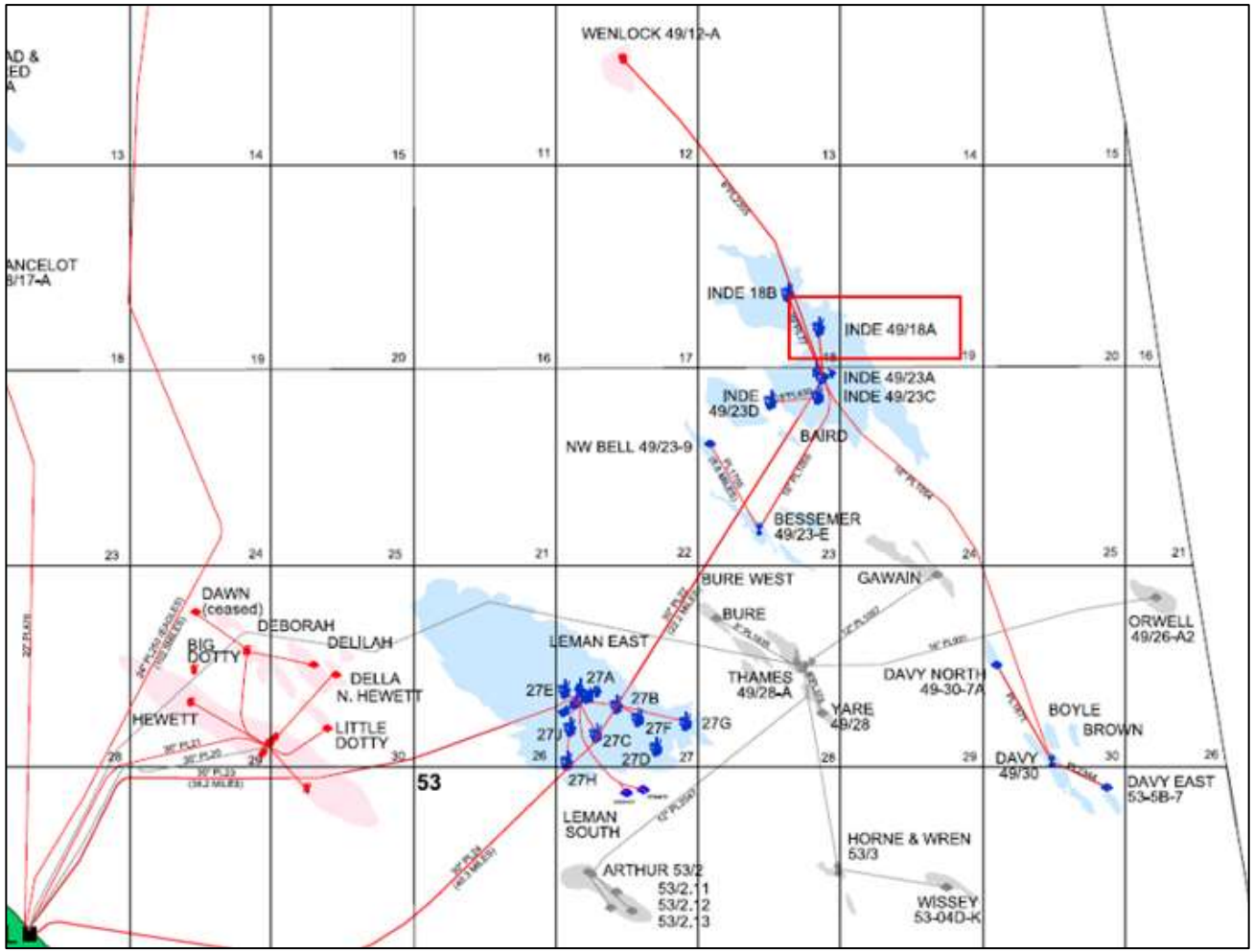


Figure 1.2: Inde Field location within the Southern North Sea

Table 1.4: List of Adjacent Facilities					
Owner	**Name**	**Type**	**Distance/Direction**	**Information**	**Status**
Perenco UK Limited	Inde 18B	Platform	From Inde 18A to Inde 18B is 4.39 km	Adjacent platform	Operational
Perenco UK Limited	Inde 18C	Platform	From Inde 18A to Inde 18C is 6.21 km	Adjacent platform	Operational
Perenco UK Limited	Inde 18D	Platform	From Inde 18A to Inde 18D is 8.29 km	Adjacent platform	Operational
Perenco UK Limited	Inde 23A	Platform	From Inde 18A to Inde 23A is 4.28 km	Adjacent platform	Operational
Perenco UK Limited	Bessemer	Platform	From Inde 18A to Bessemer is 19.3 km	Adjacent platform	Operational
Shell UK Limited	Brigantine BG	Platform	From Inde 18A to Brigantine BG is 7.25 km	Adjacent platform	Operational
Shell UK Limited	Brigantine BR	Platform	From Inde 18A to Brigantine BR is 12.2 km	Adjacent platform	Operational
Shell UK Limited	Corvette	Platform	From Inde 18A to Corvette is 15.2 km	Adjacent platform	Operational
Shell UK Limited	Caravel	Platform	From Inde 18A to Caravel is 23.1 km	Adjacent platform	Operational
One-Dyas UK Limited	Sean R	Platform	From Inde 18A to Sean R is 23.1 km	Adjacent platform	Operational
One-Dyas UK Limited	Sean P	Platform	From Inde 18A to Sean P is 27.6 km	Adjacent platform	Operational

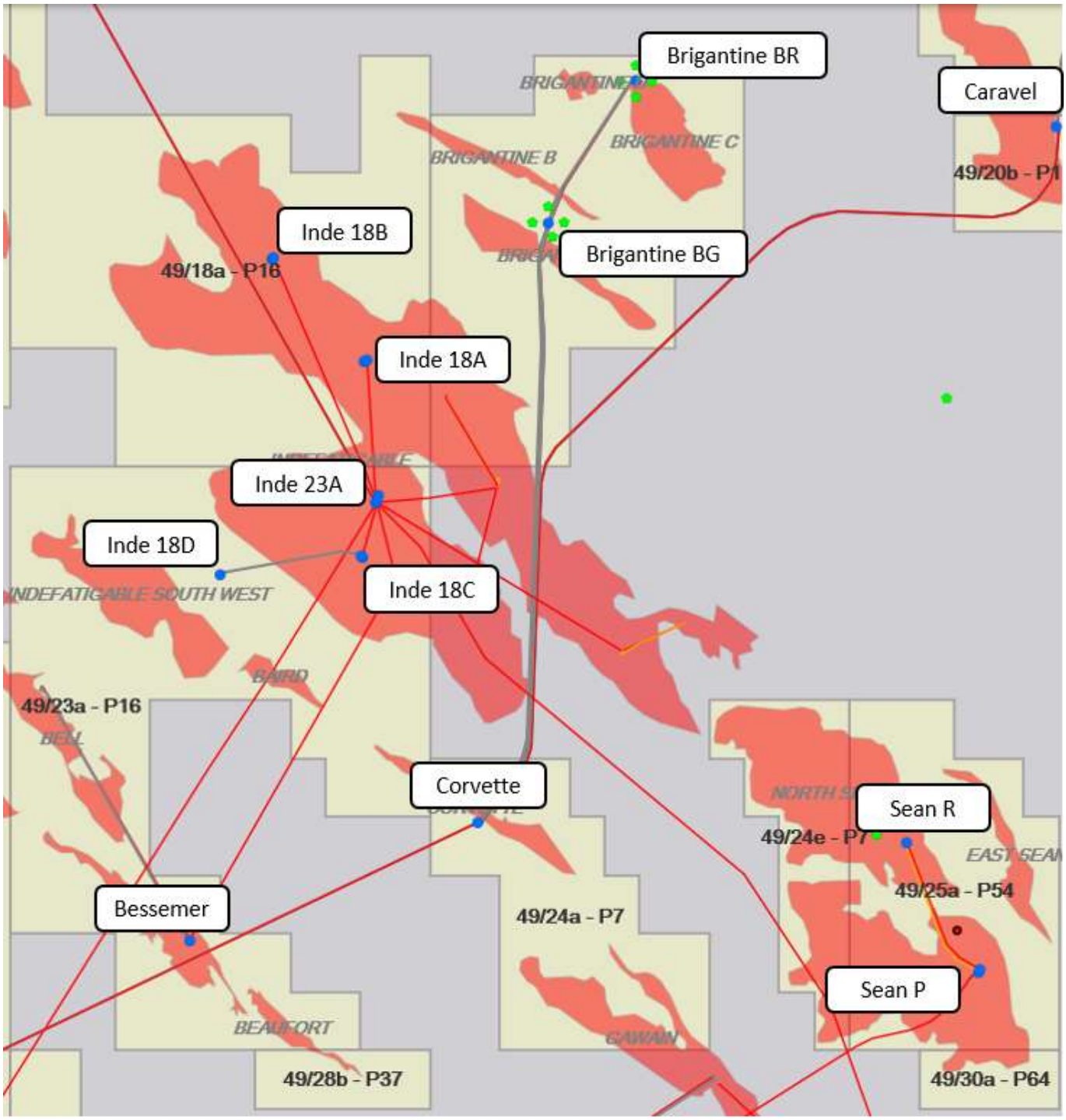


Figure 1.3 Adjacent facilities to the Inde 18A Installations

1.8 Industrial Implications

As detailed in section 1.3 above, the Topsides Decommissioning Programme includes the following key activities:

- **Pre-decommissioning surveys** – debris and environmental surveys undertaken prior to the HCF campaign.
- **Hydrocarbon Free Campaign** – activities undertaken during the HCF campaign to render the installation hydrocarbon free.
- **Partial Removal and Dismantlement Preparations** – activities undertaken to prepare for removal of the platform; this includes the removal of potential obstructions. In addition, the removal of some modules and equipment and transport onshore to disposal yard, and onshore dismantlement of Topsides at disposal yard, for reuse, recycling or disposal.
- **Preparation for Lighthouse Mode** – activities undertaken at the end of the HCF campaign, once the platform is verified as hydrocarbon free, to prepare the platform for lighthouse mode; this includes the installation of the solar powered AtoNs.
- **Topsides Removal and Dismantlement Campaign** – removal of remaining Topsides and transport onshore to disposal yard, and onshore dismantlement of Topsides at disposal yard, for reuse, recycling or disposal.

The above activities are planned carefully to recognise synergies and efficiencies. Engineering and planning take into account potential integration of various activities; therefore, the above activities above may be completed in an alternate order to above.

All contracts will be tendered according to Perenco procedures. Suppliers' offers will be assessed along many criterions, including: their technical ability and capacity to execute the work in a safe and efficient manner that minimises the impact on the environment; the commercial offer; and the experience of carrying out this type of operation in the UKCS.

Perenco have engaged with the OGA Supply Chain team, and it has been agreed that a Supply Chain Action Plan (SCAP) is required for the Inde 18A Topsides DP. The draft SCAP is currently in production and will be submitted to OGA for review once complete.

Perenco are active participants in various industry initiatives including:

a. OGUK Supply Chain Forum
b. OGUK Decommissioning Forum
c. OGUK Wells Forum
d. East of England Energy Group (EEGR)

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

2.0 Description of Items to be Decommissioned

2.1 Installations: Topsides

Table 2.1: Surface Facilities Information				
Name	Facility Type	Location WGS84 Format	Topsides/Facilities	
			Weight (Te)	No of modules
18A AD	NUI	LAT 53° 21' 43.9803"N LON 02° 34' 03.1673"E	1420	2
18A AP	NUI	LAT 53° 21' 45.8844"N LON 02° 34' 06.2316"E	1828	5

2.2 Installations: Subsea Including Stabilisation Features

Decommissioning of the platform jackets and pipelines will be dealt with in a separate DP.

2.3 Wells

Table 2.2: Inde18A Well Information			
Platform Wells – 18A	Designation	Status	Category of Well *
49/18-4 (A1)	Suspended (side-tracked to A13)	Current status is abandoned to Phase 1. To be Abandoned to Well Decommissioning Phase 3	PL-0-1-1
49/18-A2	Gas Production	Current status is completed shut-in. To be Abandoned to Well Decommissioning Phase 3	PL-1-1-1
49/18-A3	Gas Production	Current status is completed shut-in. To be Abandoned to Well Decommissioning Phase 3	PL-1-1-1
49/18-A4	Gas Production	Current status is completed shut-in. To be Abandoned to Well Decommissioning Phase 3	PL-1-1-1
49/18-A5	Gas Production	Current status is completed shut-in. To be Abandoned to Well Decommissioning Phase 3	PL-1-1-1
49/18-A6	Gas Production	Current status is abandoned to Phase 1. To be Abandoned to Well Decommissioning Phase 3	PL-0-1-1
49/18-A7	Gas Production	Current status is completed shut-in. To be Abandoned to Well Decommissioning Phase 3	PL-1-1-1
49/18-A8	Gas Production	Current status is completed shut-in. To be Abandoned to Well Decommissioning Phase 3	PL-1-1-1

Platform Wells – 18A	Designation	Status	Category of Well *
49/18-A9	Gas Production	Current status is completed shut-in. To be Abandoned to Well Decommissioning Phase 3	PL-1-1-1
49/18-A10	Gas Production	Current status is completed shut-in. To be Abandoned to Well Decommissioning Phase 3	PL-1-1-1
49/18-A11	Gas Production	Current status is completed shut-in. To be Abandoned to Well Decommissioning Phase 3	PL-1-1-1
49/18-A12	Gas Production	Current status is completed shut-in. To be Abandoned to Well Decommissioning Phase 3	PL-1-1-1
49/18-A13	Suspended (Note: side-track of well 49/18-4 (A1))	Current status is abandoned to Phase 1. To be Abandoned to Well Decommissioning Phase 3	PL-0-1-1
49/18-A13z	Gas Production (Note: side-track of well 49/18-A13 never produced)	Current status is completed shut-in. To be Abandoned to Well Decommissioning Phase 3.	PL-1-1-1

There are no E & A Wells associated with Inde 18A.

The 49/18-4 well was drilled by Amoco UK as an appraisal well and a platform was subsequently built over the top, resulting in it being renamed 49/18- A1. The well-produced until 1976 before it was abandoned. All wells subsequent to this were drilled from the platform by BP as development wells.

2.4 Drill Cuttings

As this DP only covers Inde 18A Topsides. The presence and potential impact of drill cuttings will be assessed in the Jacket DP.

2.5 Inventory Estimates

Tables 2.3a and 2.3b show the estimated Topsides inventory to be decommissioned for Inde 18A AD and Inde 18A AP respectively. The inventories exclude the jacket and piles, which will be dealt with in a later DP.

The removed equipment, appurtenances and steelwork will be transported onshore to a dismantlement yard for reuse, recycling or disposal.

Table 2.3a: Inventory Estimate for Inde 18A AD

Material	Weight (Te)	Estimated volume (m^3)
Steel	1345	230
Concrete	11	0.92
Plastic	11	0.92
Non-Ferrous	11	0.92
Hazardous	11	0.92
Radioactive waste (NORM etc.)	11	0.92
Other	20	2

Table 2.3b: Inventory Estimate for Inde 18A AP

Material	Weight (Te)	Estimated volume (m^3)
Steel	1738	284
Concrete	14	1
Plastic	14	1
Non-Ferrous	14	1
Hazardous	14	1
Radioactive waste (NORM etc.)	14	1
Other	20	2

3.0 Removal and Disposal Methods

In line with the waste hierarchy, in which the prevention of waste is preferred, Perenco has assessed the options for extending the producing life of the platforms, but this was not commercially viable.

The re-use and relocation of the Topsides has also been considered; however, this is not possible. Due to the ageing technology and high maintenance costs of the fabric and structural integrity, technically viable reuse options are limited.

Perenco will continue to review the platforms 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 the event that a Transfrontier Shipment of Waste (TFSW) permit is required, Perenco will liaise with the relevant Waste Authority and ensure that all relevant permits and consents are in place in accordance with the International Waste Shipments (Amendment) (EU Exit) Regulation 2019.

3.1 Topsides

Topsides Decommissioning Overview**:**

The two Inde 18A Topsides are similar in configuration, the exact specifications are given in the below table. The Topsides are conventional truss steel structures The Inde 18A platform AD comprises of a cellar deck, main deck and helideck and Inde 18A AP consists of a cellar deck, main deck and upper deck.

The deck elevations and estimated Topsides sizes and weight to be removed and transported onshore for each platform, (subject to approval of this Topsides DP), is detailed below. This includes the weights of equipment due to be removed in preparation for the Topsides removal.

Table 3.1: Topside Configurations

	Inde 18A AD	Inde 18A AP
Helideck (EL)	40.234 m	N/A
Upper Desk (EL)	N/A	29.108 m
Main Deck (EL)	23.876 m	23.012 m
Mezzanine Level (EL)	N/A	N/A
Cellar Deck (EL)	18.593 m	18.593 m
Communication Tower (EL)	N/A	55.47 m
Vent Boom (EL)	N/A	46.215 m
Topsides Weight (Te)	1420	1828
Size (m)	44.65 x 22.86 x 32.18	45.72 x 24.23 x 52.16

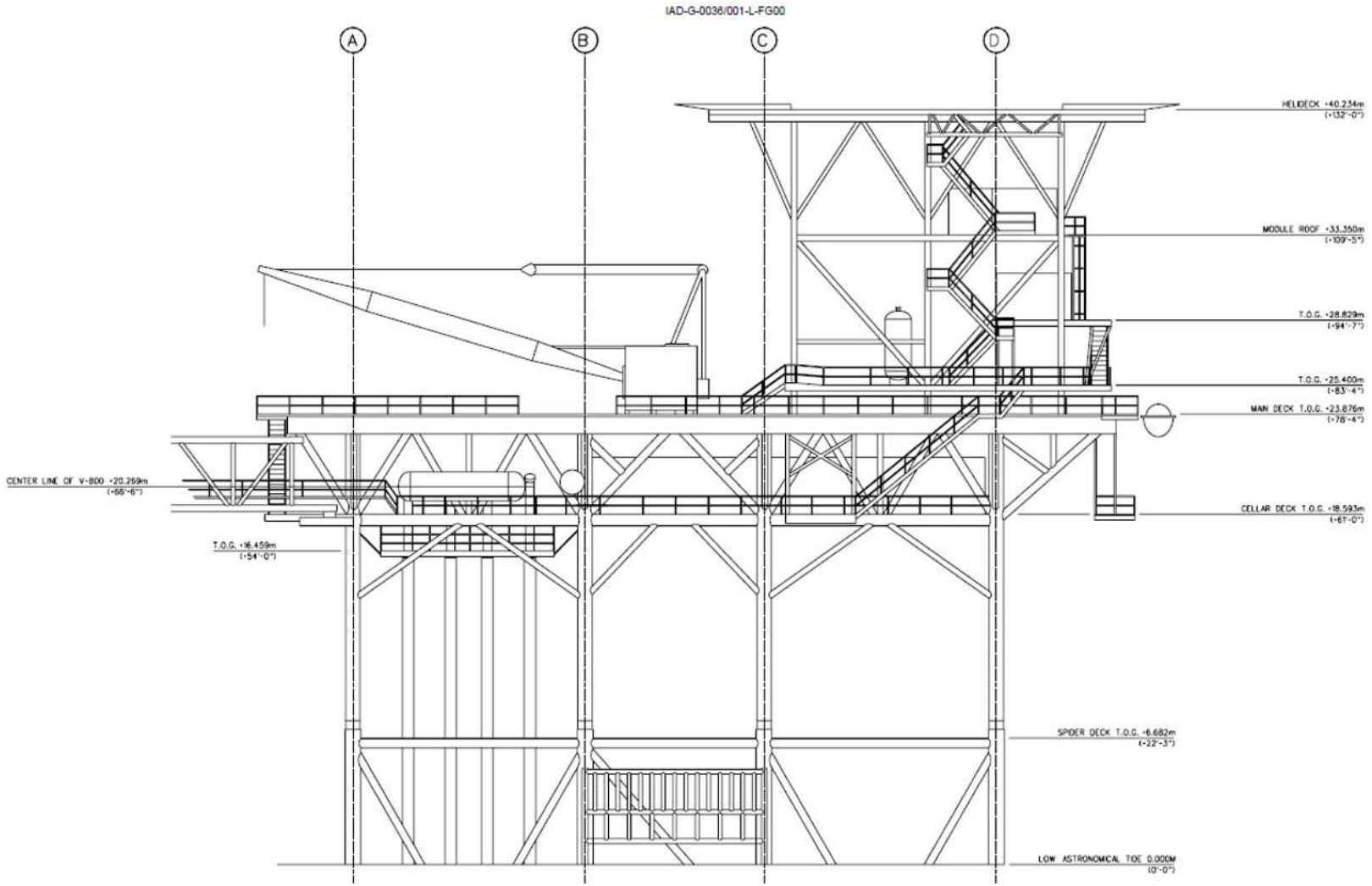


Figure 3.1a: Diagram of Inde 18A AD Topsides

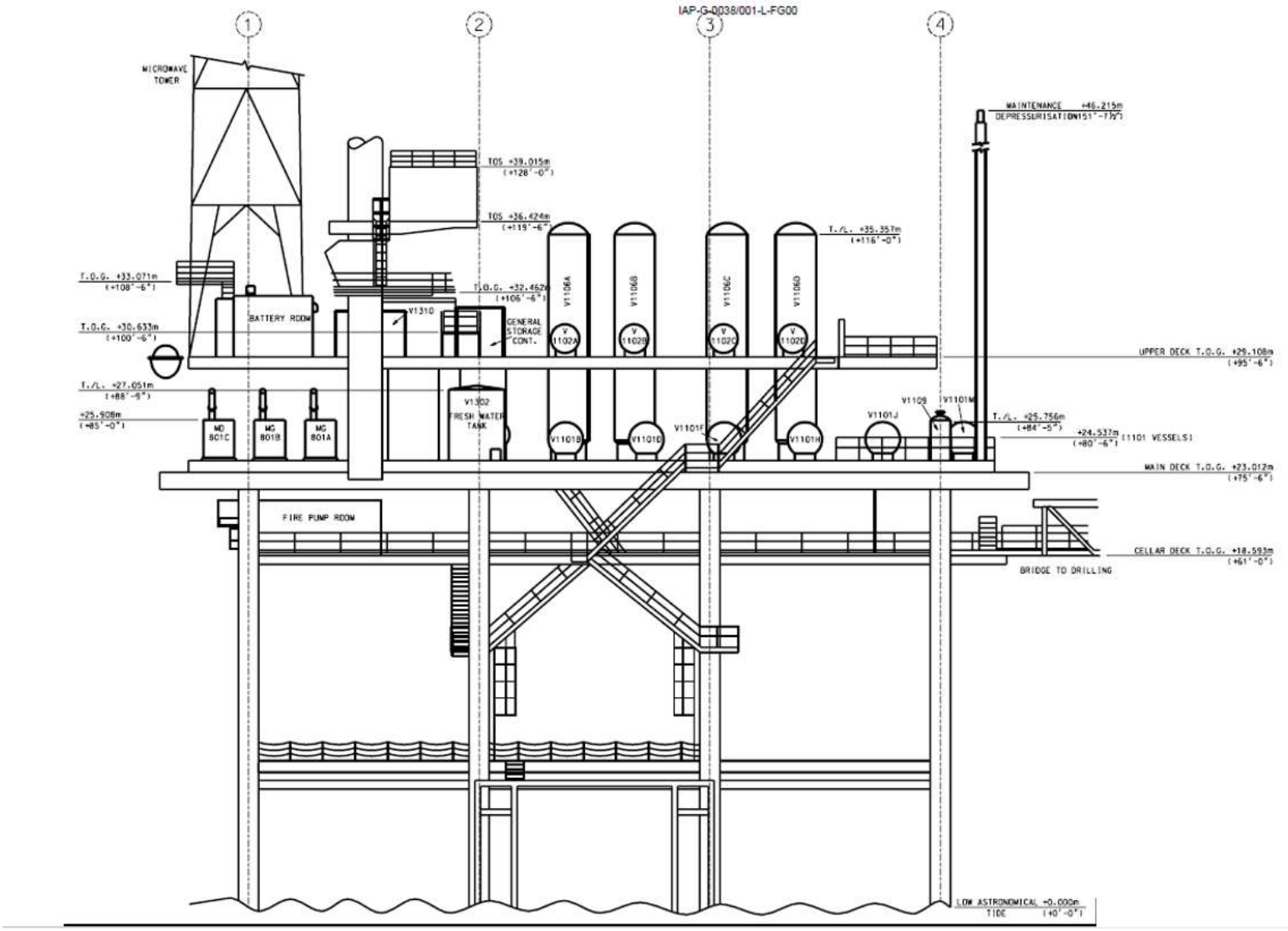


Figure 3.1b: Diagram of Inde 18A AP Topsides

Preparation/Cleaning:

Table 3.2: Cleaning of Topsides for Removal		
Waste Type	**Composition of Waste**	**Disposal Route**
On-board hydrocarbons	Process fluids, fuels and lubricants	Flushed and either injected into platform wells or drained to tote tanks for transport and appropriate disposal onshore.
Other hazardous materials	NORM and radioactive material, instruments containing heavy metals, batteries	Transported ashore for re-use, recycling or disposal by appropriate methods. In the event that a Transfrontier Shipment of Waste (TFSW) permit is required, Perenco will liaise with the relevant Waste Authority and ensure all relevant permits/consents are in place.
Original paint coating	Lead-based paints	May give off toxic fumes/dust if flame-cutting or grinding/blasting is used so appropriate health safety measures will be taken.
Asbestos and ceramic fibre	Minor quantities	Appropriate control and management will be enforced. Transported ashore for disposal by appropriate methods.

Removal Methods:

Table 3.3: 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 unit 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.
Other - skidding	Removal of topsides as complete unit using alternative methodologies currently being developed by industry. Transportation to shore for re-use of selected equipment, recycling, break up and/or 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.

Method	Description
Proposed removal method and disposal route	Partial removal of Topsides, piece meal as described above during the HCF campaign. The Topsides will be removed onshore and recovered at a selected dismantlement yard to comply with relevant legislation and company policy. For the remaining Topsides modules, we are assessing other removal options to establish the most efficient and cost effective method. A final decision on the removal method will be made following detailed engineering studies and OPRED will be informed of any change to the current plan. The remaining Topsides will also be removed onshore and recovered at a selected dismantlement yard to comply with relevant legislation and company policy.

3.2 Wells

The wells which remain to be abandoned Table 2.2, will be plugged and abandoned in accordance with Oil & Gas UK Guidelines for the suspension and abandonment of wells. A Master Application Template (MAT) and supporting Subsidiary Application Template (SAT) application will be submitted in support of work that is to be carried out.

3.3 Waste Streams

Table 3.4: Waste Stream Management Methods	
Waste Stream	**Removal and Disposal Method**
Bulk liquids	Removed from vessels and pipework, and either injected into platform wells for disposal or discharged into tote tanks for transport and appropriate disposal onshore. Relevant permits will be sought for the desired disposal method prior to commencement. 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 be undertaken offshore by the Radiation Protection Supervisor and any NORM encountered will be dealt with and disposed of in accordance with guidelines and company policies and under appropriate permit.
Asbestos	Tests for asbestos will take place offshore and will be dealt with / disposed of according to guidelines and company policies.
Other hazardous wastes	Detailed survey for other hazardous wastes will be undertaken offshore and will be dealt with / disposed of 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 recycling options.

3.4 Inventory Disposition

Table 3.5: Inventory Disposition			
	Total Inventory Tonnage Te	Planned tonnage to shore Te	*Planned tonnage left in situ Te
Inde 18A AD	1993	1420	573
Inde 18A AP	2451	1828	623

* Planned tonnage left in situ includes jackets and piles. To be confirmed in Jacket DP

Table 3.6: Proposed Fate of Inde 18A Infrastructure Materials		
Infrastructure	**Recommended Decommissioning Option**	**Destination**
Jacket	To be confirmed in Jacket DP	To be confirmed in Jacket DP
Topside	Complete removal	Re-use, recycling and disposal

4.0 Environmental Appraisal

4.1 Executive Summary

Given the remote location of the Inde18A installation and the nature of the decommissioning activities, there is minimal opportunity for the decommissioning activities described below to impact any European or nationally designated protected sites.

This Decommissioning Plan (and Environmental Assessment Justifications (EAJ) associated with each of the decommissioning activities) has considered the East Offshore Marine Plan, adopted by the Scottish Government to help ensure sustainable development of the marine area. Perenco considers the proposed decommissioning activities align with its objectives and policies.

Based on the findings of this EA including the identification and subsequent application of appropriate mitigation measures, and Project management according to Perenco's Environment Policy and Environmental Management System (EMS), it is considered that the proposed decommissioning activities do not pose any significant threat of impact to environmental or societal receptors within the UKCS.

The following sections present:

- **Regulatory Summary** – a description of how the decommissioning activities will be regulated during the HCF campaign and Topsides Removal Campaign.
- **Decommissioning Activities** – a summary of the activities to be carried out during the HCF campaign and Topsides Removal Campaign.

- **Decommissioning Options for Removal of Topsides** – a summary of the dismantlement options being considered.
- **Baseline Environmental and Socioeconomic Sensitivity** – a summary of the baseline sensitivities with respect to the seabed and sediment environment, fish and shellfish, marine mammals, seabirds, conservation, fisheries and shipping, and other users.
- **Impact Assessment -** a summary of the aspects of the environment that may be impacted by the decommissioning and an assessment of their impacts
- **Environment Management** – an overview of the performance management and internal assurance systems in place to ensure activities take place in a safe, compliant and acceptable manner, and according to agreed plans.

4.2 Regulatory Summary

Master and Supplementary Application Templates (MATs and SATs), OPEPs (Oil Pollution Emergency Plan) and other regulatory requirements are submitted using the Portal Environmental Tracking System (PETS) of the Department for Business, Energy & Industrial Strategy (BEIS) UK Energy Portal, comprising in particular:

1. A Standalone MAT (SA/610) for JUB Co-location and interim Lighthouse mode.
2. Activities to prepare the seabed for placement of the HAEVA JUB under a Stand-Alone MAT (SA/1516, ML/745) have been completed.
3. Wells Intervention Activities MAT (WIA/1210) for Well Plug and Abandonment, Conductor and tree removal activities and topsides hydrocarbon freeing (HCF).
4. Activities to flush and reinject the inventory of the export pipeline (PL76) are requested for approval under Pipeline MAT ref PLA/871.

Should any other regulatory requirements arise, these will be addressed via the relevant permitting process at the appropriate time.

All decommissioning activities will come under the Inde & Leman Hub Field Oil Pollution Emergency Plan, and a suitable Communication and Interface Plan (CIP) will be used to interface between OPEPs covering the Inde 18A and any support vessels or barges.

Perenco will undertake a full EA to support the Decommissioning Programmes for the jacket removal and pipeline decommissioning activities.

4.3 Decommissioning Activities

The proposal is to use a decommissioning jack-up barge (JUB) to plug and abandon (P&A) the platform wells, make the platforms Hydrocarbon Free, and remove some topside modules and other equipment on Inde 18A to make it ready for an interim lighthouse period of up to 3 years.

After this, subject to further regulatory approval and completed engineering design, a decommissioning Heavy-Lift Vessel (HLV) and/or other support vessels will be used to remove the topside modules and jacket.

The P&A of the twelve Inde 18A platform wells, including 2 side-tracks, will involve flushing the wells before placing permanent cement barriers at the appropriate depths according to the specific features of each well in following Oil and Gas UK Guidelines for the suspension and abandonment of wells. This is deemed to be industry best practice for well abandonment.

Flushing and purging the topsides and export pipeline will also follow industry best practice guidelines to ensure minimal residual hydrocarbon is present during the subsequent lighthouse mode and eventual removal of the platform and connected pipelines.

Options for reuse of the Inde18A platform are limited due to the limited remaining life of the jacket structure and changes in industry requirement. Materials and remaining equipment from the platform may be re-used where practicable.

Therefore, following Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) decommissioning guidelines, it is proposed to fully remove and transport the Inde18A topsides to a suitable onshore facility for dismantling and recycling.

4.4 Decommissioning Options for Removal of Topsides

Four possible strategies are being considered for the dismantlement for the removal of the Topsides Module; given the project timeline a final decision is still pending further information:

- **Large Piece/Modular removal** by HLV or JUB means multiple contractors and yards can be used for disposal but may require extensive engineering to ensure lifting can be done safely. Further engineering studies including lift assessments will determine the feasibility of the large piece /modular removal.
- **Small Piece Removal** will negate the need for a HLV, and will have a shorter preparation delay, however significant decontamination would be needed offshore, and the work will involve a high level of exposure to risk for personnel.
- **Single lift** using a Heavy Lift Vessel (HLV) would involve a single vessel and involve fewer lifts for the removal but has a long schedule with fewer contractor options to provide a competitive bid.
- **Skidding** will involve less prior clean-up (generating streams of waste offshore) and less overall exposure offshore but would require preparation work to make the platform ready for skidding and may have a long schedule.

Further engineering studies including lift assessments will determine the feasibility of the large piece /modular removal.

4.5 Baseline Environmental and Socioeconomic Sensitivity

Metrological and Oceanographic Conditions

The Inde 49/18A installation is located approximately 90 km off the Lincolnshire coastline. Water depth at Inde 49/18A platform range from 27.5 to 32.5m, with an average of approximately 30 m LAT. Tidal stream velocities in the vicinity range between 0.3 and 0.6 m/s during spring tides and 0.2 and 0.4 m/s for neap tides. Significant wave heights exceed 1m 75% of the time and exceed 3m for 10% of the time.

The predominant wind direction for the Southern North Sea is between south and north-west. The calmest months are during summer (May to September) with wind speeds of 5 - 6 m/s. Air temperatures in this area of the Southern North Sea are at their lowest in January and February (mean 4°C to 6°C).

Seabed & Sediment Conditions

Sediments are generally coarse sands and gravels, which are highly mobile largely due to the increased near seabed currents. Seabed Surveys noted the area to be covered with sand ripples with heights of 0.1 to 0.2 m and ~20 m in length. They are steeper toward the SE, indicating a prevailing current in this direction. Scouring was observed around the platforms but aside from the platform and pipelines there are no other seabed features to report.

Based on the ground-truthing data obtained from the Inde18A survey area, an overarching JNCC/EUNIS habitat classification of 'Circalittoral Fine Sand' (SS.SSa.CFiSa/A5.25) was assigned across the survey area, while the scour feature around the platform was classed as 'Circalittoral Coarse sediment' (SS.SCS.CCS/A5.14) due to the increased exposure from seabed currents.

In large numbers, the Ross Worm can form hard, reef-like structures that act to stabilise the surrounding seabed. Single Sabellaria spinulosa individuals were recorded at two (of the fifteen) sample stations so the minimal counts of this taxa coupled with the absence of tubes within the seabed photography meant that it was deemed unlikely biogenic reefs are present.

Furthermore, the absence of cobbles and boulders across the wider survey area indicates stony reef is unlikely to be present.

Fish & Shellfish

The Inde18A lies within spawning and nursery grounds of cod, lemon sole, mackerel, nephrops, plaice, sandeels, sprat and whiting. It is also within the nursery grounds for herring, horse mackerel and tope shark. Spatial modelling indicates that Block 49/18 is generally not considered to be of high importance to juvenile fish species which the exception of whiting, which have a high probability of aggregation.

The Ocean Quahog (Arctica islandica) is a common feature of some Southern North Sea areas; however, no live individuals or relict shells were recorded in the macrofauna data from Inde 18A in samples, video footage and photographs, and would be of minimal risk based on the scope of this work and limited area of seabed impact.

Also, no evidence of horse mussels (Modiolus modiolus) was observed either as live individuals or relic shells. Whilst nearby surveys have previously identified relic shells, a northward shift in the species distribution has likely led to a lack of live individuals being identified around in platform.

Seabirds

Numbers of seabirds are generally lower in Regional Sea 2 compared to further north however, the offshore waters of the Southern North Sea are visited by some seabirds, mainly for feeding purposes in and around the shallow sandbanks. The region also includes several cliff-nesting locations as well as important sites for wintering and passage water birds including the Wash and Thames Estuary. Therefore, individuals found offshore in the vicinity of the Inde 18A platform may originate from onshore colonies or be passing migrants.

Nevertheless, the European Seabirds at Sea (ESAS) database indicates that Block 49/18 itself is not a hotspot area. The predicted at-sea seabird density of any species is < 3 seabirds per km^2 both during the breeding season (March – September) and during winter (November – March). The guillemot is the single most abundant species throughout the year (2.9 and 1.2

birds/km^2 during the breeding season and the winter respectively), while the razorbill is common over the winter (1.3 birds/km^2). As such, the likelihood of contact is minimal.
The use of offshore infrastructure like gas platforms by seabirds is primarily for roosting and resting during foraging or migration trips. Due to the significant records of usage of both manned and unmanned offshore infrastructure by seabirds, it is reasonable to conclude that seabirds are not disturbed by most offshore operations and that they still actively seek out such opportunities.

Inde18A is included in Perenco's regular bird inspection routine and has been accorded a "low risk" status on account of inspections (most recently in July 2021) identifying roosting areas and guano, but no nesting. Follow-up inspections will seek to reconfirm no changes before mobilisation. Should nesting birds be identified that could be impacted by the campaign an ornithologist will assess the risk and need for mitigation.

Marine Mammals
While surveys of marine mammals across the North Sea indicate other species populations, the JNCC Atlas of Cetacean Distribution in north-west European Waters gives a localized indication of the seasonal distribution of cetaceans. The seasonal sightings data identified the harbor porpoise and the white-beaked dolphin observed in International Council for the Exploration of the Sea (ICES) Rectangle 35F2.

In addition, two species of seal, the grey seal and the harbor seal, are common along the east coast of England, particularly around The Wash where harbour seals forage over a wide area. Foraging areas can be up to 100 km offshore and connected to haul-out sites by prominent high-usage corridors. Distribution of grey seals in the vicinity of the Inde 18A platform are reported to be low (< 5 individuals per 25 km^2), while Harbour seal densities are recorded as moderate (1 to 50 seals per 25 km^2).

Perenco will continue to liaise with OPRED and JNCC and apply latest informed guidance with regards to mitigating risk of harm to marine mammals.

Conservation

The Inde 18A platform is in the vicinity of several Marine Conservations Zones (MCZs) and Special Areas of Conservation (SACs), however only the North Norfolk and Saturn Reef is less than 40km away, approximately 3.7km to the west of the platform (Figure 4.1). This features an offshore linear ridge and tidal sandbanks with extensive sand waves and areas of Sabellaria spinulosa biogenic reef. However, as well as being outside the protected area, the platform is in deeper water than the classification normally relates to (<20m). As described above, there have been no reported sightings of biogenic reef in surveys of the area.

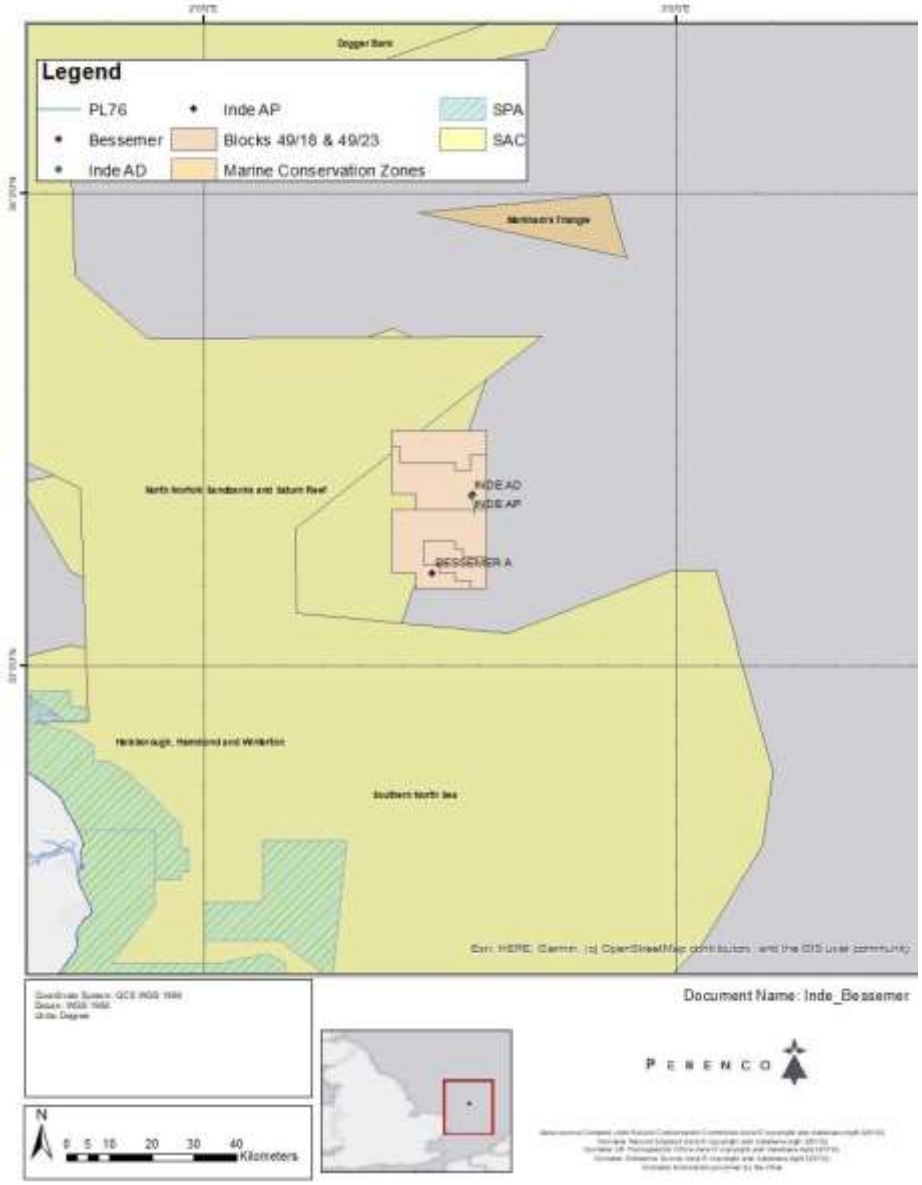


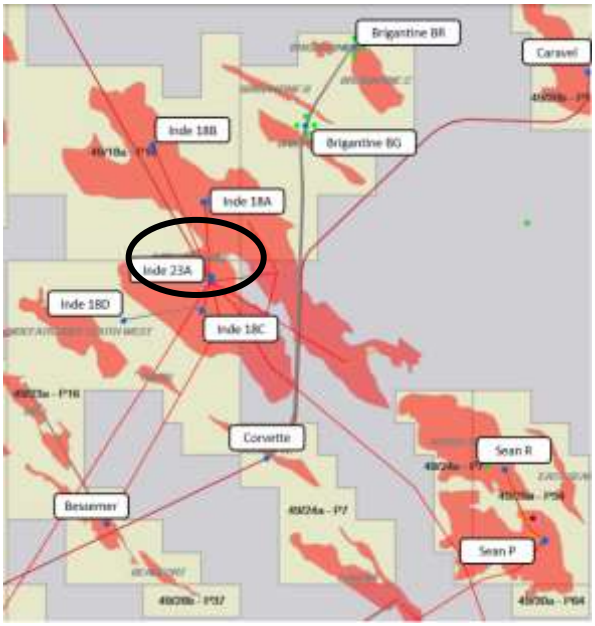
Figure 4.1: Features of Conservation Interest in the Vicinity of the Block 49/18

Fisheries and Shipping

Fishing effort for this ICES Rectangle 35F2 is generally low with less than 100 days fished per year across the rectangle, with greatest fishing effort during the winter months. Ind 18A is also not near any of the main shipping corridors that cross the Southern North Sea. The 500m exclusion zone will remain in place for the duration of decommissioning.

Other Users

There are several other oil and gas facilities in the vicinity of Inde18A, as illustrated in Figure 4.2. There are no other sea uses within the Inde18A block, however there are neighboring activities in the form of several wind farms, including the Hornsea Project 3, Norfolk Boreas and Norfolk Vanguard West windfarms. The closest aggregate zone is Humber 5, approximately 32km Northwest of Inde 18A, while the NORSEA telecommunications cable runs parallel to the western boundary of Block 49/18, approximately 35 km to the west of the Inde 18A platform. None of these will be affected by the transient decommissioning project.



Name & Owner	Distance/Direction
Inde 23A (Perenco UK Ltd)	4.28 km / S
Inde 18B (Perenco UK Ltd)	4.39 km / NW
Inde 18C (Perenco UK Ltd)	6.21 km / S
Brigantine BG (Shell UK Ltd)	7.25 km / NE
Inde 18D (Perenco UK Ltd)	8.29 km / SW
Brigantine BR (Shell UK Ltd)	12.2 km / NE
Corvette (Shell UK Ltd)	15.2 km / SSE
Bessemer (Perenco UK Ltd)	19.3 km / SW
Caravel (Shell UK Ltd)	23.1 km / ENE
Sean R (One-Dyas UK Ltd)	23.1 km / SE
Sean P (One-Dyas UK Ltd)	27.6 km / SE

Figure 4.2: Details of other oil and gas infrastructure surrounding Inde 18A

No tourism and leisure activities are identified as occurring within vicinity of the Inde 18A platform largely due to its distance from the shore.

4.6 Impact Assessment

Activities with a Potential Impact

Aspects of the environment that may be impacted by the decommissioning activities have been identified in a receptor-based activity and events matrix Table 4.1. The matrix has been populated by Perenco, with reference to the requirements of Article 3(1) of the EIA Directive, the BEIS OPRED EIA Guidance (2019) and relevant BEIS Offshore SEA Reports (2003-2016).

As shown in Table 4.1, Perenco has undertaken a preliminary assessment of the impacts identified to determine whether there is the potential for any significant effects on the environment to occur. Some Project activities / unplanned events have a potential impact with

the resulting effects are likely to be insignificant. These impacts have therefore been scoped out from detailed assessment. Where it has been identified that a Project activity / unplanned event has the potential to result in a likely significant effect on the environment, a detailed assessment of the impact(s) has been undertaken.

Hazards with the potential to have a significant impact are:

- Seabed disturbance by the supporting jack-up rig and barge (positioning and use of anchors)
- Physical Presence of a supporting jack-up rig and barge (e.g., bird nesting)
- Atmospheric Emissions
- Noise impacts from cutting the topsides
- Accidental releases

Detailed Assessment

Detailed assessment of these activities begins with an assessment of the relevant receptor **sensitivity** for each planned activity. Sensitivity is a function of the value of the receptor (importance, rarity and worth), and its resilience (resistance, recoverability).

Secondly, the **significance** of effects has been evaluated by considering the sensitivity of the receptor in combination with the **magnitude** of impact that is likely to occur. The overall significance of effects is then defined as:

- **Major** or **Moderate effects** ("Significant" in EAJ terms) where mitigation measures are required to prevent, reduce or offset the effect. The overall significance is then re-evaluated, taking the mitigation measures into consideration, to determine the residual effect.
- **Minor effects** are not considered to be significant and are usually controlled through good industry practice.
- **Negligible** effects are not considered to be significant.

Impact Summary

Key sensitivities identified above include impact to seabirds, air quality, the seabed, water column noise and discharges to sea (both operational and accidental), while the impact of solid wastes are a potential risk later during the disposal of the topsides and jacket. A summary of the mitigation measures in place for these impacts is given in Table 4.2. This mitigation is reflected in the Mitigated Risk outcome in Table 4.1.

Table 4.1: Receptor-based activity and events matrix														
Activities	Direct Hazards	Physical Receptors			Biological Receptors					Human Receptors		Mitigated Risk		
		Seabed Sediments & Benthic Habitats	Water Quality	Air Quality & Climate	Plankton	Fish & Shellfish	Seabirds	Marine Mammals	Conservation Areas	Shipping & Fisheries	Other Sea Users	Receptor Sensitivity*	Magnitude of Impact	Mitigated Risk
Barges & Support Vessels (Presence and positioning activity, use of anchors and fuel combustion)	Seabed Disturbance	PS	NS	-	-	PS	-	-	NS	NS	NS	Low	Minor	Minor
	Physical presence risk to sea users	-	-	-	-	-	PS	-	-	NS	NS	Medium	Negligible	Negligible
	Discharge to Sea (inc. runoff)	-	NS	-	NS	NS	NS	NS	NS	NS	NS	Medium	Negligible	Negligible
	Atmospheric Emissions	-	-	PS	-	-	NS	-	-	-	-	Medium	Negligible	Negligible
Topsides Removal/Dismantlement	Marine Noise	-	-	-	-	NS	-	PS	PS	PS	-	High	Negligible	Negligible
	Discharge to Sea (Inc. runoff)	-	NS	-	NS	NS	NS	NS	NS	NS	NS	Medium	Negligible	Negligible
	Hazardous & High-Volume Waste	-	NS	NS	-	-	-	-	-	-	NS	Medium	Negligible	Negligible
Accidental Releases	Spill to Sea	PS	PS	-	PS	PS	PS	PS	PS	-	-	Medium	Negligible	Negligible
	Atmospheric Emissions	-	-	PS	-	-	NS	-	-	-	NS	Medium	Negligible	Negligible

PS – Potentially Significant impact,
NS – Potentially Non-Significant Impact.
*The highest sensitivity receptor is considered in this risk assessment matrix

4.7 Environmental Management

The focus of environmental issues will be on the completion of activities associated with the topside's removal process. Performance management and internal assurance systems will ensure activities take place in a safe, compliant and acceptable manner, and according to agreed plans. Perenco UK's Environmental Policy and ISO14001:2015 accredited Environmental Management System are in place to ensure this happens.

A Perenco Project Management team will be appointed to manage suitable sub-contractors for the removal of the Inde 18A topsides. Perenco standard procedures for operational control and hazard identification and management will be used. Where possible the work will be coordinated with other operations in the SNS. Perenco will monitor and track the progress of consents and the consultations required as part of this process. Performance monitoring will be used to ensure regulatory requirements are met, as well as to assess fulfilment of wider project objectives and commitments. Any major changes to the decommissioning programme will be discussed and agreed with OPRED.

A summary of the mitigation measures in place for these impacts is given in Table 4.2. This mitigation is reflected in the Mitigated Risk outcome in Table 4.1.

Table 4.2: Environmental Appraisal Impacts - Topsides Removal Campaign

Main Impacts	Mitigation Factors
Seabed Disturbance	All operations will occur within the Inde 18A platform 500m exclusion zone.
	Disturbance is limited to approach, anchoring and leg positioning of the supporting jack-up rigs and barges.
	Rig move procedures will be developed utilising information from Subsea surveys/Site Specific Assessments. Repositioning of jack up barges to me minimised to avoid additional seabed disturbance.
Physical presence risk (especially disturbance of birds)	There is no history or evidence of nesting birds on the Inde 18A. However, consideration will be given to implementing environmental management best practice, potentially through a bird management plan, to firstly avoid impacts before having to consider mitigation measures.
	Perenco intend to avoid the nesting seasons when removing the remaining Topsides. If not possible, alternative measures will be put in place to reduce the likelihood of birds nesting e.g., the installation of gel/spikes/nets. Advice will be sought from OPRED on acceptable mitigation measure if required.
	Data and information relating to the ornithological baseline will be included within the EAJs. These will provide the Seabird Oil Sensitivity Index data and protected site information and will also include current and relevant data on species of seabirds typically expected in the vicinity of the installation.
Atmospheric Emissions	The remote location (90km from the UK coast and 32 km form the Netherlands transboundary line) combined with open space and weather atmospheric mixing, minimises the exposure pathway for any acute emissions, beyond receptors in the immediate vicinity.
	Vessel operations will be minimised where practical, with work programmes planned to optimise vessel time in the field.
	All engines, generators on the vessel will be well maintained to minimise energy use and gaseous emissions.
	Vessels will be audited as part of selection and pre-mobilisation.
	Once quantified, emissions from decommissioning vessel operations are likely to be negligible in comparison to the operational life of the platform.

Main Impacts	Mitigation Factors
Submarine noise	Cutting of topsides will be above the waterline, avoiding noise propagation in the water column and avoiding the disturbance of marine mammals.
	All other noise sources (e.g., welding and cutting within the modules, load transfer operations, vessel repositioning etc) will be within the normal scope for operation of the platform.
Solid Waste	Waste Management Plan will be implemented. Adherence to Waste Management Hierarchy - materials will be reused and recycled where possible.
	Compliance with legislation. Permits and traceable chain of custody for waste management, shipment, treatment and onshore disposal.
Discharges to sea	A chemical risk assessment will be undertaken to identify the risk profile of chemicals being used and / or discharged in accordance with the requirements of the Offshore Chemicals Regulations 2002 (as amended). Where practicable, chemicals with a higher risk profile will be substituted out in favour of those with an improved environmental profile.
	Appropriate design and maintenance of drains and drain management system, segregation of light and heavily contaminated runoff from deck working areas, including signage and user awareness.
	All operational discharges to be treated to ensure compliance with relevant discharge limits, or stored for onshore disposal or disposal well reinjection where relevant
	Compliance with legislation. Permits and traceable chain of custody for discharge, treatment, analysis and disposal.
Accidental Releases	Hydrocarbon inventories will be removed from the Topsides prior to commencing removal operations. Residual volumes will be contained before transfer. Overstock of chemicals will be avoided.
	Operational procedures (e.g., chemical storage, equipment placement, equipment maintenance, and loading or refuelling procedures) will be followed to prioritise avoiding discharge or accidental release to sea.
	A Decommissioning Oil Pollution Emergency Plan (OPEP) and Communications and Interface Plan (CIP) will be in place, taking into consideration the largest volumes within the campaign (e.g., fuel tanks of a supporting jack-up rig and barge)
	Perenco have UKCS membership with Oil Spill Response (OSRL) for Tier 2/3 incidents.
	Chemicals used will be CEFAS registered, and risk assessed for their potential impact in the water column.

5.0 Interested Party Consultations

Perenco, as part of the Inde 18A Topsides Decommissioning Programme process the following statutory consultees were informed of the intention to remove the Inde 18A installations. Perenco plan to include the following stake holders in the consultation:

- National Federation of Fishermen's Organisations (NFFO)
- The Scottish Fishermen's Federation (SFF)
- Northern Ireland Fish Producers' Organisation (NIFPO)
- Global Marine Systems
- Public

Table 5.1: Summary of Consultee Comments (Informal Consultations)		
Who	**Comment**	**Response**
OGA	A PWA has been submitted to the OGA for the pipeline works carried out during the HCF campaign.	Comments received on PWA have been addressed.
OPRED EMT	Advice on the Environmental Appraisal section for the Inde 18A Topsides Programme received.	Advice taken into account and EA section updated.
HSE	HSE to review and accept: Combined Operation Notifications (CON), Dismantlement Safety Case, and Schedule 9 notifications.	Material Change to Inde 18A Operations Safety Case has been accepted. A CON has been submitted.

Table 5.2 Summary of Consultee Comments (Statutory Consultations)		
Who	**Comment**	**Response**
NFFO	No comments received.	N/A
SFF	No comments received.	N/A
NIFPO	No comments received.	N/A
Global Marine Systems	Advise that in the event that the decom program changes, and seabed invasive operations are to occur near existing telecom infrastructure, it will be important to notify any nearby cable owners of any upcoming operations.	Perenco do not foresee the work scope changing to include seabed invasive operation; however, if this is the case, we will contact the relevant cable owners as advised.
Public	No comments received.	N/A

6.0 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 Inde 18A installations. Perenco standard procedures for operational control and hazard identification and management will be used. Where possible the work will be coordinated with other operations in the SNS. Perenco will monitor and track the progress of consents and the consultations required as part of this process. Any major changes to the decommissioning programme will be discussed and agreed with OPRED.

6.2 Post-Decommissioning Debris Clearance and Verification

This DP only covers Topsides removal. Post-decommissioning surveys will be dealt with in the subsequent Jacket Decommissioning programme.

6.3 Schedule

The Topsides Decommissioning Programme approach may vary between platforms and is dependent on vessel availability.

Proposed Approach: HCF followed by Lighthouse Mode: currently it is anticipated that platforms Inde AP and Inde AD will go into Lighthouse Mode immediately after the completion of the HCF Campaign. At the end of the Lighthouse Phase, it is anticipated that the remaining Topsides and the Jackets will be fully removed during a single removal campaign.

1. **Hydrocarbon Free (HCF) Campaign**: Debris surveys will be completed prior to commencement of the campaign. A jack-up barge interfaces with the platform and carries out well plugging and abandonment, removing all hydrocarbons from topside pipework / vessels, flushing pipelines and pipeline severance, and removal of obstructions in preparation for the platform dismantlement. Then transport the removed topsides modules and other removed equipment to an onshore dismantlement yard, for reuse, recycling or disposal.

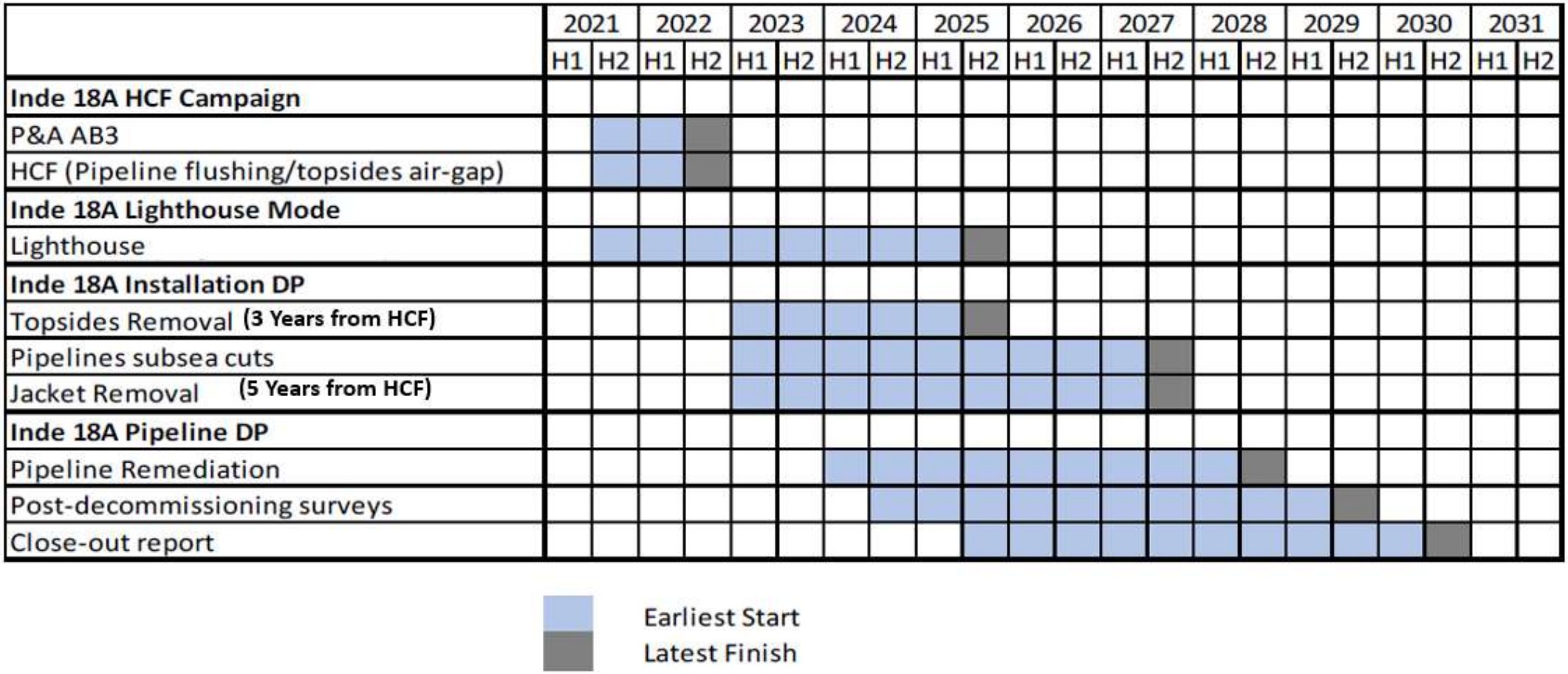
2. **Lighthouse Mode**: Prior to the departure of the jack-up barge, self-contained solar powered AtoNs are installed on the topsides and are commissioned. The AtoNs provide marine coverage for the duration of the lighthouse mode and are monitored remotely from a Perenco Gas Terminal by Perenco Operators to ensure the AtoNs remain functional.

3. **Topsides and Jacket Removal Campaign**: Successful tenderer(s) remove the remaining Topsides and Jackets. Then transport the Topsides to an onshore dismantlement yard, for reuse, recycling or disposal.

4. **Seabed clearance and verification**: Post-decommissioning environmental surveys undertaken following platform removal.

The schedule presented below in Figure 6.1 indicates the earliest dates the dismantlement of the Topsides is estimated to take place. The completion dates for the decommissioning programme are driven by the availability of vessels, favourable weather windows, and market opportunities.

Figure 6.1: Gannt Chart of Topsides Decommissioning Programme



*Pipeline and Jacket decommissioning activities will be subject to separate Decommissioning Programmes.

6.4 Costs

The decommissioning costs detailed within this DP will be provided to OPRED are for the scope of work associated with the HCF campaign which includes the dismantlement preparations and Lighthouse Mode preparations, and also the removal of the remaining Topsides during the Heavy Lift campaign.

A cost estimate for the removal and disposal of the Jackets during the Heavy Lift campaign will be provided to OPRED with the full Inde 18A Installations Decommissioning Programme.

Table 6.1: Provisional Decommissioning Programme costs

Activity	18A AD £m	18A AP £m	Total Estimated Cost (£m)
Project Management			Costs provided to OPRED
Facility Running Costs			Costs provided to OPRED
Platform Well P&A			Costs provided to OPRED
Conductor Removal			Costs provided to OPRED
Making Safe Topsides			Costs provided to OPRED
Making Safe Pipeline (HCF)			Costs provided to OPRED
Topsides Preparation			Costs provided to OPRED
Topsides Removal			Costs provided to OPRED
Onshore disposal & recycling			Costs provided to OPRED
TOTAL			Costs provided to OPRED

7.0 Public Notifications

In accordance with the Petroleum Act 1998, Perenco UK Ltd announced the decommissioning proposal for the Inde 18A installation by placing a public notice in the Eastern Daily Press and the London Gazette on 6th August 2021. In addition, details of where copies of the draft Decommissioning Programme could be found were placed on the company website.

PUBLIC NOTICE

The Petroleum Act 1998

INDEFATIGABLE 18A INSTALLATION TOPSIDE DECOMMISSIONING PROGRAMME

Perenco UK Ltd has submitted, for the consideration of the Secretary of State for Business, Energy and Industrial Strategy, a draft Topsides Decommissioning Programme for the Indefatigable (Inde) 18A platform, in accordance with the provisions of the Petroleum Act 1998. It is a requirement of the Act that interested parties be consulted on such decommissioning proposals.

Topsides -The two Inde 18A platforms, Drilling (AD), and Production (AP), are connected by two 45.7m long bridges, east and west. Both platforms are of similar construction steel jackets. The Inde 18A AD platform comprises of a cellar deck, main deck, and helideck. The Inde 18A AP platform consists of a cellar deck, main deck and upper deck.

The Inde Hub is in Block 49/18A in the Southern North Sea, approximately 70 miles north east of Bacton Gas Terminal. Inde 18A is a normally unmanned installations (NUI) are located as follows

- Inde 18A (49/18A):Latitude: 53° 21' 48.6646" N, Longitude: 02° 34' 11.2378" E

Perenco UK Ltd hereby gives notice that a digital copy of the Inde 18A Topsides Decommissioning Programme can be viewed and downloaded online at www.gov.uk/guidance/oil-and-gas-decommissioning-of-offshore-installations-and-pipelines.

Representations regarding the Inde 18A Topsides Decommissioning Programme should be submitted in writing or electronically to the following address, where they should be received by closing date 3rd September 2021 and should state the grounds upon which any representations are being made.

Decommissioning Team
Perenco UK Ltd
3 Central Avenue
St Andrews Business Park
Norwich
Norfolk, NR7 0HR
Email: Decom-Consultation@uk.perenco.com

Date: 6 August 2021

THE GAZETTE
OFFICIAL PUBLIC RECORD

Published by Authority | Est 1665

Notice details

Type:
Planning
> Pipe-Lines

Publication date:
6 August 2021, 12:01

Edition:
The London Gazette

Notice ID:
3860966

Notice code:
1608

Pipe-Lines

Perenco UK Ltd

THE PETROLEUM ACT 1998

INDEFATIGABLE 18A INSTALLATION TOPSIDE DECOMMISSIONING PROGRAMME

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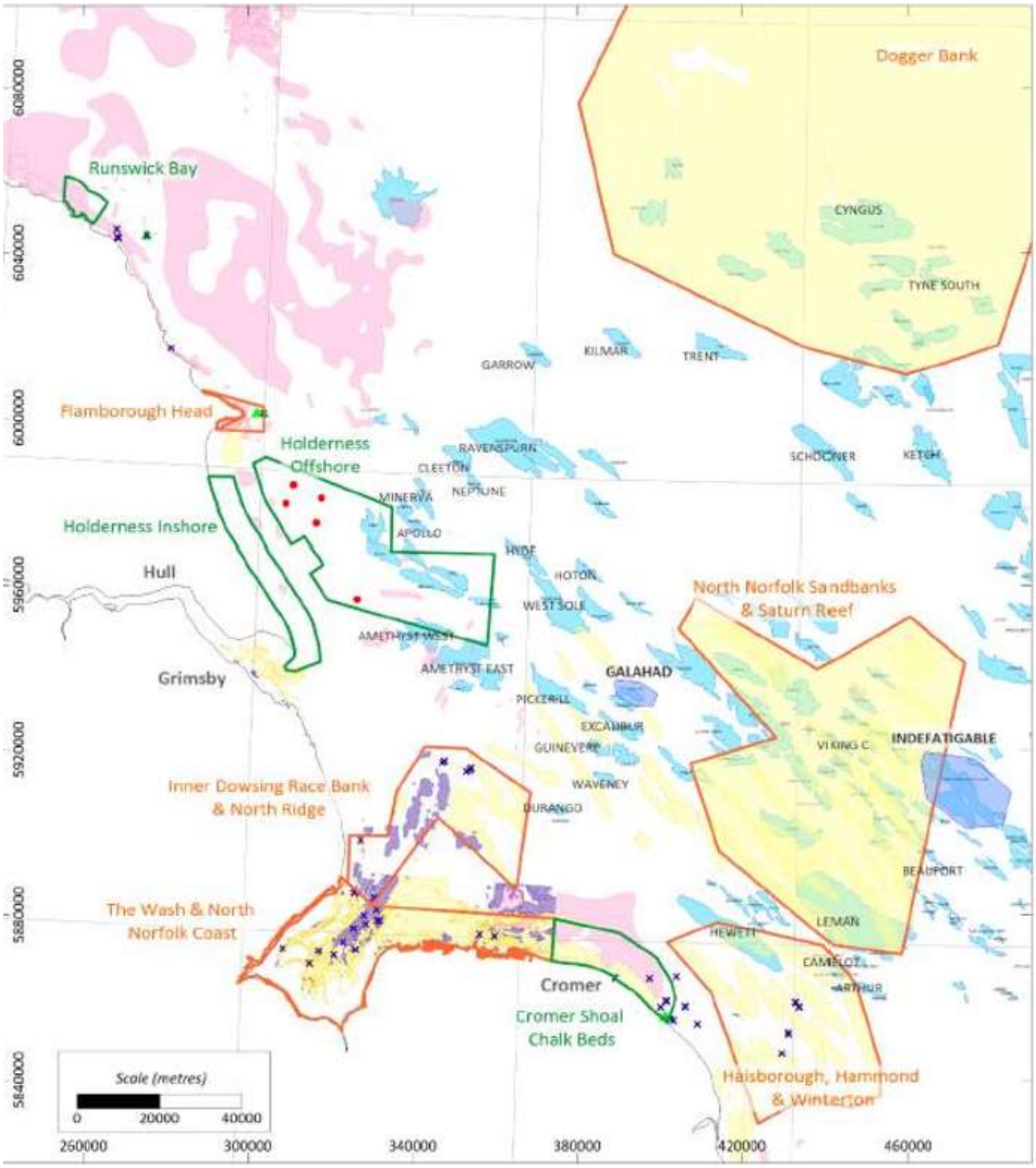
Decommissioning Team, Perenco UK Ltd, 3 Central Avenue, St Andrews Business Park, Norwich, Norfolk, NR7 0HR.

Email: Decom-Consultation@uk.perenco.com

Date: 6th August 2021

Decommissioning Team, Perenco UK Ltd, 3 Central Avenue, St Andrews Business Park, Norwich, Norfolk, NR7 0HR

Appendix 1



Marine Protected Areas within the Vicinity of the Indefatigable Field

Appendix 2

From: Riddell, Alex (Global Marine Group) <Alex.Riddell@oceaniq.co.uk>
Sent: 14 September 2021 10:25
To: SUMMERELL Julie
Cc: John@jwsubsea.co.uk; Morris, Chloe (OceanIQ); TURNER Joanne; UK SNS Decom-Consultation
Subject: RE: Inde 18A Topsides DP - Consultation

Good morning Julie,

No comments from me. In the event that the decom program changes, and seabed invasive operations are to occur near existing telecom infrastructure, it will be important to notify any nearby cable owners of any upcoming operations.

Contact details of the cable owners can be sourced from https://kis-orca.eu/.

Kind regards,

Alex

Email correspondence from Julie Summerell (Perenco UK) to Alex Riddell (Global Marine Group) (see Table 5.1)

Appendix 3

NFFO Services Ltd

30 Monkgate
York
YO31 7PF
Tel:01904 635 432
9th August 2021.

Julie Summerell
Perenco Decommissioning Compliance and Assurance Lead

3 Central Avenue
St Andrews Business Park
Norwich
Norfolk
NR7 0HR

Hello Julie
In reference to the draft topsides decommissioning program for the Indefatigable 18A NUI.

The National Federation Fisherman's Organisation would like to thank Perenco for the documentation explaining the planned methodology on planned decommissioning of this asset.

The Federation has no further comments to add on the documentation received regarding the proposed decommissioning of these assets and NFFO Services department look forward to working closely with Perenco throughout the decommissioning process.

Kind Regards

Ian Rowe

NFFO Services

General Manager.

Correspondence from Ian Row (NFFO Services Ltd) to Julie Summerell (Perenco UK) (see Table 5.1)

Appendix 4

SJ

SUMMERELL Julie
To sff@sff.co.uk; info@nifpo.co.uk
Cc ian@nffo.org.uk; TURNER Joanne
Follow up. Start by 10 August 2021. Due by 10 August 2021.

Indi 18A - NFFO Services.pdf
96 KB

Indefatigable 18A Topsides Decommissioning Programme - Consultation Draft.pdf
3 MB

For your information.

The NFFO has provided the attached consultee response for the Inde 18A Topsides Decommissioning Programme.

The Inde 18A installation is located within the Southern North Sea.

Kind regards
Julie

Julie Summerell
Decommissioning Compliance and Assurance Lead
PERENCO
3 Central Avenue | St Andrews Business Park
Norwich | Norfolk | NR7 0HR

Correspondence from Julie Summerell (Perenco UK) to SFF and NIFPO (see Table 5.1)