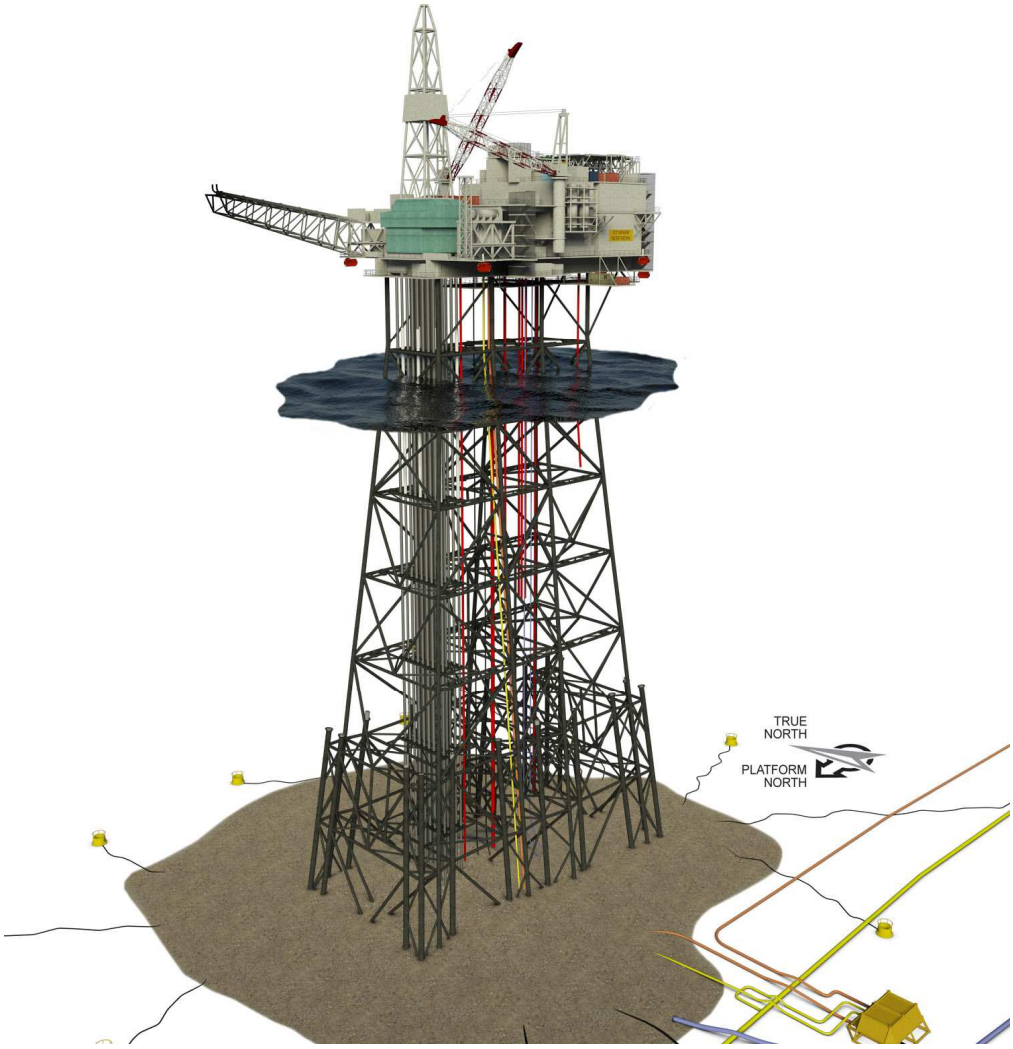
CNR International



NINIAN NORTHERN PLATFORM DECOMMISSIONING PROGRAMME

FINAL: March 2019

P0005-CNR-PM-REP-00005

Document Control

Approvals

	Name	Signature	Date
Prepared by	CW	CW	04/03/2019
Reviewed by	GN	GN	12/03/2019
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Revision Control

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B1	Issued for public consultation		03/03/2017
B2	Revised following public consultation	Comments incorporated following UK consultation	07/06/2017
B3	Revised following stakeholder and OSPAR consultation	Comments from stakeholder and OSPAR consultation incorporated	12/03/2019

Distribution List

Name	Company	No of Copies
DW	CNR International (U.K) Limited	1
JV	JX Nippon Exploration and Production (U.K) Limited	1
RW	ENI UK Limited	1

Contents

Terms and Abbreviations

Abbreviation	Explanation
BEIS	Department for Business, Energy and Industrial Strategy (formally known as Department of Energy and Climate Change or DECC)
BOPD	Barrels of Oil Per Day
CA	Comparative Assessment
CNRI	CNR International (U.K.) Limited
CoP	Cessation of Production
DP	Dynamic Positioning
DPN	Disused Pipeline Notification
EDC	Engineer Down and Clean
EIA	Environmental Impact Assessment
EL	Elevation
ES	Environmental Statement
FLTC	UK Fisheries Offshore Oil and Gas Legacy Trust Fund Ltd
FPAL	First Point Assessment
HLV	Heavy Lift Vessel
IPR	Interim Pipeline Regime
IRPA	Individual Risk Per Annum
JNCC	Joint Nature Conservation Committee
JX Nippon	JX Nippon Exploration and Production (U.K.) Limited
LAT	Lowest Astronomical Tide
MCAA	Marine & Coastal Access Act
MPBP	Multi-Phase Booster Pump
N/A	Not Applicable
NCP	Ninian Central Platform
NLQ	New Living Quarters
NNP	Ninian Northern Platform
NSP	Ninian Southern Platform
OGA	Oil and Gas Authority
OGUK	Oil and Gas UK
OPEP	Oil Pollution Emergency Plan
OSPAR	Oslo Paris Convention
PCB	Polychlorinated Biphenyls

Abbreviation	Explanation
PETS	Portal Environmental Tracking System
PL	Pipeline
PLL	Potential Loss of Life
PLQ	Personnel Living Quarters
PON	Petroleum Operations Notice
PWA	Pipeline Works Authorisation
RESDV	Riser Emergency Shut Down Valve
ROV	Remotely Operated Vehicle
SFF	Scottish Fishermen's Federations
SLV	Single Lift Vessel
SSCV	Semi-Submersible Crane Vessel
SSIV	Sub-sea Isolation Valve
THC	Total Hydrocarbon Content
UKCS	UK Continental Shelf
WLGP	Western Leg Gas Pipeline
UKHO	United Kingdom Hydrographic Office

Figures and Tables

Appendices

Note: The Environmental Statement (ES) (otherwise known as the Environmental Impact Assessment or EIA), the Stakeholder Report and the Comparative Assessment (CA) are separate, referenced documents in support of the decommissioning programme. These documents are not included in the Appendices but are listed in Section 7 (Supporting Documents).

1 EXECUTIVE SUMMARY

1.1 Decommissioning Programme

This document contains the decommissioning programme for the Ninian Northern Platform (NNP), part of the Ninian Field development. Separate programmes covering the remainder of the Ninian Field development including all Ninian Field pipelines will be provided upon cessation of production (COP) from the Ninian Central Platform (NCP) and Ninian Southern Platform (NSP). The NNP decommissioning programme is supported by a Comparative Assessment Report and Environmental Statement, which are separate documents and referred to in Section 7.

1.2 Requirement for a Decommissioning Programme

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

In conjunction with public, stakeholder and regulatory consultation, this decommissioning programme is submitted in compliance with national and international regulations and BEIS guidelines. The schedule outlined in this document is to undertake topsides removal commencing earliest 2020, and for the jacket which will be removed latest 2023.

1.3 Introduction

The NNP is located in the UK sector of the North Sea, approximately 100 miles North-East of the Shetland Islands and is approximately 240 miles North-North-East of Aberdeen in UKCS Block 3/03. The Ninian field development programme originally comprised a two-platform strategy: NSP and NCP. NNP was installed in June 1978 in order to ensure optimum exploitation of the northern part of the field. The platform was designed to operate as a satellite flowing wellhead fluids directly to NCP, although equipped to partially process all fluids. Production from NNP commenced in August 1980 reaching its peak in June 1981 with a rate of 89,587 BOPD.

The NNP is a combined drilling and production platform supported by an 8-leg welded steel jacket installed in position with 26 piles, and standing in a water depth of 141meters. Since its installation, a number of modifications were undertaken to strengthen the jacket stability by filling two jacket legs fully and other two partially with concrete between 1979 and 1981. Two hollow diagonal bracing members were also grouted, and in the jacket nodes, grouted clamps were installed between 1981 and 1984.

Crude oil is exported to NCP via a 24" pipeline (PL71) and co-mingled with NCP for processing and exporting to Sullom Voe Terminal. NNP is gas deficient and has imported fuel gas from NCP since 1998. Power for a Multi-Phase Booster Pump (MPBP) is provided from NNP to support the Lyell field, with the production fluids from Lyell routed to NSP. The NNP Sub-Sea Isolation Valve (SSIV) is located approximately 128m from

the west side of NNP and contains the isolation valves for PL117 (an 8inch gas spur connected to NNP) and PL71 (Figure 1.2) with the SSIV umbilical connected to the platform.

A Cessation of Production application was submitted in August 2016 and accepted by the Oil and Gas Authority (OGA) in November 2016. In accordance with this approval, permanent COP took place on 18th May 2017 following a period of one month's notice to the OGA.

Following public, stakeholder and regulatory consultation, the decommissioning programme is submitted in compliance with BEIS guidelines. A comparative assessment (CA) has been carried out which indicates that derogation from Oslo Paris Convention (OSPAR) Decision 98/3 for the NNP jacket footings is appropriate. The decommissioning programme explains the principles of the removal activities and is supported by an Environmental Impact Assessment (EIA). An application for derogation has also been prepared.

This decommissioning programme will be to:

- Plug and abandon platform wells
- Fully remove the topsides and partially remove the jacket

The pipelines adjacent to the platform (Table 1.4) will be subsequently decommissioned at a later stage, in line with the wider Ninian Field, and will be covered by their own decommissioning programme. These pipelines are tied back to NSP and NCP, therefore decommissioning the pipelines with the Ninian Field allows for an efficient field wide decommissioning programme along with the remaining platforms. As the risers and umbilicals are attached to the jacket structure, these will be separated at the derogation height. Risers and umbilicals above the derogation height will be removed with the topsides and jacket. Those sections of risers and umbilicals below the derogation height will remain in-situ to the derogated footings. Section 1.8 describes the boundaries of the decommissioning programme in detail.

The derogation height or the height of the footings to be left in-situ is based upon the highest point of the piles which connects the installation to the seabed, as described in the BEIS Guidance Notes for Decommissioning of Offshore Oil and Gas Installations and Pipelines 2018. This height has been determined as between 77.5m and 88.5m below Lowest Astronomical Tide (refer to Table 1.3), below which there are numerous diagonal cross members that would be technically challenging to cut and remove with the jacket.

1.4 Overview of Installation Being Decommissioned

1.4.1 Installation

Table 1.1: Installation Being Decommissioned			
Field:	**Ninian**	**Production Type (Oil/Gas/Condensate)**	**Oil**
Water Depth (m)	**141**	**UKCS block**	**3/03**
Surface Installation			
Number	**Type***	**Topsides Weight (Te)**	**Jacket Weight (Te)****
1	Fixed Large Steel Jacket including 12 Subsea anodes and cabling	12,453	15,561
Subsea Installation		**Number of Wells**	
Number	**Type*****	**Platform**	**Subsea**
n/a	n/a	24	0
Drill Cuttings pile		**Distance to median**	**Distance from nearest UK coastline**
Number of Piles	**Total Estimated volume (m^3)**	**km**	**km**
1	33,144	23	120

*fixed large steel jacket / fixed small steel jacket / concrete gravity based structure / floating facility etc
**see Table 3.3 for further details. Weight does not include marine growth of 2,117 te.
***template/manifold / WHPS / manifold etc

Table 1.2 Installation Section 29 Notice Holders Details		
Section 29 Notice Holders	**Registration Number**	**Equity Interest (%)**
CNR International (U.K.) Limited	Reg. No. 00813187	100 %
JX Nippon Exploration and Production (U.K.) Limited	Reg. No. 03288689	0 %
ENI UK Limited	Reg. No. 00862823	0%

1.5 Summary of Proposed Decommissioning Programme

Table 1.3: Summary of Decommissioning Programme		
Selected Option	**Reason for Selection**	**Proposed Decommissioning Solution**
1. Topsides		
NNP topsides: complete removal of topsides.	Meets regulatory requirements.	Cleaned equipment refurbished for re-use where possible. Equipment which cannot be re-used will be recycled or disposed of at an approved disposal facility.
2. Substructures (fixed large steel jacket)		
NNP fixed large steel jacket: removed to top of footings above the pile stick up. Removal of subsea anodes and associated cabling.	NNP meets the OSPAR guidelines as a candidate for derogation. CA confirmed that partial removal is the recommended option on the basis of safety and technical considerations. Removal of subsea anodes meets regulatory requirements.	Jacket will be removed to between 77.5m and 88.5m below LAT*. Height remaining in situ will be between 63.5m and 52.5m from seabed. Removed section will be transported to shore for recycling. Footings will be recorded on the UK Fisheries Offshore Oil and Gas Legacy Trust Fund Ltd (FLTC) FishSAFE system and relevant Notice for Mariners. Subsea anodes and associated cabling removal will take place in 2032 through a subsea campaign in line with wider Ninian decommissioning activities.
3. Subsea Installation		
N/A	N/A	N/A
4. Pipelines, Flowlines & Umbilicals		
Removal of pipeline risers and umbilicals within jacket.	Sections are integrated into NNP topsides & jacket so have to be removed in parallel.	Sections of risers and umbilicals will be cleaned and removed. Pipeline Works Authorisation (PWA) variations will be made as appropriate.
5. Wells		
Abandoned in accordance with OGUK Guidelines for the Suspension and abandonment of Wells.	Meets regulatory requirements.	Relevant permits (for example, Petroleum Operations Notice, PON5) will be submitted in support of works carried out. Conductors will be cut at the derogation height with removed section transported to shore for recycling.
6. Drill Cuttings		
Leave in place to degrade naturally.	Cuttings pile falls below the OSPAR Recommendation 2006/5 thresholds.	Left undisturbed on seabed to degrade naturally
7. Interdependencies		
Based on the CA, partial removal of the NNP jacket down to the top of the footings is the recommended option for the jacket and this will also permit the drill cuttings to be left in situ to degrade naturally over time; which was the recommended option for the cuttings pile. The topsides will be removed earliest 2020 and the jacket will be removed latest 2023.		

* Cut height of between -77.5m to -88.5m has been determined on the height of footings and available technology for removal following study work conducted by potential removals contractors. The actual cut height will depend upon selected method for removal and will take into consideration cutting at a height that minimises the risk of snagging.

1.5.1 Timing of Removals

Topsides

Subject to market availability of cost effective removal services, the topsides will be removed between 2020 and 2021 following permanent down-manning of the platform in 2018. Due to the degradation of the topsides integrity following the platform becoming unoccupied, the most effective management option is to remove as soon as possible.

Jacket

The jacket structure is protected by sacrificial anodes that will remain in situ with their structural integrity uncompromised for extended periods. The removals contract has been awarded that allows for the removal of the topsides between 2020 and 2021; the jacket will be removed to derogation height latest 2023.

1.6 Field Location Including Field Layout and Adjacent Facilities

Figure 1.1: Field Location in UKCS

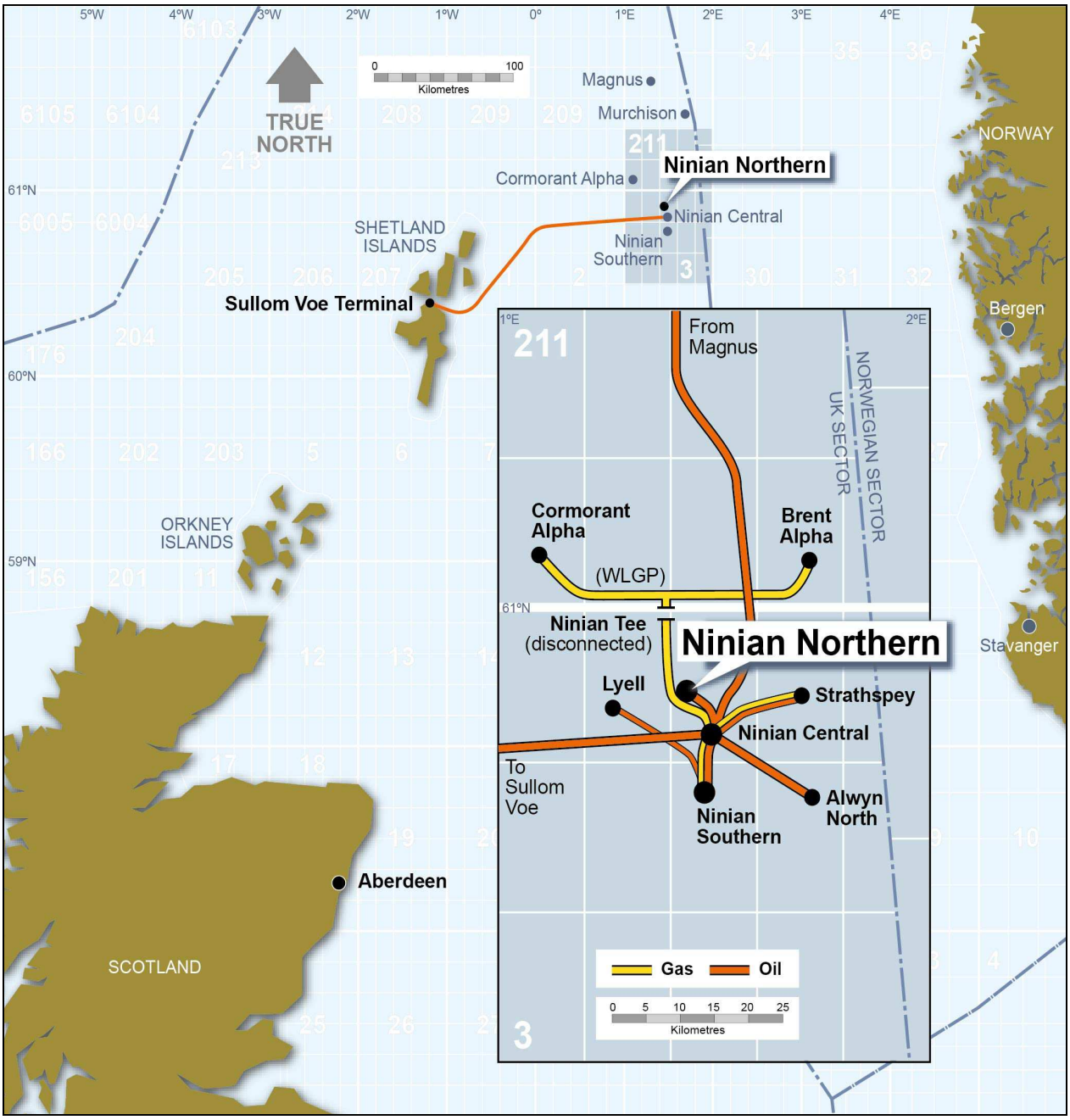
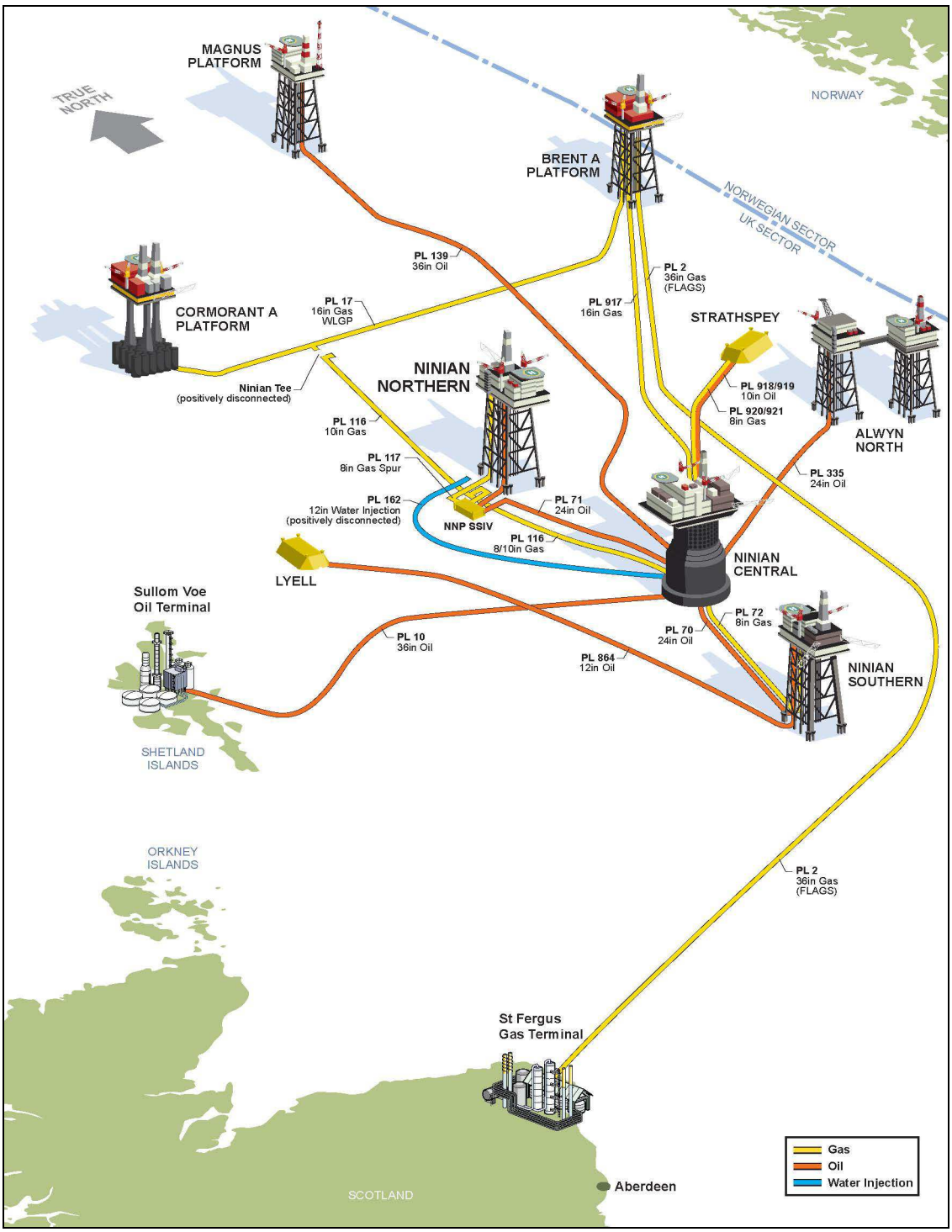


Figure 1.2: Field Layout

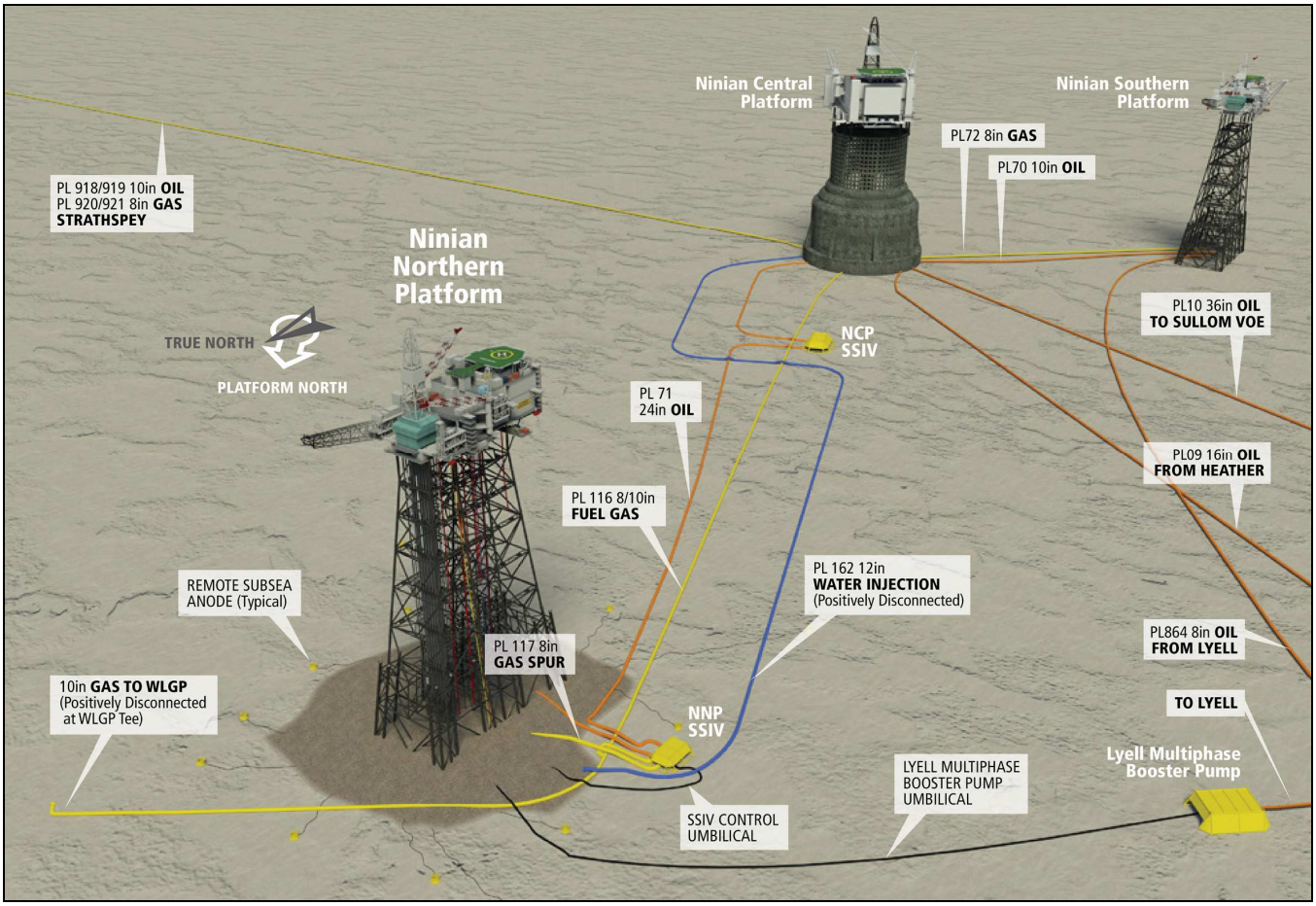


Note: Adjacent facilities refer to those potentially impacted by this programme (see BEIS Guidance Notes for Decommissioning, 2011: Version 6).

Table 1.4 Adjacent Facilities					
Owner	**Name**	**Type**	**Distance/ Direction**	**Information**	**Status**
CNRI	Ninian Central Platform	Platform	3.2Nmiles/ SE	Export PL71 tie in to Ninian Central Platform	Current status: Operational As-left: No impact
CNRI	Ninian Southern Platform	Platform	6.1Nmiles/ S	Adjacent production platform	Current status: Operational As-left: No impact
CNRI	PL71	24" Pipeline	From NNP to NCP Length = 6,762m	Oil export	Current status: Engineered down and cleaned, positively isolated at both ends and air gapped at NCP. NNP end removed to derogation height as part of jacket/ topsides removal.
CNRI	PL116	10" Pipeline	From NCP to WLGP Ninian Tee Length = 17,243m	Fuel gas import	Current status: De-gassed, flushed with treated seawater and air gapped at NCP.
CNRI	PL117	8" Pipeline	From NNP SSIV* to NNP Length = 361m	Fuel gas import	Current status: De-gassed, flushed with treated seawater and air gapped at NNP. Sections integrated with jacket removed to derogation height as part of jacket/ topsides removal.
CNRI	PL162	12" Pipeline	From NCP to NNP Length = 6,490m	Water injection	Positively disconnected
CNRI	Lyell MPBP	Subsea Booster Pump	Distance from NNP = 8,165m 4.4Nmiles/ W	Control and power facilities installed on NNP	Current status: Power and control umbilical engineered down and cleaned, to be removed to derogation height with the jacket/ topsides.
CNRI	PLU2300	Umbilical	8,440m	Lyell MPBP Umbilical	Current status: Umbilical engineered down and cleaned, to be removed to derogation height with the jacket/ topsides.
CNRI	UB	Umbilical	Approx. 250m	NNP SSIV Control Umbilical	Current status: Engineered down and cleaned, to be removed to derogation height with the jacket/ topsides removal.
Impacts of Decommissioning Proposals					
The impact of this decommisioning programme on the pipelines and umbilicals listed above will be limited to the EDC and removal of the sections associated with the topsides and future removal of the jacket to the proposed derogation height. Remaining sections of pipelines and umbilicals below derogation height and adjacent to NNP will be decommissioned with the wider Ninian field under a separate decommissioning programme. Variations to PWAs will be made as appropriate.					

*Removal options for the SSIV will be considered under a separate decommissioning programme.

Figure 1.3: Adjacent Facilities



1.7 Industrial Implications

In planning and preparing for executing the NNP decommissioning contract/procurement strategy, CNRI as operator of the NNP and on behalf of the Section 29 Notice Holders will undertake the following:

- To publish information on the NNP decommissioning project and timelines on its decommissioning website: www.cnri-northsea-decom.com.
- CNRI is working closely with Decom North Sea and other industry bodies in engagement sessions with the decommissioning supply chain on issues relating to the NNP decommissioning programme and timelines, including engaging directly with disposal yards that serve the North Sea.
- The FPAL database will be used as a source for establishing tender lists for contracts/purchases valued at £250,000 and above, although it is also used under this limit.
- For engineering down and cleaning of the platform, the strategy is to use the incumbent contractors with the existing offshore operations team.
- The strategy for the topsides removal and onshore disposal scope is to competitively tender using the form of contract previously used for Murchison Decommissioning along with any lessons learned, both internally and externally.
- The jacket will be removed on or before 2023.The subsea services are excluded from the current work scope as they will be dealt with the wider Ninian field.

1.8 Boundaries of Decommissioning Programme

The base case for the removal of the NNP platform topsides is between 2020 and 2021 with removal of the jacket down to the proposed derogation height in 2023 at the latest. The exact timelines for removal are subject to market conditions and contractual agreements. Engineering down and cleaning (EDC) and removal of the sections associated with the topsides and future removal of the jacket to the proposed derogation height will be managed through variations to PWAs as appropriate. Figure 1.4 summarises the key stages of the decommissioning programme.

At topsides removal:

- Umbilicals associated with the Lyell MPBP and SSIV will be disconnected in order to facilitate topsides removal.
- Spools from PL71 and PL117 will be removed above the RESDV topsides to facilitate removal of the topsides and create an air gap.

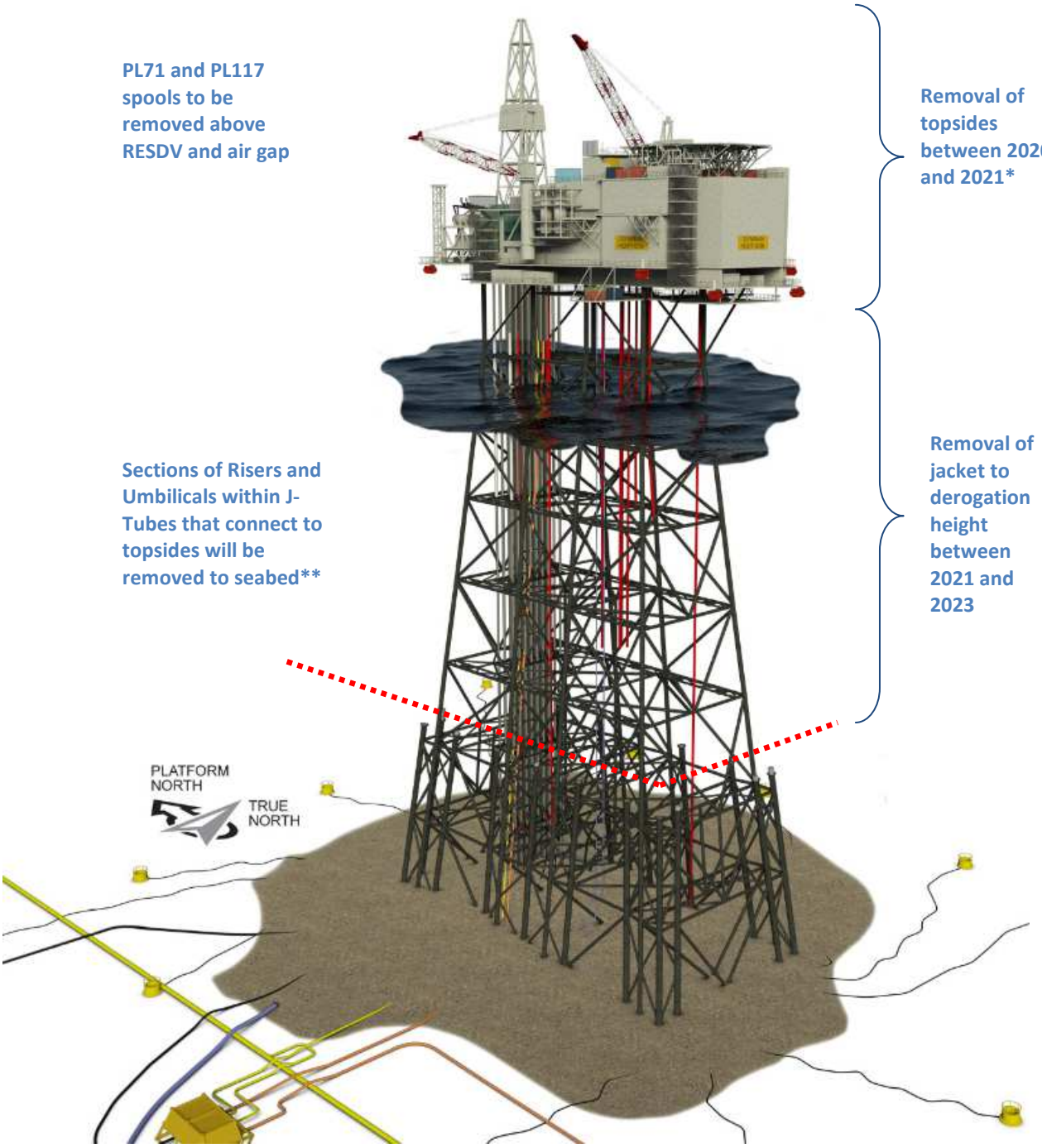
At jacket removal:

- The sections of risers, J-tubes and umbilicals that connect to the topsides will be removed down to seabed where possible. Where these are integrated with the jacket (Figure 1.5) it is proposed that these are removed to the derogation height. It will be technically challenging to remove these to the seabed as they are clamped to the jacket structure and would require cutting into sections for removal by piece-small.

At the seabed:

- Remaining sections of pipelines and umbilicals adjacent to NNP will be decommissioned with the wider Ninian field under a separate decommissioning programme.

Figure 1.4 Diagram illustrating Boundaries of Decommissioning Programme



*Base case is for removal of topsides is between 2020 and 2021, with removal of jacket to derogation height in 2023 latest
** Removal of sections integrated to the jacket will be to the proposed derogation height. Pipelines on seabed subject to a further Decommissioning Programme.

Derogation Height	
PL71 Oil Export	
Umbilical PLU2300 & SSIV	
PL116 Gas/ PL117	
PL162 (disused/ positively disconnected)	

Figure 1.5 Detailed Drawing of Oil Export Riser Attached to NNP Jacket

Oil Export (PL71) Riser attached to Jacket

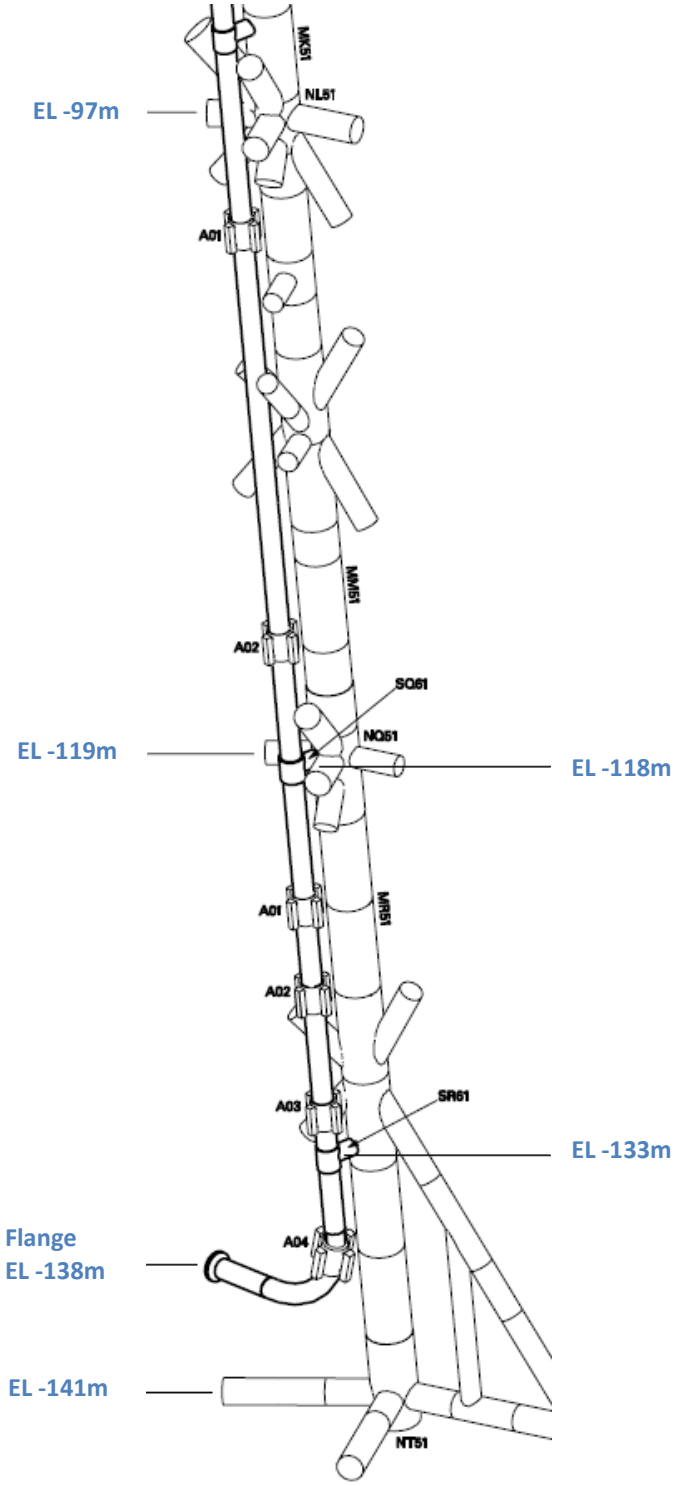
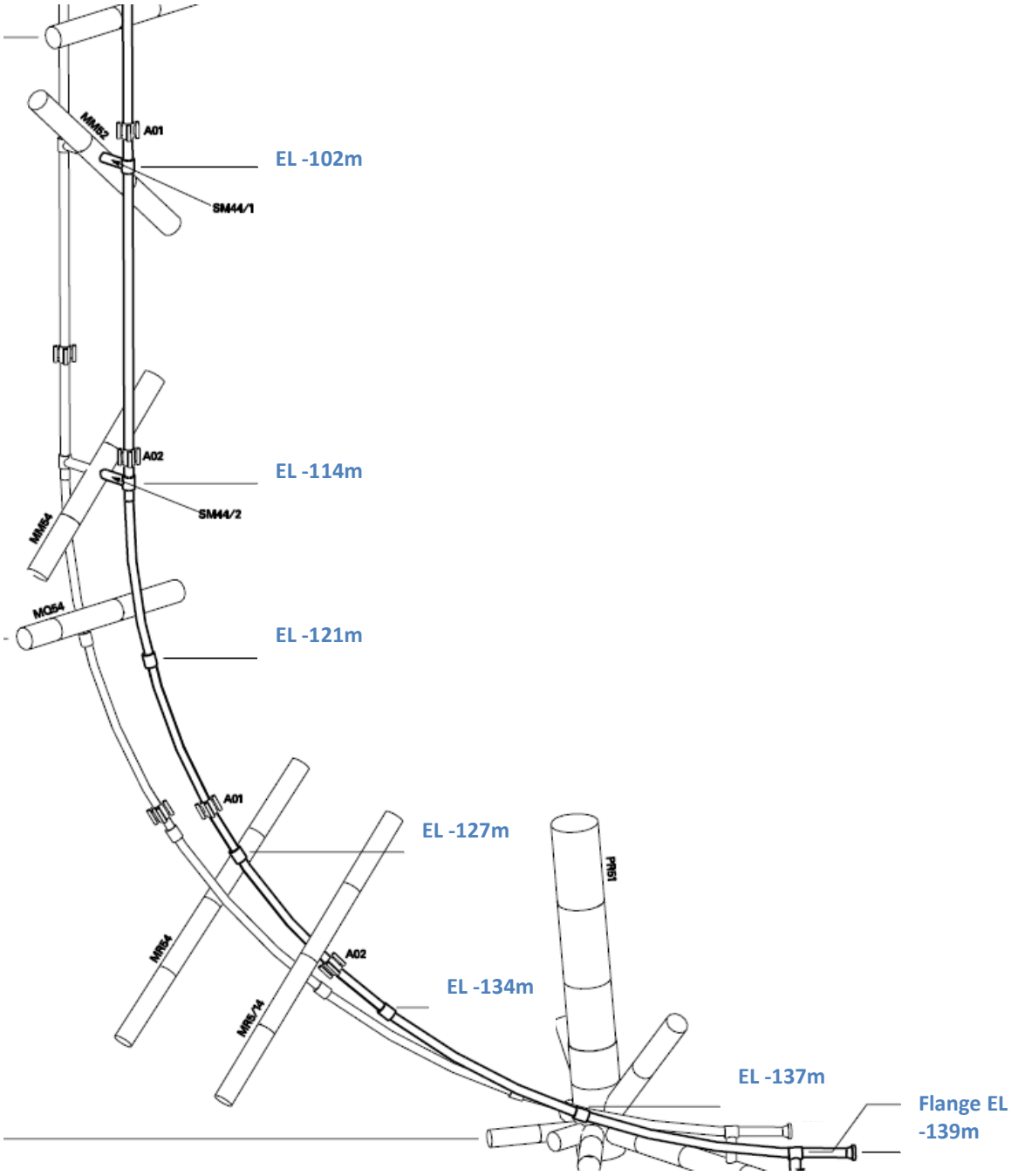


Figure 1.6 Detailed Drawing of SSIV Umbilical J Tube Attached to NNP Jacket

SSIV Umbilical J Tube 44 attached to Jacket Bracing



All risers and J-tubes are connected to the jacket structure. The above examples are for the PL71 riser and the SSIV umbilical within J-tube 44, the Fuel gas riser (PL117) and the Lyell Umbilical (situated in J-tube 63) are similar in nature. Each riser and J-tube has guides to provide lateral restraint and clamps to provide structural capacity.

2 DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

2.1 Installation: Surface Facilities – Topsides and Jacket

Table 2.1: Surface Facilities Information									
Name	Facility Type*	Location**		Topsides/Facilities		Jacket (if applicable)			
				Weight (Te)	Number of Modules	Weight (Te)	Number of Legs	Number of Piles	Weight of Piles (Te)
Ninian Northern Platform	Large fixed steel	WGS84 Decimal	60.9064 North	12,453	10	12,011 (dry unflooded) does not include marine growth (estimated 2,117te).	8	26	3,550
		WGS84 Decimal	1.4212 East						
		WGS84 Decimal minute	60° 54.364' North						
		WGS84 Decimal minute	01° 25.274' East						

**Fixed large steel jacket / fixed small steel jacket / concrete gravity based structure / floating facility / FPSO / etc*

***Location in WGS84 decimal and WGS84 decimal of a minute (3 decimal places) formats*

2.2 Installation(s): Subsea including Stabilisation Features – Not applicable

Table 2.2: Subsea Installations and Stabilisation Features				
Subsea installations* including Stabilisation Features	**Number**	**Size/Weight (Te)**	**Location****	**Comments/Status*****
Wellhead(s)	n/a			
Manifold(s)	n/a			
Template(s)	n/a			
Protection Frame(s)	n/a			
Concrete mattresses	n/a			
Grout bags	n/a			
Formwork	n/a			
Frond Mats	n/a			
Rock Dump	n/a			
Other (*describe briefly*)	n/a			

**Template/manifold / WHPS / Manifold / etc*
*** Location to be given in WGS84 decimal and WGS84 decimal of a minute (3 decimal places) formats*
****Indicate in comments/status if piled*

2.3 Pipeline(s) Including Stabilisation Features – Not applicable

Pipelines tied into NNP (detailed in Table 1.4) will be decommissioned with the remainder of the Ninian field under a separate decommissioning programme. Pipelines will be cleaned and positively isolated to remain *in situ* until the final decommissioning solution is determined. DPN will be submitted to BEIS for approval.

Table 2.3: Pipeline/Flowline/Umbilical Information

Description	Pipeline No. (as per PWA)	Diameter (inches)	Length (km)	Description of Component Parts[1]	Product Conveyed[2]	From – To End Points	Burial Status[3]	Pipeline Status[4]	Current Content[5]
n/a									
n/a									
n/a									
n/a									
n/a									

Table 2.4: Subsea Pipeline Stabilisation Features				
Stabilisation Feature	**Total Number**	**Weight (Te)**	**Location(s)**	**Exposed/Buried/Condition**
Concrete mattresses	n/a			
Concrete mattresses	n/a			
Grout bags	n/a			
Formwork	n/a			
Frond Mats	n/a			
Rock Dump	n/a			
Other (*describe briefly)*				

2.4 Wells

Table 2.5 Well Information			
Platform Wells	Designation[1]	Status	Category of Well
3/03-N04z	Water Injection	Plugged and Abandoned	PL 1-0-3
3/03-N05	Suspended	Plugged and Abandoned	PL 2-0-3
3/03-N06	Suspended	Plugged and Abandoned	PL-0-3-3
3/03-N08	Water Injection	Plugged and Abandoned	PL 2-0-3
3/03-N13z	Water Injection	Plugged and Abandoned	PL 4-0-3
3/03-N20z	Suspended	Plugged and Abandoned	PL 4-0-3
3/03-N25	Water Injection	Plugged and Abandoned	PL 1-0-3
3/03-N28	Oil Production	Plugged and Abandoned	PL 1-0-3
3/03-N31	Suspended	Plugged and Abandoned	PL 0-0-3
3/03-N32	Oil Production	Plugged and Abandoned	PL 1-0-3
3/03-N33z	Oil Production	Plugged and Abandoned	PL 1-0-3
3/03-N36	Oil Production	Plugged and Abandoned	PL 1-0-3
3/03-N37	Water Injection	Plugged and Abandoned	PL 4-0-3
3/03-N38	Oil Production	Plugged and Abandoned	PL 4-0-3
3/03-N39	Oil Production	Plugged and Abandoned	PL 1-0-3
3/03-N40	Water Injection	Plugged and Abandoned	PL 1-0-3
3/03-N41	Oil Production	Plugged and Abandoned	PL 1-0-3
3/03-N42z	Water Injection	Plugged and Abandoned	PL 1-0-3
3/03-N43z	Water Injection	Plugged and Abandoned	PL 1-0-3
3/03-N44	Oil Production	Plugged and Abandoned	PL 1-0-3
3/03-N45z	Oil Production	Plugged and Abandoned	PL 1-0-3
3/03-N46	Oil Production	Plugged and Abandoned	PL 1-0-3
3/03-N47	Oil Production	Plugged and Abandoned	PL 4-0-3
3/03-N48	Water Injection	Plugged and Abandoned	PL 4-0-3

Subsea Wells			
n/a			

[1] e.g. Production; Injection; Oil; Gas

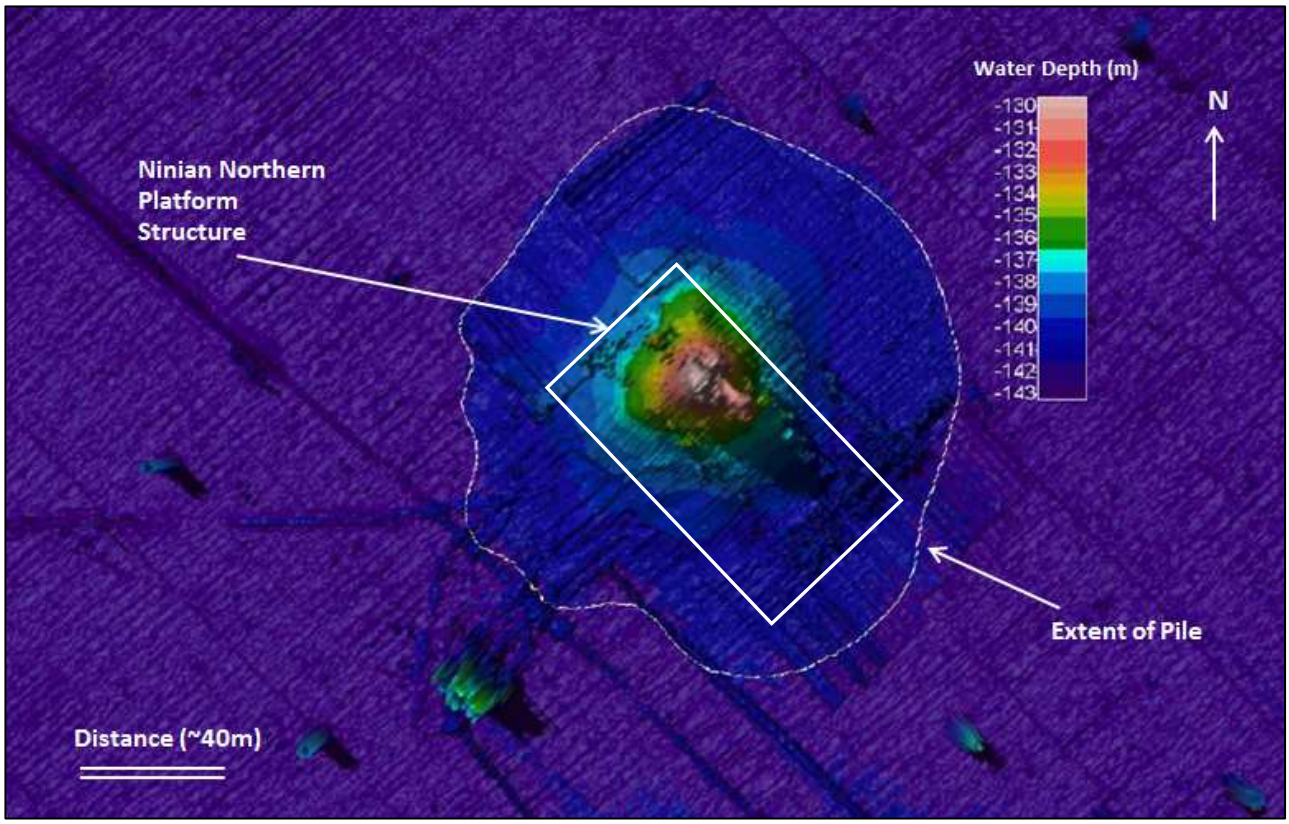
Details of well categorisation have been taken from OGUK Guidelines for the Suspension or Abandonment of Wells. Issue 5, July 2015.

2.5 Drill Cuttings

(See Section 3.7 for further information)

Table 2.6: Drill Cuttings Pile Information		
Location of Pile Centre (Latitude/Longitude)	Seabed Area (m^2)	Estimated volume of cuttings (m^3)
Directly beneath the jacket (highest point in the northwest corner)	23,620m^2	33,144m^3

Figure 2.1: Map of Ninian Northern Platform Drill Cuttings Pile using Multibeam Echo Sounder



2.6 Inventory Estimates

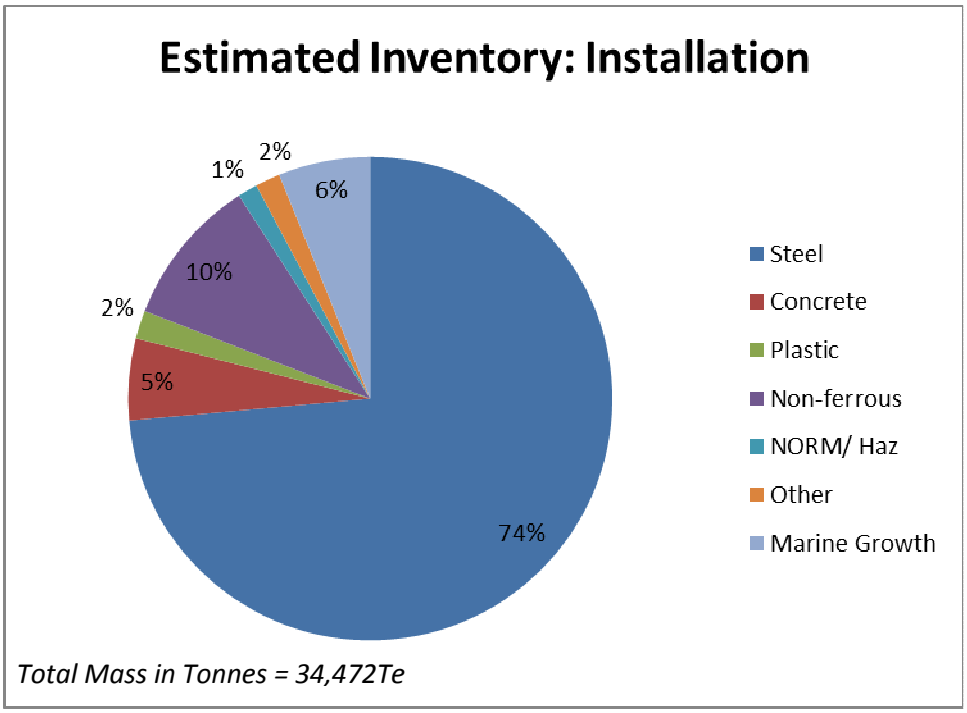
Table 2.7: Inventory of the material associated with the topsides decommissioning			
Material	**Mass (tonnes)**	**Material**	**Mass (tonnes)**
Steel	9,658.2	Rubber	56.4
Concrete	106.0	Wood	4.7
Aluminium	1.7	Polychlorinated biphenyls (PCBs)	0.1
Stainless steel	579.3	Residual oils	11.0
Copper	871.9	Other	0.2
Lead	10.9	Paint	80.0
Zinc	2.9	Passive fire protection (PFP)	363.2
Plastics	648.9	Mercury	0.012 kg
Rockwool	57.5	Asbestos*	112 locations
*Weight is not known		**Total**	**12,453.0**

Table 2.8: Inventory of the material associated with the jacket decommissioning	
Material	**Dry unflooded weight (tonnes)**
Jacket (steel)	8,478
Piles (steel)	3,550
Grout	879
Concrete	684
Anodes – Aluminium/ Zinc	1,970
Marine growth	2,117
Total	**17,678**

The total weight of the installation is 34,472te and is detailed further in Figure 2.2. This includes 3,671 tonnes of steel and 216 tonnes of concrete associated with the wells. There is an estimated volume of 455te of hazardous waste such as NORM, in addition to the topsides weight.

Appendix 1 details further the estimates of the main waste types on the platform known at this stage, including hazardous waste.

Figure 2.2: Pie Chart of Estimated Inventories



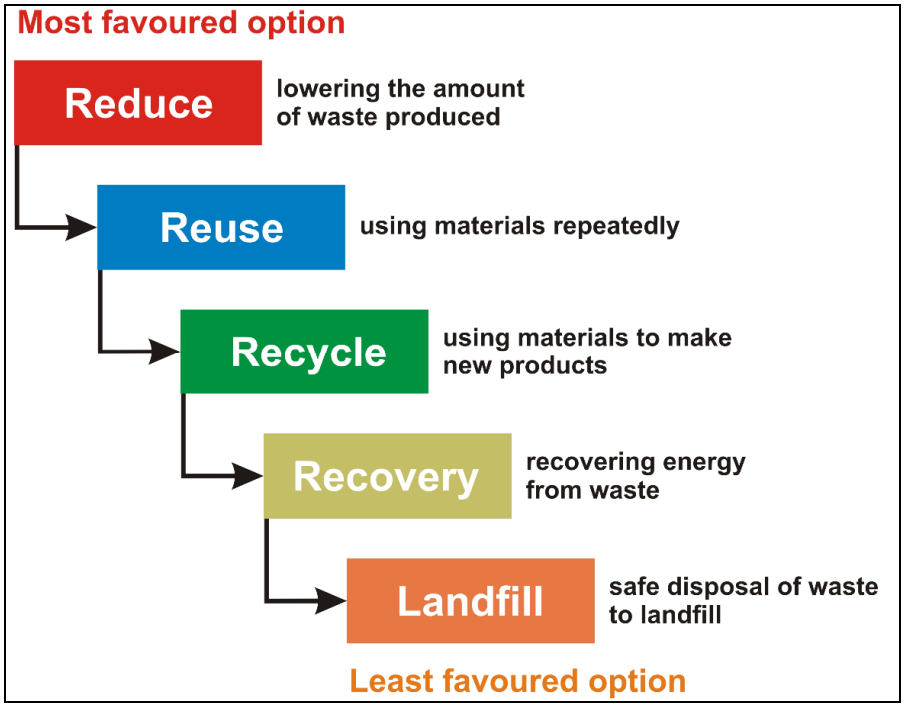
Refer to Tables 2.2, 2.3 and 2.4 in the Environmental Statement for detailed data. Weights are included for topsides, jackets and wells. The total weight of 34,472te includes an estimated 455te of hazardous waste such as NORM and 2,117te of marine growth. Other includes also includes passive fire protection and rockwool.

3 REMOVAL AND DISPOSAL METHODS

As part of the removals contractor selection, disposal yards will be evaluated by CNRI.

Article 4 of the EU Waste Framework Directive (Directive 2008/98/EC) sets out the five steps to manage waste ranked according to environmental impact (also knowns as the waste hierarchy). In line with the waste hierarchy, the re-use of an installation (or parts thereof) is first in the order of preferred decommissioning options. CNRI will follow the principles of the waste hierarchy (Figure 3.1) in order to minimise waste production resulting from the NNP decommissioning activities.

Figure 3.1: Waste Hierarchy



Reduce and Re-use Opportunities

CNRI has conducted an extensive review of operational equipment and components and identified numerous items that could be re-used on NCP or NSP[1]. 296 items have been identified for being sold for re-use wherever possible, either directly by CNRI, through a platform broker, or through the decommissioning contractor. Alternate uses for the NNP for power generation using wind energy, wave and tidal energy and reuse for carbon capture and storage were all considered but no alternate use option was economically viable.

[1] Wood Group PSN Ninian North Asset Inventory Study Report, 2011, NNPDECOM-PSN-PM-REP-00025

Recycling and Reprocessing of Waste Material

Non-hazardous materials, such as scrap metal, concrete, plastic and wood, that are not contaminated with hazardous waste shall be removed and recovered for re-use or recycling. Steel and other scrap metal are estimated to account for the greatest proportion of materials inventory from the NNP topsides, jacket and well abandonment. Recycling is therefore expected to be the most significant end-point for materials recovered from the NNP.

Where necessary, hazardous waste resulting from the dismantling of the NNP shall be pre-treated to reduce its hazardous properties or, in some cases, render it non-hazardous prior to recycling or landfilling. Under the Landfill Directive, pre-treatment will be necessary for most hazardous wastes which are destined to be disposed of to landfill sites. Other non-hazardous waste which cannot be reused or recycled will be disposed of to a landfill site.

Waste Inventory

A survey to characterise the main hazardous waste types on NNP was conducted in 2013[2]. In addition to ascertaining the estimated weight and locations of the main hazardous waste types, samples were taken to determine the presence of heavy metals, PCBs, brominated flame retardants and chlorinated paraffins. Prior to any removal activities being carried out on NNP, further surveys will be carried out as required as part of the engineering for the removal process. Appendix 1 details the current estimates of the main waste types on the platform, with the present focus being on hazardous waste. The strategy to obtain further data on hazardous waste is to undertake additional surveys either prior to the materials being sent onshore or at the onshore transition point. This aligns with CNRI's commitment to active waste management and where required, this waste data will be discussed with the appropriate regulators.

3.1 Topsides

3.1.1 Topsides Decommissioning Overview

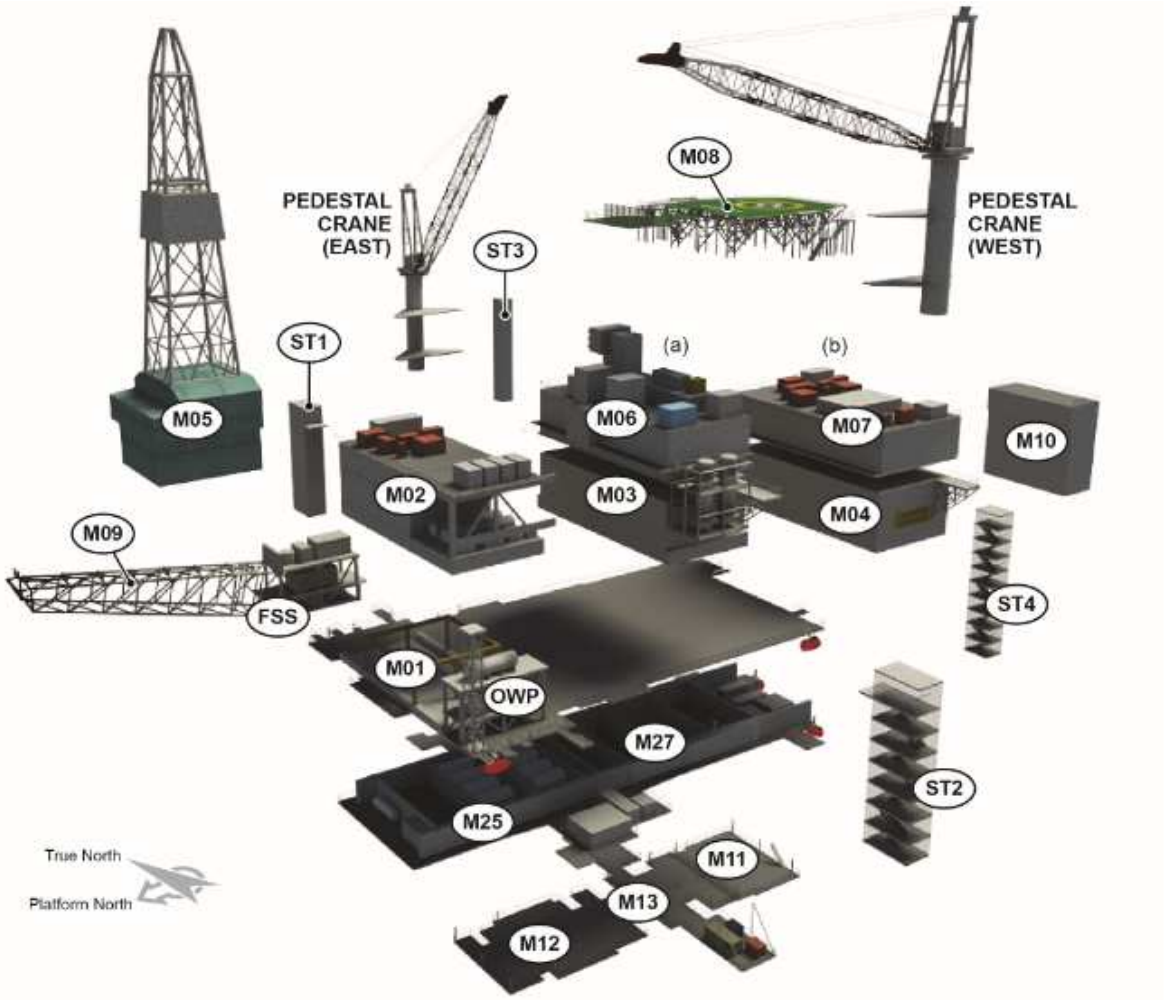
Topsides Description: The NNP topsides comprise 10 modules arranged over two levels which provide facilities and equipment for drilling, production, processing, power generation, oil export and accommodation. The dry weight of the topsides is 12,453te.

These modules are supported on a Captruss structure. The Captruss is essentially a module support structure that sits on top of the jacket. It consists of an upper and lower box section, connected via vertical and diagonal members. This forms a structure that transfers the loads from the topsides modules into the jacket. An additional deck was installed during the onshore construction phase and is referred to as the Cellar deck. This deck is hung from the underside of the Captruss. Overall layout of the topsides is illustrated in Figure 3.2.

[2] AF Decom Hazardous Material Report, 2013, P0005-AFD-EN-REP-00001

Methodology: Topsides will be completely removed and returned to shore. Possible methods are outlined in Table 3.2; the final decision on decommissioning method of the topsides will be made following a commercial tendering process.

Figure 3.2: Diagram of Topsides



MODULE	DESCRIPTION
M01	Wellhead Area
M02	Production and Drilling Equipment
M03	Water Services and Utilities (lower a)
M04	Control Room (lower b)
M05	Drilling Derrick
M06	Water Injection (upper a)
M07	Accommodation - PLQ (upper b)
M08	Helideck
M09	Flare Boom

MODULE	DESCRIPTION
M10	Accommodation - NLQ
M11	Cellar Deck Area 80 - Offices
M12	Cellar Deck Area 80 - Moonpool
M13	Cellar Deck Area 80 - Workshops
M25/27	Captruss North/South
FSS	Flare Support Structure
OWP	Oily Water Package
ST	Stair No. (1, 2, 3, 4)

Preparation/Cleaning: Table 3.1 describes the methods that will be used to flush, purge or clean the topsides offshore, **prior to removal to shore**.

Table 3.1: Cleaning of Topsides for Removal		
Waste Type	**Composition of Waste**	**Disposal Route**
Onboard hydrocarbons	Process fluids, fuels and lubricants.	Flushing of bulk process hydrocarbons will be conducted offshore and residual fluids disposed of under appropriate permits. Fuels and lubricants will be drained and transported onshore for re-use/ disposal within the UK.*
Other hazardous materials	Chemicals for cleaning topsides. Hazardous waste such as NORM radioactive material, instruments containing heavy metals, batteries.	Discharge of cleaning chemicals offshore will be managed under relevant permit. Waste chemicals, bulk NORM solids, and other hazardous materials will be transported ashore for re-use/disposal within the UK*.
Original paint coating	Paint containing lead. Further survey work will be undertaken to identify other components that may be present.	May give off toxic fumes / dust if flame-cutting or grinding/blasting is used so appropriate safety measures will be taken. Painted items will be disposed of onshore appropriately.*
Asbestos and Ceramic Fibre	Asbestos has been identified in surveys, additional surveys will be undertaken.	Appropriate control and management of asbestos will be in place. Asbestos and ceramic fibre will be contained and shipped ashore for disposal.*

*some waste types may be removed with the topsides removal and depending on disposal yard location, this may be out with the UK.

Removal Methods: Topsides will be completely removed and returned to shore. Possible methods are outlined in Table 3.2.

Table 3.2: Topsides Removal Methods	
1) Heavy Lift Vessel (semi-submersible crane vessel) √ 2) Monohull Crane Vessel √ 3) Single Lift Vessel √ 4) Piece small √ 5) Other ☐	
Method	**Description**
Single lift removal by SLV/HLV	Removal of topsides as complete units and transportation to shore for re-use of selected equipment, recycling, break up, and/or disposal
Modular removal and re-use/recycle by HLV	Removal of parts/modules of topsides for transportation and reuse in alternate location(s) and/or recycling/disposal
Offshore removal 'piece small' for onshore reuse/disposal	Removal of topsides by breaking up offshore and transporting to shore using work barge. Items will then be sorted for re-use, recycling or disposal
Proposed removal method and disposal route	**All methods are being carried forward into the competitive tender process. Tender will raise any potential trans-frontier shipment of waste issues.** **A final decision on decommissioning method will be made following a commercial tendering process**

3.2 Jacket/Substructure

3.2.1 Jacket/Substructure Decommissioning Overview

Table 3.3: Jacket/Substructure			
Name of Jacket/Substructure	**Substructure weight (Te)**	**Date Installed**	**Seeking Derogation from OSPAR Decision 98/3 (Yes/No)**
Ninian Northern Platform	15,561 tonnes (not including 2,117te of marine growth)	June 1978	Yes

Table 3.4: Outcome of Comparative Assessment		
Name of Jacket/Substructure	**Recommended Option**	**Justification**
Ninian Northern Platform	Jacket will be removed down to between 77.5m and 88.5 m below LAT. This is subject to the final removal method being determined and will take into consideration cutting at a height that minimises the risk of snagging.	There is a significant increase in operational safety risk, technical complexity and cost associated with the full jacket removal compared to partial jacket removal (refer to CA section 5)

OSPAR Decision 98/3 prohibits the dumping and leaving jackets wholly or partly in place, but it recognises the difficulties in removing concrete structures and the footings of large steel jackets weighing over 10,000te and installed prior to 9th February 1999. NNP qualifies for consideration of derogation from OSPAR Decision 98/3 as the jacket weight is greater than 10,000te and was installed prior to 1999.

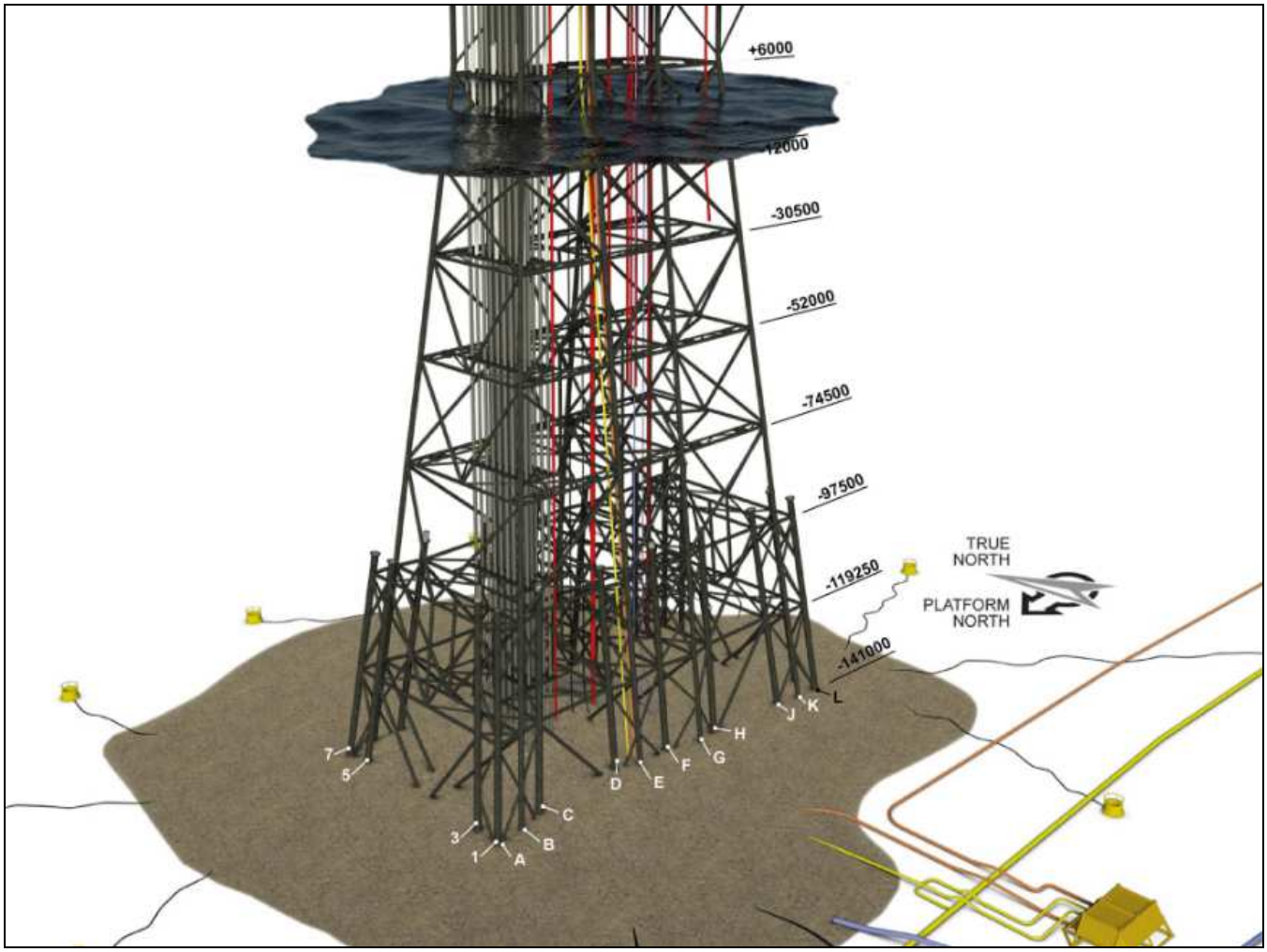
The NNP Section 29 Notice Holders used a screening and evaluation process to arrive at the options for decommissioning the jacket. This was designed to assess the technical, safety, environmental, societal and economic impact of each option and is consistent with the BEIS Guidance Notes for Decommissioning 2011.

Decommissioning of the jacket and drill cuttings pile has been evaluated separately to ensure each was considered on its own merits, although there is an interrelationship factor for complete jacket removal as the cuttings pile would have to be disturbed, displaced or removed to gain access to the base of the footings and seabed brace members.

The outcome from this assessment recommended that the NNP jacket will be removed down to between -77.5m and -88.5m below LAT dependent on final removal method. Recovered sections will be returned to shore for recycling.

The comparative assessment for NNP was independently verified (refer to Section 8 – Independent Verification Statement).

Figure 3.3: Jacket Elevation – Ninian Northern Platform



Note:
Overall height of jacket is 147m from the seabed.
The height of the footings in the derogation case would be between 63.5m and 52.5m from seabed (removal between EL -77.5m and -88.5m LAT).

Figure 3.4: Jacket Footings

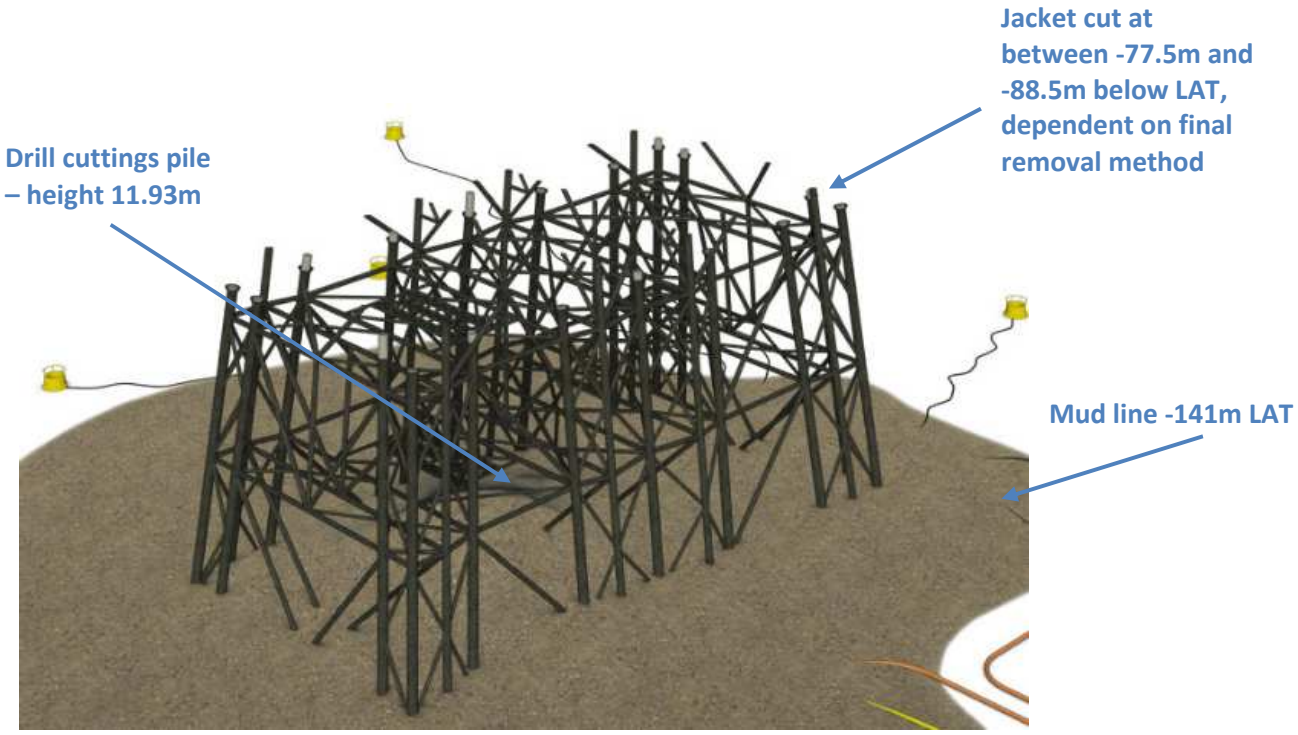
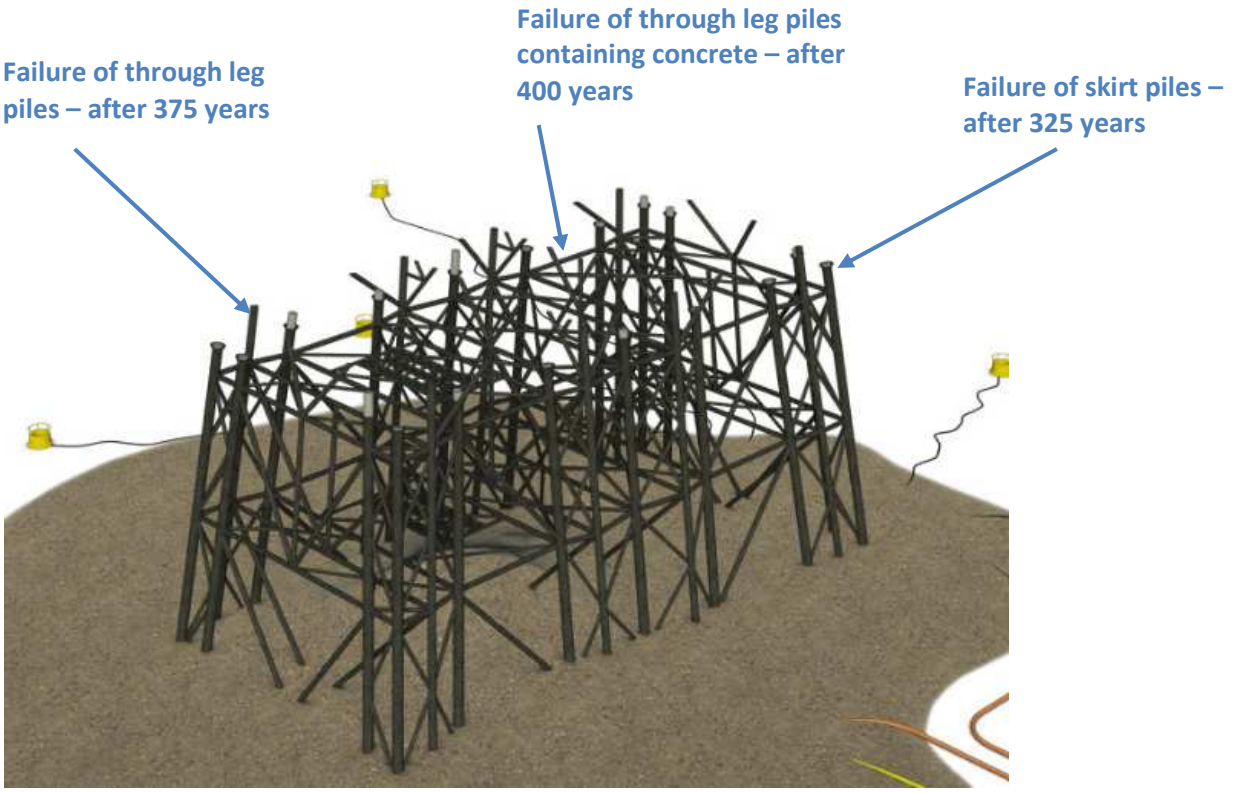


Figure 3.5: Jacket Footings – Predicated Degradation Rates



3.2.2 Jacket Removal Methods

Table 3.5: Jacket Structure/ Substructure Decommissioning Methods	
1) Heavy Lift Vessel (semi-submersible crane vessel) ✓	2) Monohull Crane Vessel ✓
3) Single Lift Vessel ✓	4) Piece small ☐
	5) Other ☐
Method	**Description**
Total removal of jacket to clean seabed	None of the decommissioning methods assessed could remove the jacket in a single piece. All methods would remove the jacket down to top of footings in large sections. Only an SSCV or a Monohull crane vessel is able to remove the remaining footings in smaller sections.
Remove to top of footings using a HLV	Removal of jacket down to top of footings, in two large sections for transportation to onshore site for recycling and disposal.
Removal to top of footings using a Monohull crane vessel	Removal of jacket down to top of footings, in multiple small sections for transportation to onshore site for recycling and disposal.
Removal to top of footings using SLV	Removal of jacket down to between 77.5m and 88.5m below LAT, in a single large section for transportation to onshore site for recycling and disposal and then using a construction support vessel to remove jacket in small sections down to top of footings.
Proposed removal method and disposal route	**Tenders for the jacket removal will be asked to nominate an onshore reception facility that is compatible with their removal method. This may be within the UK or out with the UK. All removal methods, to top of footings, identified above will be carried forward into the tender process. The tender will raise any potential trans-frontier shipment of waste issues.** **A removals contract has been awarded and the primary method for removal will be single lift with a contingency method of removing the jacket in large sections.**

Comparative Assessment (CA) Method:

A CA of the jacket removal options was conducted following CNRI's CA procedure and method statement which are based upon the OSPAR 98/3 framework. The CA used quantitative and qualitative data to draw a balanced assessment across the main criteria of safety, technical feasibility, environmental impacts, societal impacts and project cost, as described in the Comparative Assessment Report.

Outcome of CA:

Table 3.6 summarises the outcome of the CA process. For detailed CA results refer to the Comparative Assessment Report and Appendices.

Table 3.6: Jacket Decommissioning Options Comparative Assessment Summary			
Criteria	**Metric**	**Full Removal**	**Partial Removal**
Safety[1]	Risk to personnel (offshore and onshore) Potential Loss of Life (PLL)	0.025	0.010
	Risk to other users of the sea (PLL)	0	2.3×10^{-5} pa
Environmental[1,2]	Energy Consumption Total Energy (GJ)	297,654 GJ	530,148 GJ
	Emissions to Atmosphere CO2 Equivalent (tonne)	24,277 tonnes[4]	31,064 tonnes[4]
	Environmental Impacts	66%	100%
Technical[2]	Technical Feasibility	25%	100%
	Ease of Recovery from Excursion[3]	75%	100%
	Use of Proven Technology and Equipment	33%	100%
Societal[2]	Commercial Impact on Fisheries	100%	94%
	Socio-economic Impact on Amenities	100%	100%
	Socio-economic Impact on Communities	100%	100%
Economic[1]	Total Project Cost	53%[5]	100%[5]

[1] Calculated scores for Safety risk to personnel and other users of the sea (PLL), Energy consumption (GJ), CO2 emissions (tonnes) and cost (represented as percentage due to costs being commercially sensitive)
[2] Qualitative scores with 100% being the best outcome
[3] Excursion refers to a forced deviation from plan
[4] The energy and emissions assessment (based on the Institute of Petroleum Guidelines) indicates that partial removal results in greater overall energy and emissions than full removal. This reflects the theoretical 'cost' (in energy and emissions) of manufacturing the equivalent weight of the footings in new steel to replace that left on the seabed
[5] Costs are commercially sensitive, represented in Table 3.6 as percentage. Partial removal achieved 100% of the score in the comparative assessment; full removal was 46% higher than the cost for partial removal

A Monte Carlo sensitivity analysis was conducted to test whether the results of the comparative assessment would be different if CNRI had selected different weightings of the assessment criteria. The result from the analysis confirmed that CNRI results are robust and would not change with different weightings.

Table 3.6 summarises the following key issues:

Safety

Whilst the safety Individual Risk Per Annum (IRPA) for both full removal and partial removal are less than the Health and Safety Executive (HSE) tolerable region of 1 in 1000, the full jacket removal increases the

Potential Loss of Life (PLL) by 100% compared to the partial removal option. This increase in risk is unjustifiable as it violates the principle of reducing risks to as low as reasonably practical. Partial removal creates a long term and persistent risk to fishermen from the potential snagging of their fishing gear on the remaining footings. The PLL for fishermen, directly attributable to fishing over the footings remains, is 2.3 x 10^{-5} per annum or 1 in 43,103 years.

Environmental

The activities that result in environmental impact from partial and full removal options are similar, although there is a greater impact on the environment for full removal. The main differentiators are that full removal requires excavation of the footings below the seabed and additional anchoring of vessels, both resulting in increased physical disturbance to the marine environment. In addition full removal results in more onshore impacts associated with dismantling structures (increased noise, landfill). However, for both options the environmental impact is considered to be short term. There was no significant difference in terms of emissions to atmosphere and the energy usage was greater for partial removal.

Technical Feasibility

Removal of the entire jacket is technically more challenging than partial removal. The equipment and techniques required to remove the footings, do not have a demonstrable track record, and therefore there is a higher probability of project failure for full removal.

Societal

Partial removal of the jacket creates a physical snagging risk to other users of the sea. The fishing in the area where the NNP is situated is considered to be of low to moderate value and shipping activity is moderate. The obstruction caused by the footings has a footprint of less than 0.01km^2 compared with the size of the ICES rectangle 51F1 where NNP is situated.

Economic

Costs are significantly greater for full removal than for partial removal.

A full description of the CA process and outcomes is reported in the Comparative Assessment Report[3]. In summary, there is significant increase in operational safety risk, technical complexity and economics associated with full removal of the jacket. The snagging risk associated with partial removal will be mitigated by supporting programmes set up by the UK Fisheries Offshore Oil and Gas Legacy Trust Fund (FLTC). FLTC sponsors the FishSAFE system that provides up-to-date electronic mapping of oil and gas subsea and surface infrastructure in UK waters which may be a potential hazard to fishing vessels or their equipment.

Recommended Option: The recommended option for the jacket is removal down to the top of the jacket footings (between -77.5m and -88.5m below LAT*) with recovered top section(s) taken onshore for reuse, recycling or disposal. The jacket footings will be left in place and marked on Admiralty Charts and entered into the FLTC's FishSAFE System. The jacket will be removed on or before 2023

* Cut height has been estimated on height of footings and available technology for removal. The actual cut height will depend upon selected method for removal and will take into consideration cutting at a height that minimises the risk of snagging

[3] For detail refer to section 5 of the Comparative Assessment Report

3.3 Subsea Installation(s) and Stabilisation Feature(s) – Not Applicable

Table 3.7: Subsea Installation(s) and Stabilisation Feature(s)			
Subsea installation(s) and stabilisation feature(s)	**Number**	**Option**	**Disposal Route (if applicable)**
Wellhead(s)	n/a		
Manifold(s)	n/a		
Template(s)	n/a		
Protection Frame(s)	n/a		
Concrete mattresses	n/a		
Grout bags	n/a		
Formwork	n/a		
Frond Mats	n/a		
Rock Dump	n/a		
Other	n/a		

3.4 Pipelines – Not applicable

Decommissioning Options:

*Key to Options:

1) Remove - reverse reeling
2) Remove - Reverse S lay
3) Trench and bury
4) Rock dump
5) Partial Removal
6) Leave in place
7) Remedial trenching
8) Remedial removal
9) Remedial rock-dump
10) Other

Table 3.8: Pipeline or Pipeline Groups Decommissioning Options			
Pipeline or Group (as per PWA)	**Condition of line/group** (Surface laid/Trenched/ Buried/ Spanning)	**Whole or part of pipeline/group**	**Decommissioning Options* considered**
n/a			
n/a			

Comparative Assessment Method:

Outcome of Comparative Assessment:

Table 3.9: Outcomes of Comparative Assessment		
Pipeline or Group	**Recommended Option***	**Justification**
n/a		
n/a		

3.5 Pipeline Stabilisation Feature(s) – Not applicable

Table 3.10: Pipeline Stabilisation Feature(s)			
Stabilisation feature(s)	**Number**	**Option**	**Disposal Route**
Concrete mattresses	n/a		
Grout bags	n/a		
Formwork	n/a		
Frond Mats	n/a		
Rock Dump	n/a		

3.6 Wells

Table 3.11: Well Plug and Abandonment
There are 24 platform based wells on NNP listed in Section 2.4 (Table 2.5). All wells have been plugged and abandoned in accordance with OGUK Guidelines for the Suspension and Abandonment of Wells, Issue 5, July 2015. Platform conductor strings will be cut below the footings elevation as close as possible to the derogation height. A PON5/ PETS/ Marine Licence application will be submitted in support of any such work that is to be carried out.

3.7 Drill Cuttings

Drill Cuttings Decommissioning Options:

Table 3.12: Drill Cuttings Decommissioning Options	
How many drill cuttings piles are present?	**1**
Tick options examined: ✓ Remove and re-inject ✓ Leave in place ☐Cover ✓ Relocate on seabed ✓ Remove and treat onshore ✓ Remove and treat offshore ☐Other	
Review of Pile characteristics	**Pile 1**
How has the cuttings pile been screened? (desktop exercise/actual samples taken)	Yes – samples taken and modelling conducted
Dates of sampling (if applicable)	May 2011
Sampling to be included in pre-decommissioning survey?	Yes
Does it fall below both OSPAR thresholds?	Yes
Will the drill cuttings pile have to be displaced in order to remove the jacket?	Yes
What quantity (m^3) would have to be displaced/removed?	33,144m^3
Will the drill cuttings pile have to be displaced in order to remove any pipelines?	n/a
What quantity (m^3) would have to be displaced/removed?	n/a
Have you carried out a Comparative Assessment of options for the Cuttings Pile?	Yes

CA Method:

The NNP drill cuttings pile falls below both OSPAR recommendation 2006/5 Stage 1 screening thresholds for which natural degradation is considered the best environmental strategy; however, in order to assess the full removal of the jacket footings it was necessary to consider full removal of the drill cuttings pile and consequently a Stage 2 assessment was required.

Multi-Beam Echo Sounder (MBES) confirmed that the pile has an estimated volume of 33,144m^3 and a footprint area of 23,620m^2. The pile has a maximum height of 11.93m. Drill cuttings modelling was undertaken using site specific data from the MBES to determine the long-term fate of the cuttings pile[4]. The results of the modelling were used to inform the Stage 2 assessment that confirmed the following:

Total annual oil loss from the NNP cuttings pile is predicted to be 0.1 tonnes/year (this value includes both loss to the water column and loss by biodegradation); the persistence (the area of the seabed where the

[4] The results of the modelling are described in detail in Section 8 of the Environmental Statement

concentration of oil remains above 50mg/kg and the duration that this contamination remains measured in km^2years) is predicted to be 32km^2years. A CA of the drill cuttings pile management options was conducted following CNRI's CA Method Statement[5] which is based on the OSPAR 98/3 framework. The CA used quantitative and qualitative data to draw a balanced assessment across the main criteria of safety, technical feasibility, environmental impacts, societal impacts and project cost, as described in the Comparative Assessment Report.

Outcome of CA:

Five options for managing the drill cuttings pile were assessed:

1. Recover to surface, separation of cuttings offshore, liquids treated and released offshore, solids transported onshore,
2. Recover to surface, slurry to shore,
3. Recover to surface, offshore re-injection,
4. Redistribution of drill cuttings on the seabed,
5. Leave in-situ to degrade naturally.

The following outcomes were identified:

Safety

Offshore re-injection (Option 3) had the greatest safety risk to personnel due to the potential for multiple fatalities in the event of a loss of well control.

Environmental

The highest environmental impacts were associated with the redistribution of the cuttings pile (Option 4) and recovering the pile with disposal to shore (Option 2). Energy and emissions differed insignificantly across all the options.

Technical Feasibility

Options 1 to 4 were technically challenging to varying degrees. The equipment and techniques required to remove the cuttings pile do not have a demonstrable track record and therefore there is a higher probability of project failure for all options.

Societal

There were moderate impacts on fisheries associated with Options 4 and 5 as the drill cuttings pile remains on the seabed and there is the potential for contamination of fishing equipment.

Economic

Economics were significant for all options apart from Option 5 to leave the pile in-situ.

Recommended Option: It is proposed that the drill cuttings pile is left *in situ* to degrade naturally as identified in the CA as the best overall management option.

[5] CNRI CA Method Statement, 2016, P0005-CNR-PM-MES-00001

3.8 Waste Streams

Table 3.13: Waste Stream Management Methods	
Waste Stream	**Removal and Disposal method**
Bulk liquids	During the EDC phase, flushing of bulk liquids will be undertaken offshore under an appropriate permit. Vessels and pipe work will be drained and will be transported to shore in accordance with maritime transportation guidelines where it will be managed at a fully permitted onshore disposal facility. Decontamination will take place onshore prior to recycling or reuse.
Marine growth	Some marine growth will be removed offshore; the remainder will be taken ashore for disposal. Onshore disposal options will be managed through CNRI's Waste Management Procedure.
NORM/LSA Scale	NORM may be partially removed offshore under an appropriate permit. Onshore disposal arrangements will made in accordance with CNRI's Management of NORM Procedure.
Asbestos	Asbestos will be contained and taken ashore for disposal in accordance with CNRI's Waste Management Procedure.
Other hazardous wastes	Other hazardous wastes will be taken ashore and disposed of in accordance with CNRI's Waste Management Procedure. Hazardous waste will be recovered to shore and disposed of under an appropriate permit.
Onshore Dismantling sites	An appropriate licenced site will be selected by the removals contractor. CNRI will ensure that the removal contractor has a proven disposal track record and waste stream management throughout the deconstruction process and demonstrate their ability to deliver innovative recycling options. CNRI will carry out audits on disposal yards to provide assurance that they are compliant with legislation.

For further details of the NNP Waste Management and CNRI's Corporate Procedures refer to Section 11 of the NNP Environmental Statement.

Table 3.14: Inventory Disposition			
	Total Inventory Tonnage	**Planned tonnage to shore***	**Planned left *in situ***
Installations	15,561te Jacket** 12,453te Topsides 3,887te Wells **Total = 31,901te**	7,382te Jacket 2,117te Marine Growth 12,453te Topsides 3,887te Wells **Total = 25,839te**	8,179te Jacket**
Pipelines	n/a	n/a	n/a

* Recovered weight down to top of footings
**Jacket weight includes piles (3,550 tonnes)

Recovered material will be landed ashore in the window of 2020 to 2023. It is not possible to forecast the reuse market with any accuracy or confidence this far forward, so the following is a statement of disposal aspirations. Percentages shown relate to the weight of material which is expected to be recovered to shore.

Further information can be found in the Environmental Statement – Section 11.

Table 3.15: Reuse, Recycle & Disposal Aspirations for Recovered Material		
Reuse	**Recycle**	**Disposal**
5 - 10%	85 - 90%	< 10%

4 ENVIRONMENTAL IMPACT ASSESSMENT

4.1 Environmental Sensitivities (Summary)

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
Conservation interests	**Habitats Directive Annex I Habitats:** there are no known Annex I habitats in the NNP area. Although *Lophelia pertusa* has colonised the NNP, it would not have occurred without the presence of the platform and therefore does not constitute an Annex I habitat. **Habitats Directive Annex II Species:** the only Annex II species sighted within the NNP area is the harbour porpoise.
Seabed	Seabed features are dominated by the platform, drill cuttings pile and associated pipelines with no evidence of bedrock or biogenic reefs, pockmarks or unusual or irregular bedforms. Total hydrocarbon levels surrounding NNP ranged from 8.0 µg/g to 1,390 µg/g (mean 137 µg/g), while those within the drill cutting pile ranged between 24,700 µg/g to 96,300 µg/g (µg/g = microgram (one millionth of a gram) per gram). Within 250m of NNP, the values exceed the background concentrations for THC in Northern North Sea.
Fish	The NNP is located in spawning grounds for cod (Jan to Apr), haddock (Feb to May), Norway pout (Jan to Apr), saithe (Jan to Apr) and sandeel (Nov to Feb); and nursery grounds for herring, ling, mackerel, spurdog, haddock, Norway pout, blue whiting, sandeel, whiting, anglerfish and European Hake (throughout the year).
Fisheries	The fishing effort in 2015 was dominated by pelagic gear types. However, demersal species dominated the landings, with their relative value being "moderate" in 2015.
Marine Mammals	Marine mammals sighted in and around the NNP area include minke whale, long-finned pilot whale, killer whale, white-beaked dolphin and harbour porpoise.
Birds	Seabird vulnerability to oil pollution in the NNP area is “high” in January, March, July, October and November and “moderate” to “low” for the rest of the year. Overall vulnerability in the NNP area is "low".
Onshore Communities	An onshore decommissioning facility will be used that complies with all relevant permitting and legislative requirements.
Other Users of the Sea	**Shipping**: the annual shipping density is of moderate density in the vicinity of the NNP. **Oil and gas industry:** See Figure 1.3 and Table 1.6. **Military Activity:** There are no recorded military disposal sites, nor license conditions, applied to Block 3/3 by BEIS on behalf of the MoD within, or close to the NNP. **Telecommunications and Cables:** there are no known submarine telecommunication and power cables within the vicinity of NNP. **Wrecks:** there are no recorded wrecks in the vicinity of NNP.
Atmosphere	Local atmospheric conditions are influenced by emissions from NNP operations, vessel use and nearby oil and gas facilities.

Further details on environmental sensitivities are summarised in Table ii in the Environmental Statement for Decommissioning of the NNP.

4.2 Potential Environmental Impacts and their Management

Environmental Impact Assessment Summary:

Overview: The Environmental Statement (ES) identifies potential environmental impacts by identifying interactions between the proposed decommissioning activities and the local environment while considering responses from stakeholders. The ES also details mitigation measures designed to avoid and reduce the identified potential environmental impacts and describes how these will be managed in accordance with CNRI's established Environmental Management System (EMS). Following an assessment of the potential impacts through an environmental impact identification workshop, the ES concludes that the recommended options to decommission the NNP can be completed without causing significant impact to the environment. Those activities that had a potential for a significant impact are summarised in Table 4.2, along with the proposed environmental management. There will be no planned use of underwater explosives during these activities. CNRI will ensure that if this plan should change, there will be discussion with BEIS and the 'JNCC guidelines for minimising the risk of injury to marine mammals from using explosives' will be followed.

Table 4.2: Environmental Impact Management		
Activity	**Main Impacts**	**Management**
Topsides Removal	• Energy use and atmospheric emissions • Underwater noise • Dropped object • Accidental hydrocarbon release	Machinery and equipment will be maintained. Vessels will be audited. Vessels will use ultra-low sulphur diesel. Number of vessels using DP minimised. OPEP in place. To minimise potential for dropped objects, third party review and acceptance by Marine Warranty Surveyor is made. Assurance checks are carried out prior to lifting and transportation activities. Post-decommissioning survey to assess presence and recoverability of dropped objects.
Jacket Removal	• Energy use and atmospheric emissions • Underwater noise • Dropped object • Accidental hydrocarbon release • Damage or loss of fishing gear	See topsides removal. For managing the potential damage or loss of fishing gear, the UK Hydrographical Office and Kingfisher will be informed of all activities and any structures left in place. There will be ongoing consultation with fisheries representatives. Noise from underwater cutting of the jacket will be managed through ensuring equipment is well-maintained to ensure that noise from operating machinery will be kept as low as possible.
Subsea Installation(s) Removal	n/a	n/a
Decommissioning Pipelines	n/a - pipelines will be cleaned under existing permits and left in-situ under a DPN for decommissioning under the wider Ninian field decommissioning programme	n/a
Decommissioning Stabilisation Features	n/a	n/a
Decommissioning Drill Cuttings	• Anchoring activities causing sediment disturbance • Long-term presence of hydrocarbons in sediments • Leaching of hydrocarbons from the drill cuttings pile	Anchor planning, pre and post-decommissioning surveys. Characteristics of the drill cuttings pile were compared against the OSPAR Recommendation 2006/5 Cuttings Pile Management Regime Stage 1 thresholds, were found to be well below the OSPAR rate of oil loss threshold and the persistence threshold. The outcome of the CA concluded that leaving the pile in-situ was the recommended management option over other methods that resulted in extensive pile disturbance.

5 INTERESTED PARTY CONSULTATIONS

5.1 Scope and Form of Consultation

The submission of the *Draft* Ninian North Platform Decommissioning Programme to BEIS triggered both statutory and public consultation.

Statutory consultees: consultation was undertaken with statutory consultees both informally during the preparation of the draft programme and formally within the statutory consultation process which ran for 30 days. Comments received and CNRI's responses are shown within Table 5.1. There were no objections to the proposals.

Public consultation: also forming part of the statutory consultation process, public consultation was invited through the placing of public notices in the following publications: The Daily Telegraph, Aberdeen Press & Journal and the Shetland Times. A sample copy of one of the notices appears in Appendix 3. No responses were received.

Other stakeholder consultations: stakeholders with whom CNRI had conducted pre-engagement dialogue (see Table 5.2 for details of the type of communication undertaken) were also invited to comment on the Draft Decommissioning Programme. Their consultation responses appear in Table 5.3. There were no objections to the proposals.

OSPAR review: by virtue of NNP's size and date of installation rendering the platform a derogation candidate under the OSPAR Decision 98/3, a consultation on a separate Derogation Application was undertaken by the UK government with the OSPAR Contracting Parties. Two comments were received following the review and are included in Table 5.4 along with responses.

5.2 Statutory Consultees Engagement and Comment

Table 5.1 Summary of Statutory Consultees' Comments	
Points raised during informal consultations	**Response**
National Federation of Fishermen's Organisation (NFFO)	
SFF represent the NFFO and the comments for both organisations have been combined below	n/a
Scottish Fishermen's Federation (SFF)	
• Consider access to the area for fishermen may be limited until area is opened up. • Understand how far the contamination of the drill cuttings pile extends, potential for contamination of catch. • Understand distance between jacket footings and the pipeline cutting points where positive isolations will take place.	Information provided by e-mail and during stakeholder workshop on drill cuttings extent and positive isolations.
Northern Irish Fish Producers Organisation	
E-mailed and invited to attend to stakeholder workshop, no response	n/a
Global Marine Systems Limited	
E-mailed and invited to attend to stakeholder workshop, no response	n/a
Public Consultation	
Public stakeholder event held on 7th December 2016. • Proposals for derogation application to BEIS under OSPAR for jacket decommissioning. • Consideration of new technologies. • Requirement for safe marking of footings post-decommissioning. • Opportunities to consult with onshore facilities and councils regarding disposal operations.	Refer to Stakeholder Report (P0005-CNR-PM-REP-00004)
Responses to statutory consultations	
Comment	**Response**
Scottish Fishermen's Federation (SFF)	
• Concerns are primarily the safety and physical impact on the fishing grounds from long term presence. • Preference is for a 'Decommissioned Awareness Zone' to be in place upon removal of 500m zone. • Support independent verification of the seabed and future monitoring programmes especially in relation to drill cuttings piles. • Appreciate openness and wish to continue to work closely and positively with CNRI.	Agree and will continue to work with SFF and OPRED on the proposal for 'Decommissioned Awareness Zones'.

Public Consultation	
No further responses received.	n/a

5.3 Communications Methods Summary

This section indicates the methods used to communicate and consult with other, non-statutory stakeholders prior to the formal consultation.

1) Website ☑ 2) Newsletter ☐ 3) Individual Correspondence ☑
4) Stakeholder event ☑ 5) 1-1 meetings ☑ 6) Media information ☐

Table 5.2 Summary of Other Stakeholder Activity			
Informal Consultations record			
Activity	**Activity**	**Activity**	**Activity**
Website	March 2017 onwards	1, 3	www.cnri-northsea-decom.com publishing of key documents supporting the decommissioning programme and Contact Us link for queries
Environmental Impact Assessment Scoping Consultation	August 2016	1, 3	Note of interest form distributed to wider stakeholder community to understand level of interest. EIA scoping report issued for comment (Stakeholder Report describes responses fully)
Stakeholder Event	December 2016	4	Refer to Stakeholder Report for full list of attendees and summary of feedback.
Platform crew	May 2016 onwards	1, 5	Presentations and briefings provided by decommissioning team members.
Section 29 Non Equity Holders	August 2016 onwards	3, 5	Correspondence and meetings with JX Nippon and ENI UK. JX Nippon attendance at stakeholder event.
OPRED Decommissioning Unit	June 2016 onwards	3, 4, 5	Regular meetings to report on development of Decommissioning Programme, e-mail and telephone contact, attendance at stakeholder event
Health and Safety Executive	October 2016 onwards	3, 4, 5	Regular meetings to report on development of Decommissioning Programme, e-mail and telephone contact, attendance at stakeholder event.
Scottish Environmental Protection Agency	August 2016 onwards	3, 4, 5	1-1 meetings to discuss the content of the Decommissioning Programme, attendance at stakeholder event.
Scottish Fisherman's Federation	June 2016, onwards	3, 4, 5	Regular meetings held to update on the development of the Decommissioning Programme, attendance at the Comparative Assessment and stakeholder event.
Joint Nature Conservation Committee (JNCC)	August 2016 onwards	3, 4	Early consultation on baseline survey scope in 2010. Comments provided on EIA Scoping report. Attendance at stakeholder event.
Marine Scotland	August 2016 onwards	3, 4	Provided comments on EIA Scoping report, e-mail and telephone contact, attendance at stakeholder event.
Royal Society for the Protection of Birds	March 2017	3, 4	Correspondence received during public consultation. Attendance at stakeholder event.

Greenpeace	August 2016	3	Provided comments on receipt of the EIA Scoping report. Due to limited resources, could not represent at the stakeholder event.

5.4 Responses to Statutory Consultations by Interested Stakeholders

Table 5.3: Consultations – Summary of Responses (Non-Statutory Consultees)		
Responses to statutory consultations by interested stakeholders		
Who	**Comment**	**Response**
Greenpeace		
Reiterates support for OSPAR Decision 98/3 but does not support OSPAR's approach to the treatment of drill cuttings piles. Position is that full characterisation of piles should be undertaken and full removal of drill cuttings piles where technically feasible.		Support for OSPAR Decision 98/3 also reiterated by CNRI. As such, CNRI has fulfilled its responsibilities as currently required by the international community but continues to liaise with regulators and other operators on the development of characterising drill cuttings piles in future.
JX Nippon, ENI UK (Section 29 Notice Holders)		
JX Nippon – provided minor comments to the Decommissioning Programme and Derogation Application. ENI UK – meeting held and no material comments.		Addressed where required in the documentation.
Northern Lighthouse Board		
Content with the scoping report and on receipt of marine licence application would reply formally through the regulator or as a consultee regarding the safe marking and lighting of the platform and jacket.		Noted – correspondence with NLB will continue through the Consent to Locate permitting process.
Royal Yachting Association		
Noted that few recreational vessels pass nearby NNP, although it is possible, noted that measures should be in place to mark the platform and 500m zone to protect recreational sailors.		Noted – mitigation measures will be agreed and implemented through the Consent to Locate permitting process.
RSPB Scotland		
No objections to the proposals in principal as long as the works are carried out in line with the proposed environmental control measures.		Noted.

Table 5.4: OSPAR Review of Derogation Application – Summary of Reponses		
Contracting Party	**Comment**	**Response**
Germany (Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit)	Objection to the Comparative Assessment process used to support the recommendation to seek an OSPAR derogation to leave footings in situ.	The Comparative Assessment covered a wide range of options. The process also included a detailed sensitivity analysis and additional modelling undertaken in response to the German representation, but the outcome of the CA remained the same.
Netherlands (Ministry of Infrastructure and Environment)	Expressed support to the Derogation Application.	Response noted.

6 PROGRAMME MANAGEMENT

6.1 Project Management and Verification

A CNRI project management team will be appointed to manage the operations of competent contractors selected for the well abandonment, decommissioning, and removal and disposal scopes of work.

Operational controls, hazard identification and risk management will be governed by CNRI's Safety, Health and Environmental Management System. The work will be coordinated with due regard to the interfaces with other operators' oil and gas assets and with other users of the sea.

CNRI will control and manage the progress of all permits, licences, authorisations, notices, consents and consultations required. Any changes to this decommissioning programme will be discussed with BEIS and approval sought.

6.2 Post-Decommissioning Debris Clearance and Verification

The base case for removal of the topsides is between 2020 and 2021 and removal of the jacket between 2021 and 2023. The exact removal of the topsides and jacket will be determined by the removals contractor and dependent on vessel availability.

6.2.1 Interim Status

In order to maintain the structural integrity of the topsides required for single lift, the topsides will be separated from the jacket at approximately +7.4m above LAT. The remaining structure will be marked by Navigational Aids that are in compliance with the BEIS Standard Marking Schedule requirements. After the topsides have been removed, an as-left survey of the jacket will be conducted. The maintenance of the Navigational Aids up until jacket removal is described further in section 6.7. The 500m safety zone will remain in place until the jacket is removed.

Sacrificial anodes provide local protection of the jacket and whilst the topsides are present, there is further regional protection provided by the impressed current system. CNRI has conducted a jacket longevity study[6] that assessed the integrity status of the jacket in-situ and demonstrated that the structure's integrity could be maintained following topsides removal. The study considered removal as late as 2032; however, the removals contract awarded for NNP will be to remove the jacket on or before 2023, which is well within the window of the longevity study.

6.2.2 As-left status

Once the jacket has been removed to the derogation height, a post-decommissioning site survey will be carried out within a 500m radius of the installation.

[6] Atkins NNP Jacket Longevity Study, 2016, 5146328-320-REP-ST-001

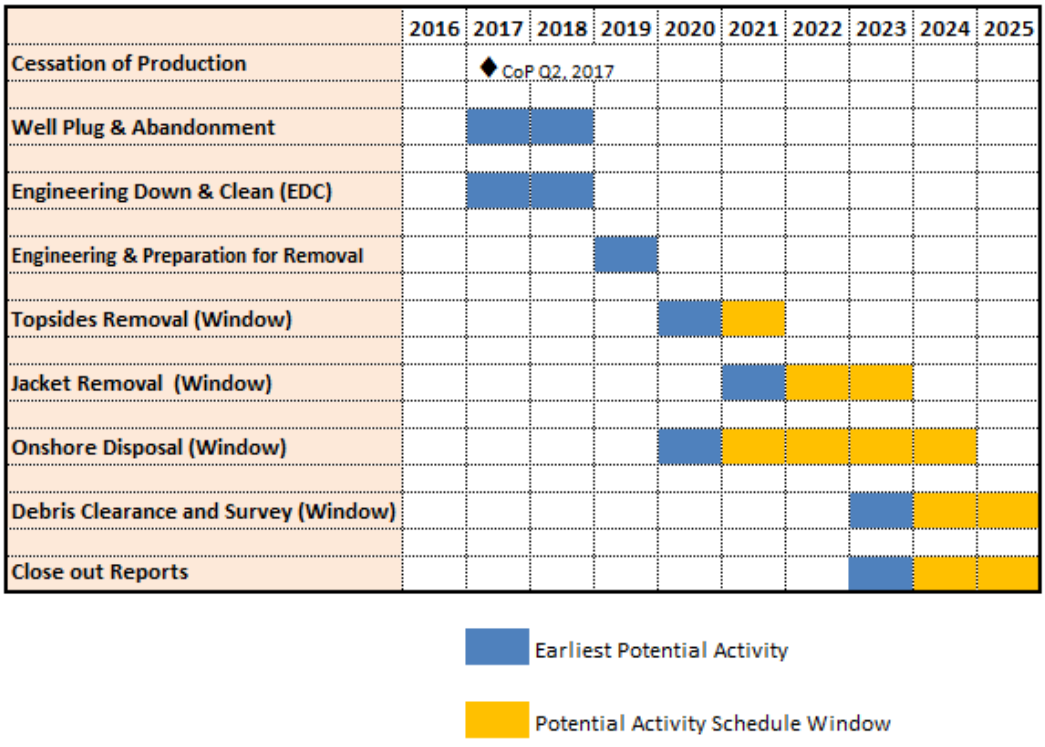
Oilfield related seabed debris will be recovered during wider Ninian field decommissioning, for onshore disposal or recycling in line with existing disposal methods. Debris remaining within the jacket footings footprint will be left *in situ*.

Independent verification of the seabed state will be obtained by trawling the platform area outside the jacket footings footprint. This will be followed by statements of clearance to all relevant government departments and non-governmental organisations.

The post-decommissioning survey results will be notified to the FLTC for inclusion in their FishSAFE system, and to the United Kingdom Hydrographic Office (UKHO) for notification and marking on Admiralty Charts and Notices to Mariners.

6.3 Indicative Schedule

Figure 6.1: Indicative Schedule of Project Plan



Preparations for removal of the topsides will commence in 2019 with full topsides removal between 2020 and 2021. The jacket will be removed on or before 2023.

6.4 Costs

Table 6.1 – Provisional Decommissioning Programme costs	
Item	**Estimated Cost (£m)**
Operator Project Management	Provided to BEIS
Facility Running/ Owner Costs	
Well Abandonment	
Facilities/ Pipeline Making Safe	
Topsides Preparation	
Topsides Removal	
Substructure Removal	
Topside and Substructure Onshore Recycling	
Subsea Infrastructure (pipelines, umbilicals, mattresses, SSIV)	
Site Remediation	
Monitoring	
TOTAL	Provided to BEIS

6.5 Close Out

6.5.1 Interim Close Out

An interim close out report will be provided to BEIS following the removal of the topsides.

6.5.2 Final Close Out

A close out report will be submitted to BEIS within 12 months of the completion of the offshore decommissioning scope, including debris removal, independent verification of seabed clearance and the first post-decommissioning environmental survey. Any variances from the approved decommissioning programme will be identified in the close out report.

6.6 Post-Decommissioning Monitoring and Evaluation

A post decommissioning environmental seabed survey will be carried out in the vicinity of the NNP following removal of the jacket between 2021 and 2025. The survey will focus on chemical and physical disturbances resulting from the completed decommissioning operations and will be compared with the pre-decommissioning survey.

A survey of the condition of the footings and the adjacent seabed will also be undertaken at the end of the removal activities. The footings will be subject to a regular monitoring programme, with survey frequency discussed and agreed with BEIS. Survey results will be available once the work is complete, with a copy forwarded to BEIS.

After the surveys have been reviewed by BEIS, a post-monitoring survey regime will be agreed by both parties. Typically a minimum of two post-decommissioning environmental surveys are expected.

6.7 Management of Residual Liability

In the interim stage whilst the jacket remains in-situ and above sea level, the 500m exclusion zone will also remain and there will be no residual liability concerns. Navigational Aids will be in place to mitigate the potential risk of ship collision. These will be manufactured in such a way that they can be accessed for maintenance and a process will be in place to monitor and rectify any issues for the period that they are in use. A Consent to Locate will be applied for and engagement with the relevant statutory bodies such as the Northern Lighthouse Board will be conducted to agree the specific markers. CNRI will develop maintenance and monitoring procedures that will include remote monitoring, periodic maintenance and testing in compliance with the Consent to Locate. The design, manufacture, installation and maintenance of the Navigational Aids will be assured via an independent verification scheme and will be further defined in the Safety Case.

CNRI has conducted a jacket longevity study on NNP to assess the condition of the jacket from topsides removal[7]. The study has been reviewed and accepted by the CNRI's Structural Technical Authority. In addition, the most recent ROV survey of the jacket conducted during 2016 and currently under review has not, to date, presented any anomalies. Inspections and surveys will be undertaken as part of the engineering phase for topsides removals and at this point an assessment will be made as to whether the need for regular inspections is required.

Following removal of the jacket to the derogation height, NNP will no longer be classed as an installation (as defined in the Offshore Installations and Pipeline Works (Management and Administration) Regulations (MAR) 1995) by the Offshore Safety Directive and as such the 500m safety zone will be removed. The risks associated with leaving the footings in-situ have been assessed in the CA and are summarised below.

Long term risks to fishermen of leaving the footings in-situ were evaluated based on available fishing activity data and determined that the potential loss of life due to snagging is of the order 2.30E-05 (1 in 43,103 years) and is in a range that is determined 'tolerable' under the ALARP principle[8]. The mitigations in place to ensure that this is as low as reasonably practicable include the marking of the footings on Admiralty Charts, appropriate Notice to Mariners and entering the footings on the FLTC's FishSAFE to alert fishermen to the structure.

Collision risk associated with passing shipping traffic has also been considered. Based on the under keel clearance of the footings of NNP, only vessels actively engaged in fishing, in circumstances where the aforementioned safeguards have been bypassed, are assumed to be able to interact with the structure. Vessels steaming on passage will be able to pass safely over the installation. Consideration will be made to a sub-sea safety zone if it is deemed that this is appropriate, for example, if increased shipping traffic is foreseen when decommissioning of the wider Ninian Field takes place.

Following topsides and jacket removal, the footings, pipelines and remaining subsea infrastructure remains in-situ, will be subject to mitigations put in place to ensure that the risk to other users of the sea is minimised. The SSIV structure adjacent to the jacket is fishing friendly and pipelines are marked on Admiralty charts and included in the FishSAFE database. Disused Pipeline Notifications will be submitted to BEIS in order to accept these pipelines into the Interim Pipeline Regime (IPR); part of this process will be the agreement between BEIS and CNR on the future survey interval for the pipelines whilst in the IPR. Routine surveys carried out on pipelines in the IPR allow for detection of any change in the condition of the pipeline (relevant to the hazard it represents to other users of the sea), and any evidence of interaction with fishing gear. Any features identified by these surveys that meet the criteria for inclusion on FishSAFE will be reported in order for this information to be made available to fishermen.

In the close out report described in Section 6.5, the company responsible for the subsequent management of on-going residual liabilities including managing and reporting the results of the agreed post-decommissioning monitoring (described in Section 6.6), evaluation and remedial programme, will be detailed. The company will also be the contact point for any third party claims arising from damage caused by any remains from the NNP decommissioning programme. The NNP footings which are proposed to be left in place remain the property and responsibility of the licensees.

[7] Atkins NNP Jacket Longevity Study, 2016, 5146328-320-REP-ST-001
[8] Anatec Ninian Pipelines and Platform Fishing Risk Analysis, 2013, NNDECOM-ATC-EN-ETN-00037

7 SUPPORTING DOCUMENTS

Table 7.1: Supporting Documents	
Document Number	**Title**
1	Comparative Assessment (derogation)
2	Environmental Statement
3	Stakeholder Report

Current versions of the supporting documents are available (on the 'Decommissioning Programme' page) at: http://www.cnri-northsea-decom.com.

8 INDEPENDENT VERIFICATION STATEMENT

ITPENERGISED
Earth. Smart. Solutions

15 February 2017 Our Ref: 10644-001

Independent Review Consultant – Verification Statement

Ninian North Decommissioning Comparative Assessment

This statement has been prepared by ITPEnergised (ITPE) in compliance with the (former) UK Department of Energy and climate Change (DECC) Decommissioning Guidance Notes on independent expert verification[1]. As Independent Review Consultant (IRC) appointed by CNR International (U.K.) Limited, ITPE undertook a review of the Ninian North Platform Comparative Assessment, which can be summarised as follows:

- Review and risk based appraisal of a series of technical reports undertaken to inform the Comparative Assessment;
- Review of proposed methods of evaluation for the Comparative Assessment[2];
- Attendance at Comparative Assessment workshops in a review capacity;
- Review of stakeholder engagement strategy and EIA Scoping Report consultation;
- Attendance at stakeholder consultation workshop in a review capacity; and
- Review of draft Environmental Statement and Decommissioning Programme.

As concluded in the IRC report[3], ITPE verifies that:

- The supporting technical documents which informed the comparative assessment were thorough and in line with good practice.
- The comparative assessment was undertaken in a transparent manner following a structured approach.
- As described in CNRI draft Comparative Assessment report[4] there is sufficient information in place for CNRI to support the development of the Ninian Northern Decommissioning Programme.
- CNRI has undertaken a thorough and transparent stakeholder consultation/engagement programme throughout the project.

Issued: Associate Director

Checked and approved: Director

[1] DECC Guidance Notes on Decommissioning of Offshore Oil and Gas Installations and Pipelines under the Petroleum Act 1999, URN09D/734, version 6 March 2011
[2] Ninian Northern Platform Decommissioning Report, Comparative Assessment Procedure, report reference P00005-CNR-PM-PRO-00001
[3] Ninian North Platform Decommissioning Comparative Assessment, Independent Review Consultant Report, ITP Energised Report 10644-001 February 2017
[4] Ninian Northern Platform Decommissioning Report – Jacket and Drill Cuttings Pile Comparative Assessment, report reference P00005-BMT-PM-REP-00001, November 2016

APPENDIX 1: ESTIMATED WASTE INVENTORY

Material	Approximate Quantity (Tonnes)	Location
ABS Plastic	To be quantified	Unknown at this stage
Ac 228	To be quantified Present in NORM scale	Process pipework
Alloy Steel	To be quantified	Unknown at this stage
Aluminium	1.70	
Aluminium Bronze	To be quantified	Unknown at this stage
Americium-241	0.02	Present in smoke detectors
Anodes (total)	1,970.00	Subsea
Asbestos Blue	To be quantified onshore	Unknown at this stage
Asbestos White/Brown	To be quantified onshore	Unknown at this stage
Asbestos Total	112 locations	Platform wide
Batteries NiCd	27.30	
Batteries Lead	2.40	
Biocides by type (including TBT)	To be quantified	Unknown at this stage
Brass	To be quantified	Unknown at this stage
Bronze	To be quantified	Unknown at this stage
Buna	To be quantified	Unknown at this stage
Butyl Rubber	To be quantified	Unknown at this stage
Carbon Steel	9,658.20	
Cement Powder	To be quantified	Present in drilling cement storage
Cement	106.00	
Ceramics (all types)	To be quantified	Unknown at this stage
CFC/HCFC	273.28	Present in refrigeration systems
Chartex/fire protection	363.20	
Chloro paraffins	1.00	
Chromium	To be quantified	Unknown at this stage
Copper	871.90	
Copper nickel alloys	To be quantified	Unknown at this stage
Cork	To be quantified	Unknown at this stage
Cotton	To be quantified	Unknown at this stage
Diesel	To be determined after completion of engineering down clean	Present in diesel distribution system
Drill Cutting Residues	To be quantified	Unknown at this stage
EPDM	To be quantified	Unknown at this stage
Ethylene/Polypropylene	447.00	Cables
Fire Extinguishers	To be quantified	Unknown at this stage
Fire Foam	To be quantified	Unknown at this stage
Brominated Flame Retardants	0.20	Present in cellular rubber
Fluorescent Tubes	3.50	Platform wide/ lighting
Formica	To be quantified	Unknown at this stage
Glass	To be quantified	Unknown at this stage

Material	Approximate Quantity (Tonnes)	Location
Glycol	To be quantified after completion of engineering down clean	Chemical injection system
Glass Reinforced Plastic (GRP)	To be quantified	
Graphite/Charcoal	To be quantified	Unknown at this stage
Gun Metal	To be quantified	Unknown at this stage
Heli-fuel	Not present	No present
Hydrocarbons	11.00	
Inconel/Nimonics	To be quantified	Unknown at this stage
Insulation (rockwool)	57.50	Platform wide
Iron (cast)	To be quantified	Unknown at this stage
Lead	10.90	
Marine Growth	2,117.00	Jacket structure
Mercury	26.80	Fluorescent tubes, level switches and assumed scale in process pipework
Methanol	To be determined after completion of engineering down clean	Chemical injection system
NORM Scale	To be quantified	Process pipework, vessels
Neoprene	To be quantified	Unknown at this stage
Ni-Resist	To be quantified	Unknown at this stage
Nylon	To be quantified	Unknown at this stage
Organotin	To be quantified	Unknown at this stage
Paint	80.00	Paint samples positive for heavy metals, phthalates, chlorinated paraffin
Pb-210	Present in NORM	Process pipework, vessels
PCB	0.10	
PTFE	To be quantified	Unknown at this stage
Plastics	648.90	
PVC	To be quantified	Unknown at this stage
Radium (Ra-226)	Present in NORM	Process pipework, vessels
Radium (Ra-228)	Present in NORM	Process pipework, vessels
Residual HC	To be determined after completion of engineering down clean	
Rubber	56.40	
Sewage	To be quantified	Unknown at this stage
Smoke Detectors	0.20	
Stainless Steel	579.30	
Satellite	To be quantified	Unknown at this stage
Tin	To be quantified	Unknown at this stage
Titanium	To be quantified	Unknown at this stage
Wood	4.70	
Zinc	2.90	

Note that hazardous waste is estimated and in some cases has not yet been quantified; therefore further surveys will be undertaken either offshore or at the onshore transition point.

APPENDIX 2: STATUTORY CONSULTEES CORRESPONDENCE

SCOTTISH FISHERMEN'S FEDERATION

Our Ref: SA/NNP_DP01

Your Ref:

16th March 2017

Scottish Fishermen's Federation
24 Rubislaw Terrace
Aberdeen, AB10 1XE
Scotland UK

T: +44 (0) 1224 646944
F: +44 (0) 1224 647058
E: sff@sff.co.uk

www.sff.co.uk

Gabriel Neves
CNR International (U.K) Ltd
St Magnus House
Guild Street
Aberdeen
AB11 6NJ

Dear Gabriel,

Ninian North Platform Draft Decommissioning Programme – Public Consultation

I refer to your email of 3rd March 2017 advising that the Ninian North Platform (NNP) Draft Decommissioning Programme (along with supporting) documentation was available for public consultation. Please find below feedback on the documentation from the Scottish Fishermen's Federation (SFF).

The SFF appreciates the clearly laid out and detailed explanation of CNR International (U.K.) Limited's proposals for the decommissioning of the aforementioned platform and place on record our appreciation of the information provided and discussions held at various Stakeholder Engagement sessions as well as the one to one sessions with the Federation.

As highlighted previously, the concerns of fishermen remain primarily that of safety and the physical impact on the fishing grounds of the long term presence of oil industry infrastructure on the seabed. With this in mind, the SFF's preferred position with regard to the decommissioning of oil and gas infrastructure is one of total removal.

The SFF expresses its disappointment, but is not surprised, to see that the selected option for the NNP jacket is 'leave in place', with partial removal down to the top of the jacket footings (between -77.5m and -88.5m below Lowest Astronomical Tide). The Federation appreciates that there are safety concerns, technical considerations and cost implications involved in attempting to remove such structures. However, if the legs are to remain and cause an obstruction, as a general principle, the fishing view is that they should be visible to the skippers and crews of vessels fishing in the area.

From Decommissioning Programmes reviewed and Comparative Assessments attended to date, the SFF is aware that the safety of decommissioning personnel is often weighed up against that of other users of the sea. As you will appreciate, where an operator decides to adopt a 'leave in situ' approach due to concerns for the safety of personnel engaged in decommissioning operations, a consequence of this may be to put

fishermen at risk at some point in the future. It is the Federation's hope that going forward, advancements in technology, for example, in the use of Diver-less tools, will make it more feasible to remove obsolete oil and gas structures.

With regard to the marking of the NNP jacket footings, the SFF is in agreement with CNR's assumption that the 500m Safety Zone (SZ) will disappear once the jacket is removed. Rather than a statutory subsea SZ coming into force for the footings (and drill cuttings), our preference for marking the area in question would be in the form of an 'Oil & Gas Decommissioned Awareness Zone', where the size of the zone (500m or less preferably) would be agreed in relation to the footprint of the footings (and drill cuttings), and where the awareness would only be required for when a fishing vessel is engaged in fishing operations and not for when a vessel is simply on transit. We are pleased to see that an independent verification of the seabed state will be obtained by trawling the platform area outside the jacket footings footprint following the decommissioning of the jacket and that the footings will be subject to a regular monitoring programme, with survey frequency discussed and agreed with BEIS.

In relation to drill cuttings, we note that the selected decommissioning option is 'leave in place' undisturbed to degrade naturally. We further note that modelling of the drill cuttings pile, indicates that the NNP cuttings pile falls below both thresholds in OSPAR Recommendation 2006/5. Although deemed within OSPAR Recommendation 2006/5 thresholds, as highlighted during earlier engagements, the fishing industry still has concerns of the potential dangers (human consumption wise) of a fishing vessel inadvertently trawling over drill cuttings piles resulting in catch contamination and this is a matter where the SFF feels that more research / clarification is required to ascertain whether and, if so, when is it deemed safe for fishermen to tow in the vicinity of drill cuttings. It is noted that post-decommissioning monitoring of the Ninian Field will determine if any new contamination has occurred during decommissioning, and that the long-term monitoring programme of the Field, to be agreed with BEIS, will provide data with which to determine if recovery is taking place as well as informing on any future disturbance of the drill cuttings pile due, in time, to the collapse of jacket footings members.

The Federation having stated the above position, would reaffirm its continued appreciation of the openness of the dialogue hitherto and its wish to continue to work closely and positively with the NNP Decommissioning Project Team, as you work through the challenges before you.

Yours sincerely,

Steven Alexander
Offshore Liaison

APPENDIX 3: PRESS NOTICE FOR PUBLIC CONSULTATION

PUBLIC NOTICE

Petroleum Act 1998

NINIAN NORTHERN PLATFORM DECOMMISSIONING PROGRAMME

CNR International (U.K) Limited has submitted, for the consideration of the Secretary of State for Business, Energy and Industrial Strategy, a draft Decommissioning Programme for the Ninian Northern 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.

The items/ facilities covered by the Decommissioning Programme are:

The Ninian Northern Platform installation located 120 km North East of the Shetland Islands in UK Block 3/3, latitude and longitude coordinates 60° 54' 21.830" N; 01° 25' 16.460" E. The installation comprises a steel platform and drill cuttings pile.

CNR International (U.K.) Limited hereby gives notice that a summary of the Ninian Northern Platform Decommissioning Programme can be viewed online at www.cnri-northsea-decom.com (see 'Decommissioning Programme' page).

Alternatively, a CD version of the programme can be requested or hard copy inspected at the following location during office hours:

CNR International (U.K.) Limited
St Magnus House
Guild Street
Aberdeen
AB11 6NJ
Contact: Gabriel Neves or Ceri Wheaton
Tel: 01224 303600
nnp.decom@cnrl.com

Interested parties are kindly requested to submit any representations in writing to the above address for the attention of Gabriel Neves or Ceri Wheaton by the consultation closing date, 2nd April 2017, including the rationale upon which any representations are being made.

3rd March 2017

CNR International