Topaz Decommissioning Programmes

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INEOS Oil & Gas UK
Title:

Topaz Decommissioning Programmes

Notes:

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<th>Explanation</th>
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<tr>
<td>CEFAS</td>
<td>Centre for Environment, Fisheries and Aquaculture Science</td>
</tr>
<tr>
<td>DMS</td>
<td>Degrees Minutes Seconds</td>
</tr>
<tr>
<td>E</td>
<td>East</td>
</tr>
<tr>
<td>HSE</td>
<td>Health and Safety Executive</td>
</tr>
<tr>
<td>JNCC</td>
<td>Joint Nature Conservation Committee</td>
</tr>
<tr>
<td>Km</td>
<td>kilometres</td>
</tr>
<tr>
<td>LAT</td>
<td>Lowest Astronomical Tide</td>
</tr>
<tr>
<td>LSA</td>
<td>Low Specific Activity</td>
</tr>
<tr>
<td>m</td>
<td>Metres</td>
</tr>
<tr>
<td>PLA MAT</td>
<td>Pipeline Operations Master Application Template</td>
</tr>
<tr>
<td>MAT</td>
<td>Master Application Template</td>
</tr>
<tr>
<td>MoD</td>
<td>Ministry of Defence</td>
</tr>
<tr>
<td>NORM</td>
<td>Naturally Occurring Radioactive Material</td>
</tr>
<tr>
<td>NUI</td>
<td>Normally Unmanned Installation</td>
</tr>
<tr>
<td>NW</td>
<td>North-West</td>
</tr>
<tr>
<td>OGUK</td>
<td>Oil and Gas UK</td>
</tr>
<tr>
<td>OPRED</td>
<td>Offshore Petroleum Regulator for Environment and Decommissioning</td>
</tr>
<tr>
<td>OSPAR</td>
<td>Oslo/Paris Convention (for the Protection of the Marine Environment in the North-East Atlantic)</td>
</tr>
<tr>
<td>P&amp;A</td>
<td>Plug and Abandonment</td>
</tr>
<tr>
<td>SAT</td>
<td>Subsidiary Application Template</td>
</tr>
<tr>
<td>SLV</td>
<td>Shear Leg Vessel</td>
</tr>
<tr>
<td>SNS</td>
<td>Southern North Sea</td>
</tr>
<tr>
<td>te</td>
<td>tonnes</td>
</tr>
<tr>
<td>UKCS</td>
<td>United Kingdom Continental Shelf</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>WHPS</td>
<td>Wellhead Protection Structure</td>
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1 Executive Summary

1.1 Combined Decommissioning Programmes

This document contains two Decommissioning Programmes, one for each set of notices under Section 29 of the Petroleum Act 1998. The Decommissioning Programmes are:

- The Topaz installation – a subsea wellhead protection structure; and
- The associated two pipelines – PL2631 (gas export pipeline) and PLU2632 (umbilical).

1.2 Requirement for Decommissioning Programmes

Installation

In accordance with the Petroleum Act 1998, and on behalf of the Section 29 notice holders of the Topaz installation (see Table 1-2), INEOS UK SNS Limited is applying to OPRED to obtain approval for decommissioning the installation detailed in Section 2 of this document. (See also Section 8 – Partner Letters of Support).

Pipelines

In accordance with the Petroleum Act 1998, and on behalf of the Section 29 notice holders of the Topaz Pipelines (see Table 1-4), INEOS UK SNS Limited is applying to OPRED to obtain approval for decommissioning the pipelines detailed in Section 2 of this document. (See also Section 8 – Partner Letters of Support).

In conjunction with public, stakeholder and regulatory consultation, the decommissioning programmes are submitted in compliance with national and international regulations and OPRED guidelines. The schedule outlined in this document is for a 5 year decommissioning project (including planning phase) with offshore works due to begin in 2021.

1.3 Introduction

The Topaz subsea wellhead is located in the southern basin of the UKCS (see Figure 1-1) in Block 49/02, approximately 15.5km to the south-east of the DNO North Sea (ROGB) Limited owned Schooner platform. The Topaz well is tied back to the Schooner platform via a 6.6” gas export pipeline. There is also an 3.6” umbilical between Schooner and Topaz providing control and chemical injection (i.e. hydraulic control hoses, methanol, electrical power and control communications). The Schooner platform is tied back to the Murdoch platform (see Figure 1-3). Topaz ceased production in October 2017 due to decreased production rates from the well. In 2019, the pipeline and umbilical were both cleaned and flushed and reside in a flooded condition.

The nearest coastline is 130km south west (Norfolk, UK) and the UK/Netherlands median line lies 42km east. Topaz lies in approximately 34m of water (to Lowest Astronomical Tide).

Following public, stakeholder and regulatory consultation, the decommissioning programmes are submitted without derogation and in full compliance with OPRED guidelines. The decommissioning programmes explain the principles of the removal activities and are supported by an environmental impact assessment. The decommissioning programme for the pipelines is also supported by a comparative assessment.

The proposed activities are summarised as follows.

- The Topaz well will be plugged and abandoned in accordance with Oil & Gas UK guidelines;
- The wellhead protection structure will be removed and recycled or disposed onshore;
The gas export pipeline will be partially removed. The tie-in spools will be removed and recycled or disposed onshore. The exposed sections at both ends will be removed or lowered to achieve adequate depth of coverage with best endeavours to achieve -0.6m. The existing buried sections of pipeline will be left in situ;

The umbilical will be partially removed. The exposed sections adjacent to the Topaz well and Schooner platform will be removed and recycled or disposed onshore. The exposed ends will be lowered to achieve adequate depth of coverage with best endeavours to achieve -0.6m. The existing buried sections of umbilical will be left in situ; and

On completion of the decommissioning programmes a seabed survey will be undertaken to identify and recover debris within the platform 500m zone and a 100m wide corridor along each pipeline route.

1.4 Overview of Installation & Pipelines Being Decommissioned

Table 1-1 Installation Being Decommissioned

<table>
<thead>
<tr>
<th>Field(s):</th>
<th>Production Type (Oil/Gas/Condensate)</th>
<th>Water Depth (m)</th>
<th>UKCS block</th>
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<tr>
<td>Topaz</td>
<td>Gas/Condensate</td>
<td>34</td>
<td>49/02</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Surface Installation(s)</th>
<th>Number</th>
<th>Type</th>
<th>Topsides Weight (Te)</th>
<th>Jacket Weight (Te)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subsea Installation(s)</th>
<th>Number</th>
<th>Type</th>
<th>Platform</th>
<th>Subsea</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>Wellhead Protection Structure</td>
<td>-</td>
<td>One</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drill Cuttings pile(s)</th>
<th>Number of Wells</th>
<th>Distance to median</th>
<th>Distance from nearest UK coastline</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>250m³</td>
<td>42 to UK/Netherlands</td>
<td>130km NE Norfolk coastline</td>
</tr>
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</table>

Table 1-2 Installation Section 29 Notice Holders Details

<table>
<thead>
<tr>
<th>Section 29 Notice Holder(s)</th>
<th>Registration Number</th>
<th>Equity Interest (%)</th>
</tr>
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<tr>
<td>INEOS UK SNS Limited</td>
<td>01021338</td>
<td>57.5%</td>
</tr>
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<td>Ithaca Energy (UK) Limited</td>
<td>SC272009</td>
<td>35%</td>
</tr>
<tr>
<td>DNO North Sea (U.K.) Limited</td>
<td>04848017</td>
<td>7.5%</td>
</tr>
<tr>
<td>INEOS UK E&amp;P Holdings Limited</td>
<td>SC200459</td>
<td>0%</td>
</tr>
<tr>
<td>DNO North sea PLC</td>
<td>04622251</td>
<td>0%</td>
</tr>
<tr>
<td>Ithaca Energy Limited</td>
<td>GBJE126983</td>
<td>Exited</td>
</tr>
<tr>
<td>Neptune E&amp;P UKCS Limited</td>
<td>03386464</td>
<td>Exited</td>
</tr>
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</table>
Table 1-3 Pipelines Being Decommissioned

<table>
<thead>
<tr>
<th>Pipelines Being Decommissioned</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Number of Pipelines</td>
<td>2</td>
<td>(See Table 2.2)</td>
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Table 1-4 Pipelines Section 29 Notice Holders Details

<table>
<thead>
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<th>Pipeline Section 29 Notice Holders Details</th>
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<tr>
<td>Section 29 Notice Holder(s)</td>
</tr>
<tr>
<td>----------------------------</td>
</tr>
<tr>
<td>INEOS UK SNS Limited</td>
</tr>
<tr>
<td>Ithaca Energy (UK) Limited</td>
</tr>
<tr>
<td>DNO North Sea (U.K.) Limited</td>
</tr>
<tr>
<td>INEOS UK E&amp;P Holdings Limited</td>
</tr>
<tr>
<td>DNO North Sea PLC</td>
</tr>
<tr>
<td>Ithaca Energy Limited</td>
</tr>
<tr>
<td>Neptune E&amp;P UKCS Limited</td>
</tr>
</tbody>
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1.5 Summary of Proposed Decommissioning Programmes

Table 1-5 Summary of Decommissioning Programmes

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<td>Selected Option</td>
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</tr>
<tr>
<td>1. Topsides</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>2. Jacket</td>
</tr>
<tr>
<td>3. Subsea Installation(s)</td>
</tr>
<tr>
<td>The Wellhead Protection Structure will be completely removed from the seabed. Any permit applications for work associated with removal of the subsea installation (MAT) will be submitted.</td>
</tr>
<tr>
<td>4. Pipelines, Flowlines &amp; Umbilicals</td>
</tr>
<tr>
<td>The pipeline and umbilical will be left in-situ except for short exposed sections between the end of burial and bottom of the riser/j-tube at the Schooner platform. Minimal local excavation will be carried out at each end, but enough to ensure safe removal of short exposed ends of the pipelines. Based on the surveys conducted in 2009, 2012, 2015 and 2019, our findings indicate are that the pipelines are stable and will remain buried. Any permit applications required for work associated with pipeline cutting and removal (PLA MAT) will be submitted.</td>
</tr>
</tbody>
</table>
## Summary of Decommissioning Programmes

<table>
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<th>Selected Option</th>
<th>Reason for Selection</th>
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</thead>
<tbody>
<tr>
<td><strong>5. Pipeline Stabilisation Features</strong></td>
<td></td>
</tr>
<tr>
<td>Mattresses and grout bags will be completely recovered where feasible. Any permit applications required for work associated with removal (PLA MAT) will be submitted.</td>
<td>Both pipelines are trenched and buried. Only the transitional sections at each end have stabilisation features, which will all be removed where the condition of these items allows safe recovery. In the event that a group or series of mattresses are identified that cannot be recovered, INEOS will consult with OPRED regarding an alternative approach.</td>
</tr>
<tr>
<td><strong>6. Wells</strong></td>
<td></td>
</tr>
<tr>
<td>Plugged and abandoned in accordance with HSE “Offshore Installations and Wells DCR 1996” and Oil &amp; Gas UK Guidelines for the Suspension and Abandonment of wells (Issue 6, June 2018).</td>
<td>Meets industry standards. The well will be plugged and abandoned to comply with HSE “Offshore Installations and Wells DCR 1996” and in accordance with OGUK Guidelines for the “Suspension and Abandonment of Wells” (Issue 6, June 2018) as it meets with OGA and HSE requirements. A Master Application Template (MAT) and the supporting Subsidiary Application Templates (SATs) will be submitted in support of works carried out. Application will also be submitted to the OGA to plug and abandon the wells.</td>
</tr>
<tr>
<td><strong>7. Drill Cuttings</strong></td>
<td></td>
</tr>
<tr>
<td>Leave in place to degrade naturally.</td>
<td>The two mounds either side of the wellhead are approximately 0.5-0.8m high and either (i) emanate from the top hole section of the well which was drilled using non-toxic water based mud or (ii) have been formed by seabed currents around the wellhead structure. Left undisturbed the mounds are expected to disperse naturally over time.</td>
</tr>
<tr>
<td><strong>8. Interdependencies</strong></td>
<td></td>
</tr>
<tr>
<td>The Topaz pipelines are connected to the Schooner Platform. Liaison will be required between DNO Petroleum and INEOS in order to maximise efficiency of the decommissioning effort.</td>
<td>Mattresses and grout bags will be removed as part of the partial pipeline and partial umbilical removal activities.</td>
</tr>
</tbody>
</table>
1.6 Field Location Including Field Layout and Adjacent Facilities

Figure 1-1 Field Location
Table 1-6 Adjacent Facilities

<table>
<thead>
<tr>
<th>Owner</th>
<th>Name</th>
<th>Type</th>
<th>Distance / Direction</th>
<th>Information</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNO North Sea (ROGB) Limited</td>
<td>Schooner A</td>
<td>Platform</td>
<td>15.5km North-West</td>
<td>Host platform for production from Topaz and source of hydraulic fluid, chemicals, power for the Topaz umbilical</td>
<td>Active</td>
</tr>
<tr>
<td>DNO North Sea (ROGB) Limited</td>
<td>Ketch</td>
<td>Platform</td>
<td>20.8km North-East</td>
<td>-</td>
<td>Active</td>
</tr>
<tr>
<td>Spirit Energy North Sea Limited</td>
<td>Chiswick</td>
<td>Platform</td>
<td>34.7km East</td>
<td>-</td>
<td>Active</td>
</tr>
</tbody>
</table>

Impacts of Decommissioning Proposals

There are no direct impacts on adjacent facilities from the decommissioning works other than the required interaction with the Schooner platform works. As part of the Environmental Appraisal, no cumulative impacts were identified.
Figure 1-3 Adjacent Facilities
1.7 Industrial Implications

The subsea well abandonment will be completed using a jack-up drilling rig. The pipeline cutting and burial works and removal of stabilisation features shall be undertaken using specialist construction support vessel or multi support vessel.

In planning and preparing for executing the Topaz decommissioning strategy, INEOS as operator of the Topaz field, on behalf of the Section 29 Notice Holders, shall undertake to develop a contract strategy that will result in an efficient and cost effective execution of the decommissioning works.

INEOS will work with the OGA and Supply Chain teams during this period to ensure effective technical solutions are selected that are environmentally acceptable and safe.
2 Description of Facilities to be Decommissioned

2.1 Installations: Subsea Including Stabilisation Features

Table 2-1 Subsea Installations

<table>
<thead>
<tr>
<th>Subsea installations including stabilisation features</th>
<th>Number</th>
<th>Size/Weight (te)</th>
<th>Location</th>
<th>Comments/Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree</td>
<td>1</td>
<td>21</td>
<td>WGS84 (DMS)</td>
<td>Tree is located on top of wellhead</td>
</tr>
<tr>
<td>Wellhead protection structure including piles which secure the structure to the seabed</td>
<td>1</td>
<td>28</td>
<td>53.9499 N 02.2229 E</td>
<td>Four piles</td>
</tr>
</tbody>
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Figure 2-1 Image of the Topaz Subsea Wellhead
### 2.2 Pipelines Including Stabilisation Features

#### Table 2-2 Pipeline / Flowline / Umbilical Information

<table>
<thead>
<tr>
<th>Description</th>
<th>Pipeline No. (as per PWA)</th>
<th>Diameter (inches)</th>
<th>Length (km)</th>
<th>Description of Component Parts</th>
<th>Product Conveyed</th>
<th>From – To End Points</th>
<th>Burial Status</th>
<th>Pipeline Status</th>
<th>Contents</th>
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</thead>
<tbody>
<tr>
<td>Export line</td>
<td>PL2631</td>
<td>6.6</td>
<td>15.72</td>
<td>Steel</td>
<td>Out of Use - Water</td>
<td>Topaz to Schooner</td>
<td>Trenched and Buried</td>
<td>Shut-in</td>
<td>Line will be cleaned/flushed prior to decommissioning.</td>
</tr>
<tr>
<td>Umbilical</td>
<td>PLU2632</td>
<td>3.6</td>
<td>15.85</td>
<td>Umbilical</td>
<td>Out of Use - Water</td>
<td>Schooner to Topaz</td>
<td>Trenched and Buried</td>
<td>Shut-in</td>
<td>Line will be cleaned/flushed prior to decommissioning.</td>
</tr>
</tbody>
</table>

#### Table 2-3 Subsea Pipeline Stabilisation Features

<table>
<thead>
<tr>
<th>Stabilisation Feature</th>
<th>Total Number</th>
<th>Weight (te)</th>
<th>Location(s)</th>
<th>Exposed/Buried/Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete mattresses</td>
<td>47</td>
<td>6 tonnes each</td>
<td>PL2631</td>
<td>Exposed</td>
</tr>
<tr>
<td>Concrete mattresses</td>
<td>62</td>
<td>6 tonnes each</td>
<td>PLU2632</td>
<td>Exposed</td>
</tr>
<tr>
<td>Rock Dump</td>
<td>728m long</td>
<td>1,757</td>
<td>PL2631</td>
<td>Exposed. Deposited at 14 No. discrete locations along the pipeline route.</td>
</tr>
<tr>
<td>Grout Bags¹</td>
<td>9</td>
<td>0.025 (each)</td>
<td>n/a</td>
<td>Exposed</td>
</tr>
<tr>
<td>Formwork</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Frond Mats</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Other</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

¹ The number of grout bags has been estimated using available data, however, there is some uncertainty regarding the exact number of bags.
2.3 Wells

Table 2-4 Well Information

<table>
<thead>
<tr>
<th>Well</th>
<th>Subsea Wells</th>
<th>Designation</th>
<th>Status</th>
<th>Category of Well (O&amp;GUK guidelines)</th>
</tr>
</thead>
<tbody>
<tr>
<td>49/2a-6z</td>
<td>One subsea wellhead</td>
<td>Gas Production</td>
<td>Shut-In</td>
<td>SS 3.1.3</td>
</tr>
</tbody>
</table>

For details of well categorisations see O&GUK Guidelines for the Suspension or Abandonment of Wells. Issue 6, June 2018.

2.4 Drill Cuttings

There are two mounds either side of the Topaz wellhead that are believed to be (i) either cuttings from the top hole section that was drilled using non toxic gel sweeps and discharged either side of the well when it was constructed (i.e. conductor cuttings), or (ii) have been created by seabed currents moving over and around the Topaz wellhead structure. The volume of the mounds is estimated to be some 250m³.

2.5 Inventory Estimates

Table 2-5 Aspirational Inventory Disposition

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Total Inventory Tonnage</th>
<th>Planned Tonnage to Shore</th>
<th>Planned tonnage decommissioned in situ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xmas Tree and Wellhead Protection Structure</td>
<td>49</td>
<td>49</td>
<td>0</td>
</tr>
<tr>
<td>Pipeline</td>
<td>854.3</td>
<td>21.5</td>
<td>832.8</td>
</tr>
<tr>
<td>Umbilical</td>
<td>206</td>
<td>6</td>
<td>200</td>
</tr>
</tbody>
</table>

All recovered materials will be transported onshore for re-use, recycling or disposal. It is not possible to predict the market for reusable materials with any confidence, therefore, the figures in Table 2-5 above are aspirational.

3 Removal and Disposal Methods

Waste will be dealt with in accordance with the Waste Framework Directive. The reuse of an installation or pipelines (or parts thereof) is first in the order of preferred waste management options. Options for the reuse of installations or pipelines (or parts thereof) are currently under investigation. Waste generated during decommissioning will be segregated by type and periodically transported to shore in an auditable manner through licensed waste contractors. Steel and other recyclable metals are estimated to account for the greatest proportion of the materials inventory.

Should any items be taken out with the UKCS, an application under the Transfrontier Shipment of Waste Regulations shall be made to the Environment Agency.

---

2 Excluding deposited rock
### 3.1 Subsea Installations and Associated Stabilisation Features

**Table 3-1 Subsea Installations and Associated Stabilisation features**

<table>
<thead>
<tr>
<th>Subsea installations and stabilisation features</th>
<th>Number</th>
<th>Option</th>
<th>Disposal Route (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wellhead &amp; tree</td>
<td>1</td>
<td>Complete removal following well abandonment</td>
<td>Recovery to shore for re-use or recycling</td>
</tr>
<tr>
<td>Wellhead protection structure</td>
<td>1</td>
<td>Complete removal</td>
<td>Recovery to shore for re-use or recycling</td>
</tr>
</tbody>
</table>

### 3.2 Pipelines

**Decommissioning Options:**
The following decommissioning options are considered and identified in terms of applicability to the pipelines in [1]:

1. Complete Removal;
2. Leave *in situ* making the pipeline ends safe.

#### 3.2.1 Comparative Assessment Method

A comparative assessment of the decommissioning options was undertaken. Each decommissioning option was qualitatively assessed against safety, environment, technical and societal and cost.

#### 3.2.2 Outcome of Comparative Assessment

**Table 3-2 Pipeline or Pipeline Groups/Decommissioning Options**

<table>
<thead>
<tr>
<th>Pipeline or Group (as per PWA)</th>
<th>Decommissioning Option</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL2631</td>
<td>Leave <em>in situ</em></td>
<td>The pipeline is trenched and buried with no exposures recorded since original installation in 2009. Therefore, it is proposed to leave the pipeline <em>in situ</em>. Although some minor seabed disturbance associated with dealing with the pipeline ends will occur, this solution will result in no seabed disturbance for the majority of the route. Future pipeline burial surveys will be required but these are unlikely to document a change in burial status. Burial profile provided in Appendix A.</td>
</tr>
<tr>
<td>PLU2632</td>
<td>Leave <em>in situ</em></td>
<td>As above. Burial profile provided in Appendix A.</td>
</tr>
</tbody>
</table>
3.3 Pipeline Stabilisation Features

All mattresses and grout bags will be recovered and remove to shore.

### Table 3-3 Pipeline Stabilisation Features

<table>
<thead>
<tr>
<th>Stabilisation feature(s)</th>
<th>Number</th>
<th>Option</th>
<th>Disposal Route (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete mattresses over pipeline and umbilical</td>
<td>109</td>
<td>Remove to shore.</td>
<td>Recover to shore for re-use, recycling or disposal.</td>
</tr>
<tr>
<td>Grout Bags</td>
<td>9</td>
<td>Remove to shore.</td>
<td>Recover to shore for re-use, recycling or disposal.</td>
</tr>
<tr>
<td>Rock Dump</td>
<td>1757 te</td>
<td>Leave in-situ</td>
<td>n/a</td>
</tr>
</tbody>
</table>

3.4 Wells

### Table 3-4 Well Plug and Abandonment

The well which remains to be abandoned, as listed in Section 2.4 (Table 2.4), will be plugged and abandoned in accordance with Oil and Gas UK Guidelines for the Suspension and Abandonment of Wells, Version 6, June 2018.

A Master Application Template (MAT) and the supporting Subsidiary Application Template (SAT) will be submitted in support of works carried out. Applications will be submitted to OPRED for application to abandon wells.

3.5 Drill Cuttings

It is believed that the majority of cuttings discharged during the drilling of the Topaz well are likely to have dispersed as there are no significant cuttings piles observed around the Topaz wellhead structure. However, inspection surveys have revealed some mounds approximately 0.5-0.80m high either side of the well. These are possibly cuttings from the drilling of the tophole section of the well, which was undertaken using non toxic gel sweeps or they are depositional mounds caused by seabed currents around the wellhead structure. In either case, the mounds do not represent a snag hazard and are non toxic. Therefore, these mounds will be left on the location following completion of the decommissioning programme.
### 3.6 Waste Streams

#### Table 3-5 Waste Stream Management Methods

<table>
<thead>
<tr>
<th>Waste Stream</th>
<th>Removal and Disposal method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bulk liquids</strong></td>
<td>The pipeline and umbilical will be cleaned, flushed and left filled with seawater. Further cleaning and decontamination will take place onshore prior to re-use or recycling.</td>
</tr>
<tr>
<td><strong>Marine growth</strong></td>
<td>Where necessary and practicable to allow access inside the WHPS some marine growth will be removed offshore. The remainder will be brought to shore and disposed of according to guidelines and company policies.</td>
</tr>
<tr>
<td><strong>NORM/LSA Scale</strong></td>
<td>Tests for NORM will be undertaken offshore by the Radiation Protection Adviser and any NORM encountered will be dealt with and disposed of at a licensed facility.</td>
</tr>
<tr>
<td><strong>Asbestos</strong></td>
<td>No asbestos at Topaz.</td>
</tr>
<tr>
<td><strong>Other hazardous wastes</strong></td>
<td>Will be recovered to shore and disposed of according to guidelines and company policies and under appropriate permit.</td>
</tr>
<tr>
<td><strong>Onshore Dismantling sites</strong></td>
<td>Appropriate licensed sites will be selected. The nominated facility will demonstrate a proven disposal track record and waste stream management throughout the deconstruction process and demonstrate their ability to deliver innovative recycling options.</td>
</tr>
</tbody>
</table>
Table 3-6 Re-use, Recycling and Disposal Aspirations for Recovered Material

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Re-Use</th>
<th>Recycle</th>
<th>Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installations</td>
<td>&lt;5%</td>
<td>&gt;95%</td>
<td>&lt;5%</td>
</tr>
<tr>
<td>Pipelines</td>
<td>&lt;5%</td>
<td>&gt;95%</td>
<td>&lt;5%</td>
</tr>
</tbody>
</table>

4 Environmental Appraisal Overview

4.1 Environmental Sensitivities

Environmental sensitivities are discussed in the Environmental Appraisal (Ref).

4.2 Potential Environmental Impacts and their Management

There will be some planned and unplanned environmental impacts arising from decommissioning of Topaz. Long term environmental impacts from the decommissioning operations are expected to be low. Incremental cumulative impacts and transboundary effects associated with the planned decommissioning operations are also expected to be low. There will be a requirement for a new Environmental Appraisal to be produced and submitted to OPRED should the Decommissioning Programmes change.

5 Interested Party Consultations

Table 5-1 Summary of Stakeholder Comments

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal Consultations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Marine Systems</td>
<td>None</td>
<td>-</td>
</tr>
<tr>
<td>CEFAS</td>
<td>None</td>
<td>-</td>
</tr>
<tr>
<td>Crown Estate</td>
<td>None</td>
<td>-</td>
</tr>
<tr>
<td>MoD</td>
<td>None</td>
<td>-</td>
</tr>
<tr>
<td>JNCC</td>
<td>None</td>
<td>-</td>
</tr>
<tr>
<td>Statutory Consultations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Federation of Fishermen’s Organisations</td>
<td>None</td>
<td>-</td>
</tr>
<tr>
<td>Scottish Fishermen’s Federation</td>
<td>None</td>
<td>-</td>
</tr>
<tr>
<td>Northern Irish Fish Producer’s Organisation</td>
<td>None</td>
<td>-</td>
</tr>
<tr>
<td>Global Marine Systems</td>
<td>None</td>
<td>-</td>
</tr>
<tr>
<td>Public</td>
<td>None</td>
<td>-</td>
</tr>
</tbody>
</table>
6 Programme Management

6.1 Project Management and Verification

The project management team resource will be provided from INEOS internal resource and by using external resources such as consultants, engineers and contractors.

A small, focused team of key personnel will be maintained within INEOS that will be responsible for leading a number of specialist contracting groups for the engineering, procurement, decommissioning and well P&A as well as for interfacing with the regulatory bodies.

An Independent Verification Body will be appointed for the duration of the execute phase of the project.

Any changes in detail to the offshore removal programme will be discussed and agreed with OPRED.

6.2 Post-Decommissioning Debris Clearance and Verification

A Post decommissioning survey will be conducted covering a 500m radius of the Topaz wellhead location and a 100m corridor along both gas export pipeline and umbilical route. Any seabed debris related to offshore oil and gas activities will be recovered and transported to shore to be disposed or recycled in line with existing disposal methods. Independent verification of seabed state will be obtained by trawling the platform area and pipelines. A clear seabed certificate will be submitted to OPRED.

6.3 Schedule

Figure 6-1 Gantt Chart of Project Plan – Main Offshore Activities

<table>
<thead>
<tr>
<th>Activity Window</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>Engineering / cost review</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subsea wellhead removal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partial pipelines &amp; umbilical removal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over trawl surveys</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Env. Survey window</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6.4 Costs

Programme costs will be provided to OPRED separately.

6.5 Close-Out

In accordance with the OPRED guidelines, a close out report will be submitted to OPRED explaining any variations from the Decommissioning Programmes normally within 12 months of completion of the offshore decommissioning scope. The report will include debris removal and independent verification of seabed clearance and the first post-decommissioning environmental survey.

6.6 Post-Decommissioning Monitoring and Evaluation

A post decommissioning environmental seabed survey, centred around the wellhead location will be carried out. The survey will focus on physical, and to a lesser extent chemical, disturbances of the decommissioning activities.
Results of this survey will be available once the work is complete, with a copy forwarded to OPRED.

All pipeline routes and structure sites will be the subject of surveys when decommissioning activity has concluded. After the surveys have been sent to OPRED and reviewed, a post monitoring survey regime will be discussed and agreed by both parties, which is likely to consist of a minimum of two post decommissioning environmental surveys and structural pipeline surveys.

6.7 Residual Liability
INEOS recognises that it will continue to retain ownership of, and residual liability for, all decommissioned items allowed to remain in place through acceptance of the results of the comparative assessment process in Section 3. INEOS undertakes:

- to contact OPRED in advance, in the event that any parties to the programmes will no longer have a presence in the UK, to provide the details of the organisation or individual who will act in their place;
- to notify OPRED of any organisation/individual that will engage with OPRED on future legacy and liability matters;
- to notify OPRED of any organisation/individual that will be the contact point for any future third party claims for damage caused by pipelines left in place;
- to ensure that any alternative organisation/individual will have appropriate authority for and knowledge of the DPs, to engage with OPRED;
- to ensure that any alternative organisation/individual will have access to appropriate funding to carry out any actions relating to the residual legacy and liability as outlined in the approved DPs.

7 Supporting Documents
Table 7-1 Supporting Documents

<table>
<thead>
<tr>
<th>Ref</th>
<th>Document Number</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1]</td>
<td>RD-TOP-ZPL005</td>
<td>Comparative Assessment Report</td>
</tr>
</tbody>
</table>

8 Partner Letters of Support

[HOLD]
Appendix A – Pipeline & Umbilical Burial Charts

Pipeline Burial

In the most recent surveys of the pipeline route in 2019, no freespans or exposures were identified on the route. The last depth of burial survey in 2015 confirmed that the pipeline was buried along the complete route. Figure A-1 below shows the depth of cover along the pipeline from surveys undertaken in 2012 and 2015. A comparison between the two surveys showed that the average depth of cover increased by 0.3m between 2012 and 2015.

Figure A-1 – 6.6inch Gas Pipeline
Umbilical Burial

In the most recent surveys of the pipeline route in 2019, no freespans or exposures were identified on the route. The last depth of burial survey in 2015 confirmed the depth of cover over the umbilical to average 1.19m. Depth of cover was very similar in surveys undertaken 2012, indicating relatively stable conditions for the umbilical.

Figure A-2 – 3.6" Umbilical
Appendix B – Public Notices