

Heather Alpha Platform Topsides Decommissioning Programme



DOCUMENT CONTROL

Document ID:		M3524-ENQ-HEA-DN-0000-REP-0007	
Document Classification:		PUBLIC	
Document Ownership:		Decommissioning	
Date of Document:	25/02/20	Signature	Date
Prepared by:	S. Axon	<i>S. Axon</i>	09/04/21
Reviewed by:	C. Wheaton	<i>C. Wheaton</i>	09/04/21
Approved by:	W. Black	<i>W. Black</i>	09/04/21

REVISION RECORD

Revision No.	Date of Revision	Reason for Issue
A1	30/03/20	Issued for internal and Partners Review
A2	06/10/20	Issued to OPRED for review and comment
A3	23/12/20	Issued incorporating OPRED comments
A4	24/03/21	Issued incorporating OPRED comments
A5	09/04/21	Issued for Statutory Consultation

DISTRIBUTION LIST

Company	No. of copies
Offshore Petroleum Regulator for Environment and Decommissioning	1 electronic
GMG, NFFO, NIFPO, SFF	1 electronic each
Ithaca Oil & Gas Limited	1 electronic
B.G. Great Britain Limited	1 electronic

<u>TABLE OF CONTENTS</u>		<u>INST</u>	<u>P/L</u>
1. Executive Summary	7	✓	
1.1 Decommissioning Programme	7	✓	
1.2 Introduction	7	✓	
1.3 Heather – Overview	8	✓	
1.4 Summary of Proposed Decommissioning Programme	9	✓	
1.5 Field Locations including Field Layout and Adjacent Facilities	13	✓	
1.6 Industrial Implications	15	✓	
2. Description of Items to Be Decommissioned	16	✓	
2.1 Part of Heather Installation: Topsides	16	✓	
2.2 Wells	16	✓	
2.3 Inventory Estimates	19	✓	
3. Removal and Disposal Methods	20	✓	
3.1 Use of Waste Framework Directive	20	✓	
3.2 Topsides Decommissioning	20	✓	
3.3 Well Decommissioning	29	✓	
3.4 Waste Streams	29	✓	
4. Environmental Appraisal	31	✓	
4.1 Impact Management	31	✓	
5. Interested Party Consultations	32	✓	
5.1 Informal Consultations	32	✓	
6. Programme Management	33	✓	
6.1 Project Management and Verification	33	✓	
6.2 Post-Decommissioning Debris Clearance and Verification	33	✓	
6.3 Schedule	33	✓	
6.4 Costs	35	✓	
6.5 Close Out	35	✓	
6.6 Post-Decommissioning Monitoring and Evaluation	35	✓	
Appendix A Heather Baseline Environment	36	✓	
Appendix A.1 Summary of Characteristics & Sensitivities	36	✓	
Appendix B Public Notice & Consultee Correspondence	37	✓	
Appendix B.1 Public Notices (HOLD)	37	✓	
Appendix B.2 Correspondence with Statutory Consultees (HOLD)	37	✓	

FIGURES AND TABLES

Figure 1.4.1: Heather Alpha Platform view on South Face	10
Figure 1.4.2: Heather Platform view on North Face	11
Figure 1.4.3: Heather Platform view on West Face.....	11
Figure 1.4.4: Heather Platform view on East Face.....	12
Figure 1.4.5: Heather Platform Ariel View.....	12
Figure 1.5.1: Heather Field location in UKCS	13
Figure 2.3.1: Pie-Chart of Estimated Inventories for Heather Topsides	19
Figure 3.2.1: View looking North.....	21
Figure 3.2.2: View looking East	21
Figure 3.2.3: View looking South	22
Figure 3.2.4: View Looking West	22
Figure 3.2.5: Schematic of Heather Topsides.....	23
Figure 3.2.6: Framing Plan @Cellar Deck EL.+26.750m	24
Figure 3.2.7: Framing Plan, Top of Steel, Production Deck EL+28.880m	25
Figure 3.2.8: Framing Plan Top of Steel, Drilling Deck EL+28.880m	26
Figure 3.2.9: Heather Topsides – Exploded View	27
Figure 6.3.1: Gantt-chart of project plan	34
Table 1.3.1: Installations being decommissioned	8
Table 1.3.2: Drill Cutting(s) pile information	8
Table 1.3.3: Installation Section 29 notice holder details	8
Table 1.3.4: Broom riser Section 29 notice holder details	8
Table 1.4.1: Summary of decommissioning programme	9
Table 1.5.1: Adjacent facilities	14
Table 2.1.1: Heather Topsides Information.....	16
Table 2.2.1: Well Information.....	16
Table 3.2.1: Cleaning of Heather topsides for removal	28
Table 3.2.2: Heather Topsides removal method	28
Table 3.3.1: Well Decommissioning	29
Table 3.4.1: Waste stream management methods	29
Table 3.4.2: Inventory disposition	29
Table 3.4.3: Re-use, recycle & disposal aspirations for recovered material	30
Table 4.1.1: Environmental Impact Management	31
Table 5.1.1: Summary of stakeholder comments.....	32
Table A.1.1: Summary of environmental characteristics and sensitivities	36

ABBREVIATION	EXPLANATION
~, <, >	Approximate; Less than; More than
AB	Deprecated term 'Abandoned' but included in Table 2.2.1 to indicate extent to which wells have been decommissioned (Phase 1, Phase 2, etc.)
ALQ	Additional Living Quarters
CNRI	CNR International (U.K.) Limited
DP	Decommissioning Programme
ELQ	Extra Living Quarters
EnQuest	EnQuest Heather Limited
EU	European Union
FishSAFE	The FishSAFE database contains a host of oil & gas structures, pipelines, and potential fishing hazards. This includes information and changes as the data are reported for pipelines and cables, suspended wellheads pipeline spans, surface & subsurface structures, safety zones& pipeline gates (www.fishsafe.eu)
FPSO	Floating Production Storage & Offloading Vessel
GMG	Global Marine Group
Heather	Heather Alpha
HSE	Health and Safety Executive
ICES	International Council for the Exploration of the Sea
in	inch
jacket	substructure that supports topsides
km	Kilometre
m	Metre(s)
m ²	Square Metre(s)
m ³	Cubic Metre(s)
m/s	Metres per second
MAT, SAT	Master Application Template, Supplementary Application Template
MBES	Multi-Beam Echo Sounder (which is a sonar-based seabed imaging system)
MPA	Marine Protected Area
N,S,E,W	North, South, East, West
n/a	Not Applicable
NFFO	National Federation of Fishermen's Organisations
NIFPO	Northern Ireland Fish Producers Organisation
NORM	Naturally Occurring Radioactive Material
OBM	Oil Based Mud
OGA	Oil and Gas Authority
OPEP	Oil Pollution Emergency Plan
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning, a department of BEIS (Department for Business, Energy and Industrial Strategy)
OSPAR	Oslo Paris Convention
PL	Pipeline Identification numbers (UK)
PL9	Heather Alpha 16" Gas Export Pipeline
Platform	Installation, typically comprising topsides and jacket
PON	Petroleum Operations Notification
SFF	Scottish Fishermen's Federation
SLV	Shear Leg Vessel
SSCV	Semi-Submersible Crane Vessel
Taqa	Taqa Europa B.V.
Te	Tonne

ABBREVIATION	EXPLANATION
Topsides	Upper part of a platform that in the case of Heather includes accommodation, drilling facilities, and process facilities to process oil and gas from the reservoir
Total	Total Exploration & Production UK Limited
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
WGS84	World Geodetic System 1984

1. EXECUTIVE SUMMARY

1.1 Decommissioning Programme

This document concerns the Heather Alpha topsides Decommissioning Programme.

The remaining jacket and pipeline infrastructure covered by notices under Section 29 of the Petroleum Act 1998 will be subject to Decommissioning Programme, Environmental Appraisal and Comparative Assessment submissions later. Removal of the topsides will not preclude available decommissioning options for the Heather Alpha jacket.

Although removal of the Heather Alpha topsides is being treated in this document as a standalone project, EnQuest will continue to explore cost saving synergies with other projects.

Installations: In accordance with the Petroleum Act 1998, EnQuest Heather Limited (as operator of the Heather field), and on behalf of the Section 29 notice holders (Table 1.3.3), is applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for decommissioning the Heather topsides as detailed in Section 2 of this document. Partner Letters of Support will be provided directly to OPRED.

In conjunction with public, stakeholder and regulatory consultation the Decommissioning Programme is submitted in compliance with national and international regulations and OPRED guidance notes. The schedule outlined in this document is for a 3-year period to remove the topsides completely and return it to shore for recycling, and disposal due to begin in 2024.

1.2 Introduction

The Heather installation is in block 2/5 of the United Kingdom Continental Shelf (UKCS), it is a fixed installation providing manned production, drilling, and utilities facilities Heather is a fully integrated offshore installation consisting of a modular topsides and piled steel jacket. The Heather field is located approximately 458km NNE of Aberdeen in a water depth of ~143m.

The installation was installed in 1977/78, with first oil being produced on 6th October 1978.

Decommissioning of the jacket and the pipelines (PL9, PL352, PL9A and the umbilical) associated with Heather will be discussed in separate Decommissioning Programmes, and so for brevity shall not be discussed further. As the risers and umbilicals are fixed to the jacket, these will remain in place for decommissioning at a later stage, however sections that interface between the jacket and topsides will be cleaned and removed to facilitate topsides removal.

The Heather platform is also host to a number of risers and umbilicals associated with the Broom development tied back to Heather. These include PL2693 (formerly PL2003), PL2004, PL3758 (formerly PL2005), PL2006, PL2007 and PLU2008. These will be subject to separate Decommissioning Programmes. Broom partners will be kept informed of developments and have confirmed directly to OPRED their acceptance of Cessation of Production of Broom and acceptance of proposals to disconnect the risers and umbilicals.

The Cessation of Production justification for Heather was accepted by the Oil and Gas Authority on 18th June 2020. The Decommissioning Programme explains the principles of the removal activities and includes an assessment of the key environmental impacts and mitigations (Section 4.1).

1.3 Heather – Overview

1.3.1 Installations

Table 1.3.1: Installations being decommissioned			
Field(s):	Heather	Production Type	Oil
Water Depth (m)	~143m	UKCS Block	2/5
Surface Installations			
Number	Type	Weight	
1	Topsides	12,783Te	
Drill Cuttings piles ¹	Distance to median with Norway	Distance from nearest UK coastline	
57,240m ³	~50km	~94km NE of Shetland	

1.3.2 Drill Cuttings

Table 1.3.2: Drill Cutting(s) pile information ²		
Location of Pile Centre	Seabed Area (m ²)	Estimated Volume of drill Cuttings (m ³)
n/a	n/a	n/a

1.3.3 Section 29 Holders

Table 1.3.3: Installation Section 29 notice holder details		
Section 29 Notice Holder	Registration Number	Equity Interest
EnQuest Heather Limited	02748866	37.50%
Ithaca Oil and Gas Limited	01546623	31.25%
BG Great Britain Limited	00909162	31.25%

Table 1.3.4: Broom riser Section 29 notice holder details		
Section 29 Notice Holder	Registration Number	Equity Interest
EnQuest Heather Limited	02748866	63.0%
Ithaca Epsilon Limited	05979869	8.0%
Molgrowest (I) Limited	SC278868	26.0%
Molgrowest (II) Limited	04922555	3.0%
NOTE		
1. Details of the Section 29 Holders for the Broom partners is included for information only. Letters of support will not be required. Please refer section 1.2.		

¹ Volume of cuttings pile based upon Heater Pre-Decommissioning survey conducted in 2020;

² The drill cuttings pile is not being addressed as part of this decommissioning programme.

1.4 Summary of Proposed Decommissioning Programme

Table 1.4.1: Summary of decommissioning programme	
Proposed Decommissioning Solution	Reason for Selection
1. Topsides	
<p>Complete removal and recycling. The topsides will be recovered to shore and recycled.</p> <p>Cleaned equipment refurbished for re-use where possible. Equipment which cannot be re-used will be recycled or other disposal routes as appropriate.</p> <p>Any permit applications required for work associated with removal of the topsides will be submitted to the regulator as required.</p>	<p>Meets regulatory requirements and maximises opportunity for re-use or recycling or materials.</p>
2. Wells	
<p>All wells will be decommissioned to comply with HSE “Offshore Installations and Wells (Design and Construction, etc.) Regulations 1996” and in accordance with the latest version of the Oil & Gas UK Well Decommissioning Guidelines. The wells will be decommissioned using the platform-based facilities possibly supplemented by temporary equipment.</p> <p>A Master Application Template (MAT) and the supporting Subsidiary Application Template (SAT) will be submitted in support of works carried out. An application to decommission the wells will be made via the online Well Operations Notification System (WONS) on the OGA Energy Portal.</p>	<p>Meets the OGA and HSE regulatory requirements.</p>
3. Interdependencies	
<p>An assessment of alternative uses has been made for the Heather platform and there were no options that were considered economically viable. Due to timescales of decommissioning, separate decommissioning programmes will be submitted for both the Heather jacket and the pipeline infrastructure. The drill cuttings will be considered at this time.</p> <p>No third-party infrastructure will be disturbed as a result of the decommissioning proposals.</p>	



Figure 1.4.1: Heather Alpha Platform view on South Face



Figure 1.4.2: Heather Platform view on North Face



Figure 1.4.3: Heather Platform view on West Face



Figure 1.4.4: Heather Platform view on East Face



Figure 1.4.5: Heather Platform Ariel View

1.5 Field Locations including Field Layout and Adjacent Facilities

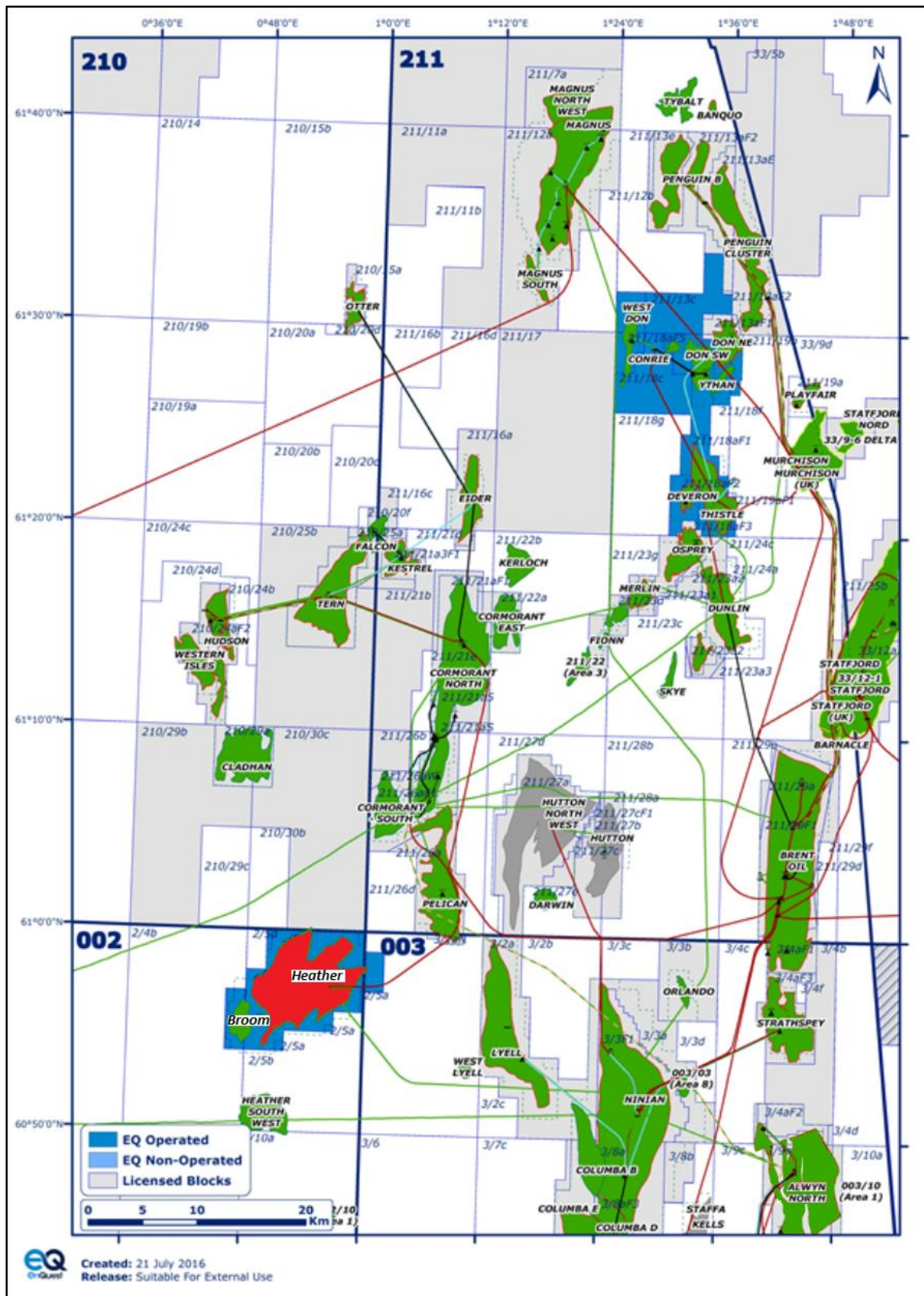


Figure 1.5.1: Heather Field location in UKCS

Table 1.5.1: Adjacent facilities

Owner	Name	Type	Direction & Distance To...	Information	Status
Dana Petroleum	Western Isles	FPSO	NNW, 31km		Operational
Taqa	Tern	Fixed Steel Platform	NNW, 36km		Operational
Taqa	Cormorant North	Fixed Steel Platform	N, 34km		Operational
Taqa	Cormorant Alpha	Fixed Steel Platform	NNE, 18km		Operational
CNRI	Ninian Northern	Fixed Steel Platform	E, 27km	DP approved June 2019	Decommissioned
CNRI	Ninian Central	Fixed Gravity Based Structure	E, 31km		Operational
CNRI	Ninian Southern	Fixed Steel Platform	ESE, 32km		Operational
Taqa	PL4 (36in Oil)	PL4 (36in Cormorant to Sullom Voe Pipeline)	NW, 10km		Operational
Total	PL1526 (12in Oil)	PL1526 (12in Alwyn to Cormorant Oil Export Pipeline)	NE, 11km		Operational
EnQuest	PL10 (36in Oil)	PL10 (36in Ninian Central to Grutwick Main Oil Line)	SSE, 12km		Operational
CNRI	PL2473	PL2473 & PL9 Crossing	ESE, 22km	PL2743 (Ninian South to Lyell B) crosses over PL9	Operational
CNRI	PL869A	PL869A & PL9 Crossing	E, 23km	PL869A (Lyell 10" MEOH Pipeline) crosses over PL9	Not in use
CNRI	PL864A	PL864A & PL9 Crossing	E, 23km	PL864A (Lyell 12" Water Injection Pipeline) crosses over PL9	Operational
CNRI	PL866A	PL864A & PL9 pipeline crossing	E, 24km	PL866A (Lyell 8" Test Pipeline) crosses over PL9	Not in use
Impacts of decommissioning proposals					
There are no direct impacts on adjacent facilities from the decommissioning works associated with removal of the Heather topsides.					

1.6 Industrial Implications

The Heather topsides Decommissioning Programme will be managed by EnQuest to ensure safe, efficient and legally compliant delivery of the various elements of the decommissioning scope. The intention is to make efficient use of the supply chain to generate value through the application of knowledge, innovation and technology, explore collaboration opportunities and to employ best practice in the management of the supply chain to deliver a cost effective and reliable service. Where appropriate existing framework agreements may be used for decommissioning activities.

2. DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

2.1 Part of Heather Installation: Topsides

Table 2.1.1: Heather Topsides Information					
Name	Facility Type	Location		Part of Installation	
		WGS84 Decimal		Weight (Te)	No of modules
		WGS84 Decimal Minute			
Heather Alpha	Topsides	60.953705° N 00.938692° E		12,783	33
		60° 57.2223' N 00° 56.3215' E			

2.2 Wells

Table 2.2.1: Well Information			
Well ID	Designation	Status	Category of Well ³
2/05-H1	Oil production	Shut in	PL-4-3-3
2/05-H2	Side-tracked to H55	Decommissioned, AB1	PL-0-3-3
2/05-H3	Side-tracked to H58	Decommissioned, AB1	PL-0-3-3
2/05-H4	Side-tracked to H60	Decommissioned, AB1	PL-0-3-3
2/05-H5		Decommissioned, AB1	PL-0-3-3
2/05-H5Y	Water injection	Shut in	PL-3-3-3
2/05/H5Z		Decommissioned, AB1	PL-0-3-3
2/05-H6	Oil production	Decommissioned, AB1	PL-0-0-3
2/05-H7	Water Injection	Shut in	PL-3-3-3
2/05-H8	Side-tracked to H48	Decommissioned, AB1	PL-0-3-3
2/05-H9		Decommissioned, AB3	PL-0-0-0
2/05-H9Z		Decommissioned, AB3	PL-0-0-0
2/05-H10	Side-tracked to H36	Decommissioned, AB1	PL-0-3-3
2/05-H10Z	Side-tracked to H36	Decommissioned, AB1	PL-0-3-3
2/05-H11		Decommissioned, AB1	PL-0-3-3
2/05-H11Z	Oil production	Decommissioned, AB1	PL-3-3-3
2/05-H12	Water injection	Decommissioned, AB1	PL-0-3-3
2/05-H13	Oil production	Shut in	PL-3-3-3
2/05-H14	Side-tracked to H49	Decommissioned, AB1	PL-0-3-3
2/05-H15	Side-tracked to H51	Decommissioned, AB1	PL-0-3-3
2/05-H16	Side-tracked to H24	Decommissioned, AB1	PL-0-3-3
2/05-H17	Side-tracked to H44	Decommissioned, AB1	PL-0-3-3
2/05-H18	Side-tracked to H63	Decommissioned, AB1	PL-0-3-3
2/05-H19	Oil production	Shut in	PL-3-3-3

³ The category of well is subject to change as detailed engineering progresses.

Table 2.2.1: Well Information			
Well ID	Designation	Status	Category of Well ³
2/05-H20	Oil production	Shut in	PL-3-3-3
2/05-H21	Suspended	Decommissioned, AB1	PL-0-3-3
2/05-H22	Oil production	Decommissioned, AB2	PL-0-0-3
2/05-H23	Side-tracked to H62	Decommissioned, AB1	PL-0-3-3
2/05-H23Z		Decommissioned, AB1	PL-0-3-3
2/05-H24	Side-tracked to H40	Decommissioned, AB1	PL-0-3-3
2/05-H25	Side-tracked to H56	Decommissioned, AB1	PL-0-3-3
2/05-H26	Water injection	Shut in	PL-3-3-3
2/05-H27	Side-tracked to H45	Decommissioned, AB1	PL-0-0-3
2/05-H28	Side-tracked to H57	Decommissioned, AB1	PL-0-3-3
2/05-H29	Side-tracked to H43	Decommissioned, AB1	PL-0-3-3
2/05-H30	Side-tracked to H49	Decommissioned, AB1	PL-0-3-3
2/05-H31		Decommissioned, AB1	PL-0-3-3
2/05-H31Z	Oil production	Decommissioned, AB1	PL-0-3-3
2/05-H32	Water injection	Shut in	PL-3-3-3
2/05-H33	Oil production	Shut in	PL-3-3-3
2/05-H34	Oil production	Decommissioned, AB1	PL-0-3-3
2/05-H35	Side-tracked to H53	Decommissioned, AB1	PL-0-3-3
2/05-H36	Side-tracked to H59	Decommissioned, AB1	PL-0-3-3
2/05-H36Z		Decommissioned, AB1	PL-0-3-3
2/05-H37	Side-tracked to H67	Decommissioned, AB1	PL-0-3-3
2/05-H38	Oil production	Shut in	PL-3-3-3
2/05-H39	Side-tracked to H54	Decommissioned, AB1	PL-0-3-3
2/05-H40	Oil production	Shut in	PL-3-3-3
2/05-H41	Oil production	Shut in	PL-3-3-3
2/05-H42	Oil production	Shut in	PL-3-3-3
2/05-H43	Oil production	Decommissioned, AB1	PL-0-3-3
2/05-H44	Side-tracked to H64	Decommissioned, AB1	PL-0-3-3
2/05-H45	Water injection	Decommissioned, AB2	PL-0-0-3
2/05-H46	Water injection	Shut in	PL-3-3-3
2/05-H47	Side-tracked to H65	Decommissioned, AB1	PL-0-3-3
2/05-H48	Side-tracked to H66	Decommissioned, AB1	PL-0-3-3
2/05-H49	Oil production	Shut in	PL-3-3-3
2/05-H50	Water injection	Decommissioned, AB1	PL-3-3-3
2/05-H51	Water injection	Shut in	PL-3-3-3
2/05-H52	Water injection	Shut in	PL-4-3-3
2/05-H53	Oil production	Shut in	PL-3-3-3

Table 2.2.1: Well Information			
Well ID	Designation	Status	Category of Well ³
2/05-H54	Oil production	Decommissioned, AB1	PL-0-3-3
2/05-H55	Water injection	Shut in	PL-3-3-3
2/05-H56	Oil production	Shut in	PL-1-3-3
2/05-H57	Oil production	Decommissioned, AB1	PL-0-3-3
2/05-H57Z	Oil production	Decommissioned, AB1	PL-0-3-3
2/05-H58	Side-tracked to H61	Decommissioned, AB1	PL-0-3-3
2/05-H58Z	Oil production	Decommissioned, AB1	PL-0-3-3
2/05-H59	Oil production	Decommissioned, AB1	PL-0-3-3
2/05-H59Z	Oil production	Decommissioned, AB1	PL-0-3-3
2/05-H60	Oil production	Shut in	PL-1-3-3
2/05-H61	Oil production	Decommissioned, AB1	PL-0-3-3
2/05-H61Z	Oil production	Shut in	PL-3-3-3
2/05-H62	Oil production	Decommissioned, AB1	PL-0-3-3
2/05-H62Y	Oil production	Shut in	PL-3-3-3
2/05-H62Z	Oil production	Decommissioned, AB1	PL-0-3-3
2/05-H63	Oil production	Shut in	PL-3-3-3
2/05-H64	Water injection	Shut in	PL-1-3-3
2/05-H65	Oil production	Shut in	PL-1-3-3
2/05-H66	Oil production	Shut in	PL-1-3-3
2/05-H67	Oil production	Shut in	PL-1-3-3

For details of well categorisation see the latest version of the Oil & Gas UK Guidelines for the Decommissioning of Wells.

2.3 Inventory Estimates

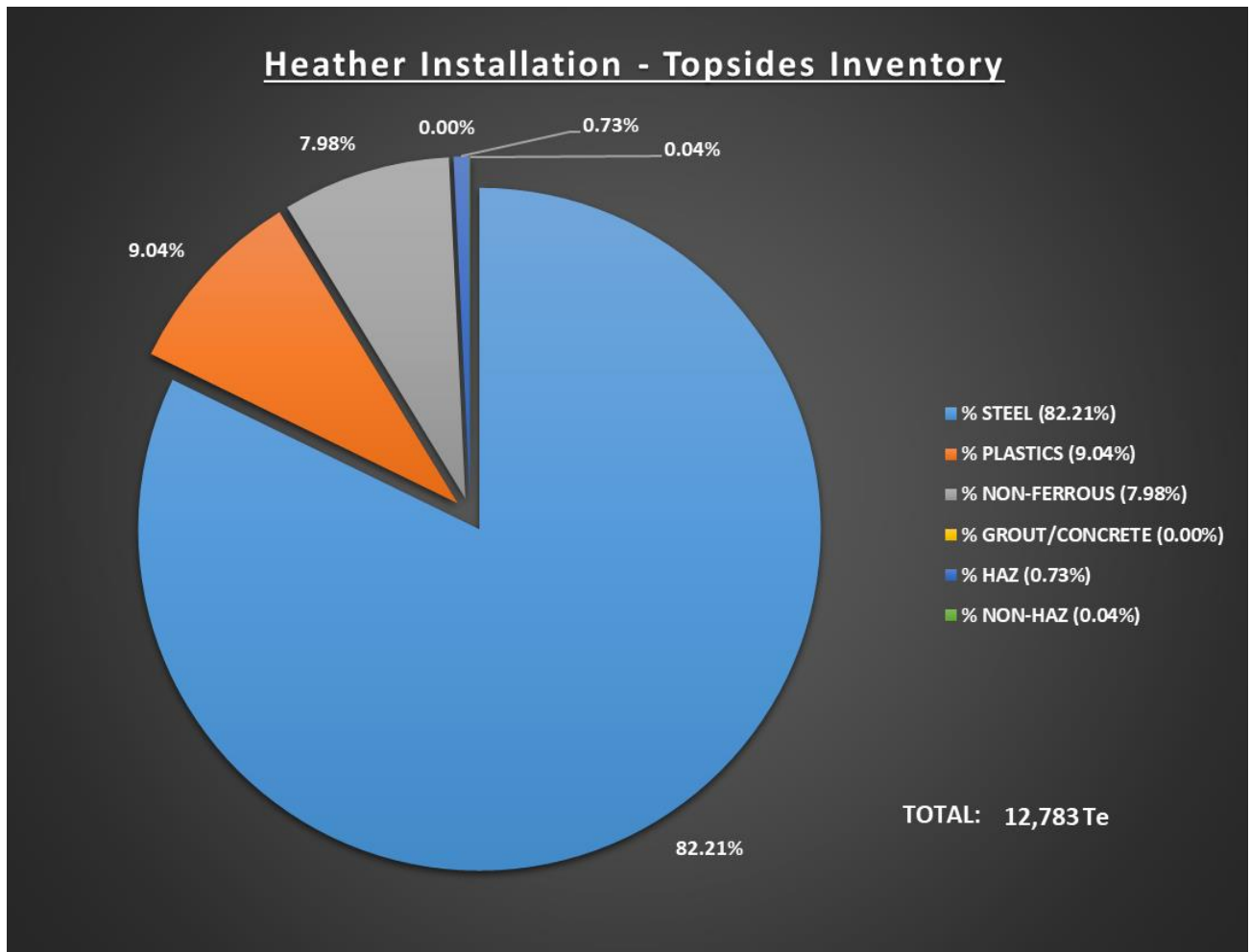


Figure 2.3.1: Pie-Chart of Estimated Inventories for Heather Topsides

3. REMOVAL AND DISPOSAL METHODS

3.1 Use of Waste Framework Directive

Waste will be dealt with in accordance with the Waste Framework Directive. The reuse of an installation or pipelines (or parts thereof) is first in the order of preferred decommissioning options. However, given the age of the installations and infrastructure it is unlikely that reuse opportunities will be realised. Waste generated during decommissioning will be segregated by type and periodically transported to shore in an auditable manner through licensed waste contractors. Steel and other recyclable metal are estimated to account for the greatest proportion of the materials inventory.

3.2 Topsides Decommissioning

3.2.1 Topsides Description

The topsides design consists of a series of modules that were installed separately on top of a two-piece deck support frame (Refer Figure 3.2.5). All modules are essentially truss framed with plated grillage decks (Refer Figure 3.2.6, Figure 3.2.7 & Figure 3.2.8).

The production deck comprises seven modules. Module A supports the drill derrick and spans the entire width of the platform while the remaining production modules span only from Frames A and B to the central tank. The modules were aligned and joined after installation to form trusses spanning the entire width of the platform. The drilling deck comprises a further six modules, all truss framed, and with plated grillage decks. These modules house the drilling utilities. There are two triangular steel framed, 170ft long, flare booms at the NE and NW corners.

The Heather topsides can accommodate up to 166 personnel. The main accommodation module is located at drilling deck level and is constructed of timber and glass reinforced plastic composite panels forming a cellular stressed skin structure. This module had additional fireproofing installed in 1990 to satisfy fire resistance fitness criteria and more passive fire protection coating was added in 2016. The helideck and its supporting structure are constructed with wood.

Additional Living Quarters (ALQ) are provided by an accommodation block consisting of four modules, each comprising four 2-man cabins. The ALQ is located on the pipe deck on the east side of the platform and linked to the existing Temporary Refuge via an enclosed linking corridor. The modules are welded together.

Further Extra Living Quarters (ELQ) consisting of six modules, each comprising two 2-man cabins are located on top of the ALQ on an independent support structure. The modules are bolted together and incorporate an internal corridor linking to the ALQ.

The platform was initially configured with two drilling derricks; one of these and its substructure was removed in 1984. The maximum hook capacity of the remaining drill derrick is 1,000,000 lbs and the derrick is fully clad. The drilling equipment was last refurbished in 2017.

The Broom risers are suspended from a deck extension off the north face of Module A at the Production Deck level. This deck extension is supported by a pair of braces from the Cellar Deck. A mezzanine deck is located 4m above the Production Deck level. The Broom methanol tank is installed on a deck extension to the western side of the skid deck, at its northern end.

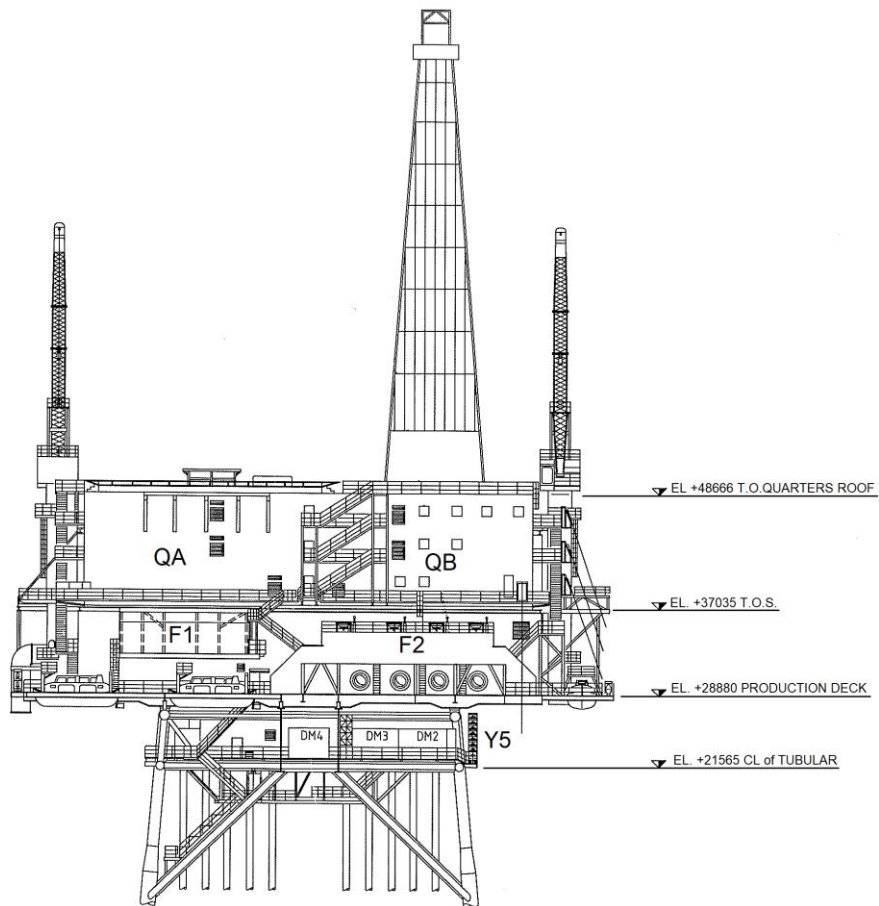


Figure 3.2.1: View looking North

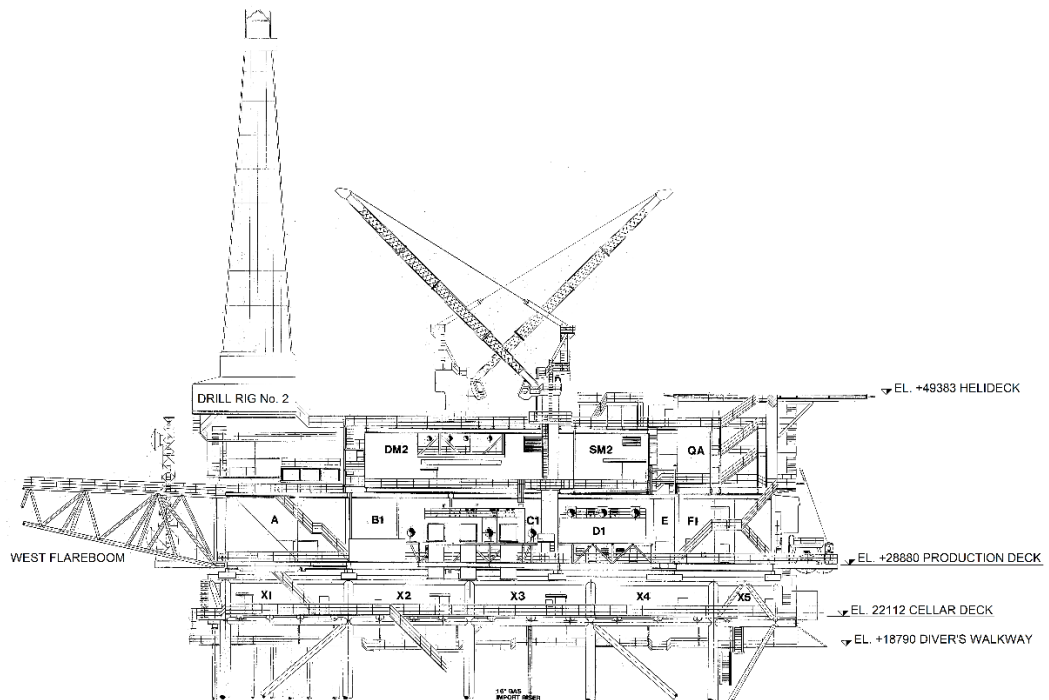


Figure 3.2.2: View looking East

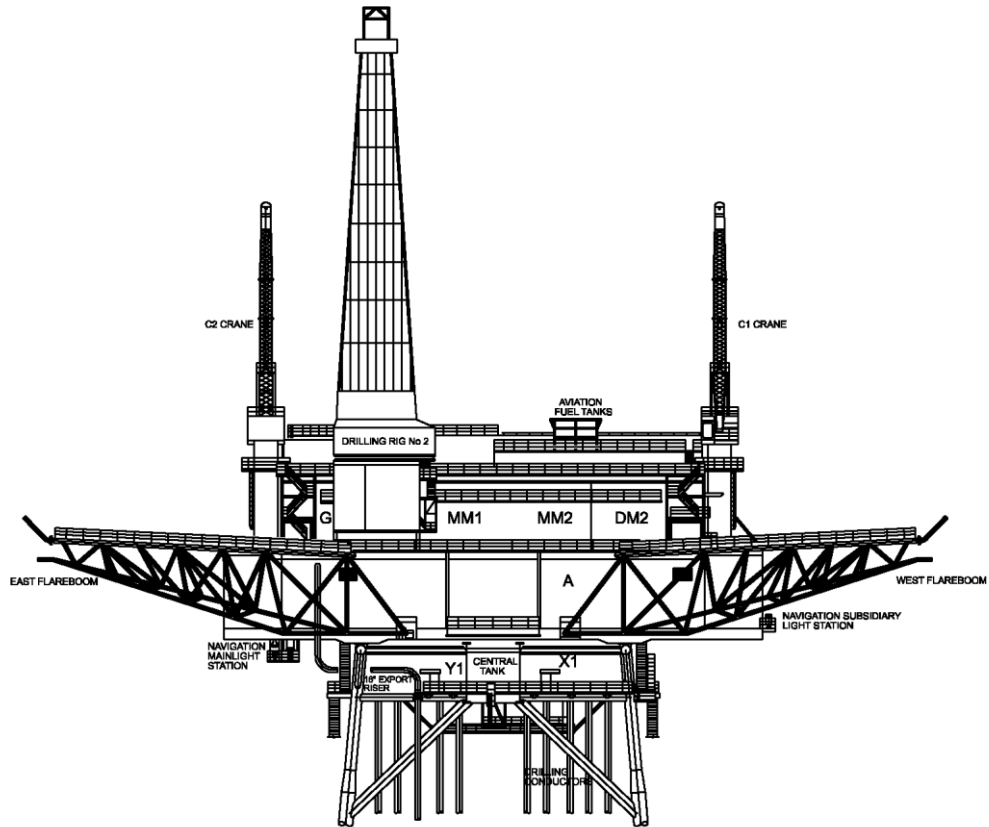


Figure 3.2.3: View looking South

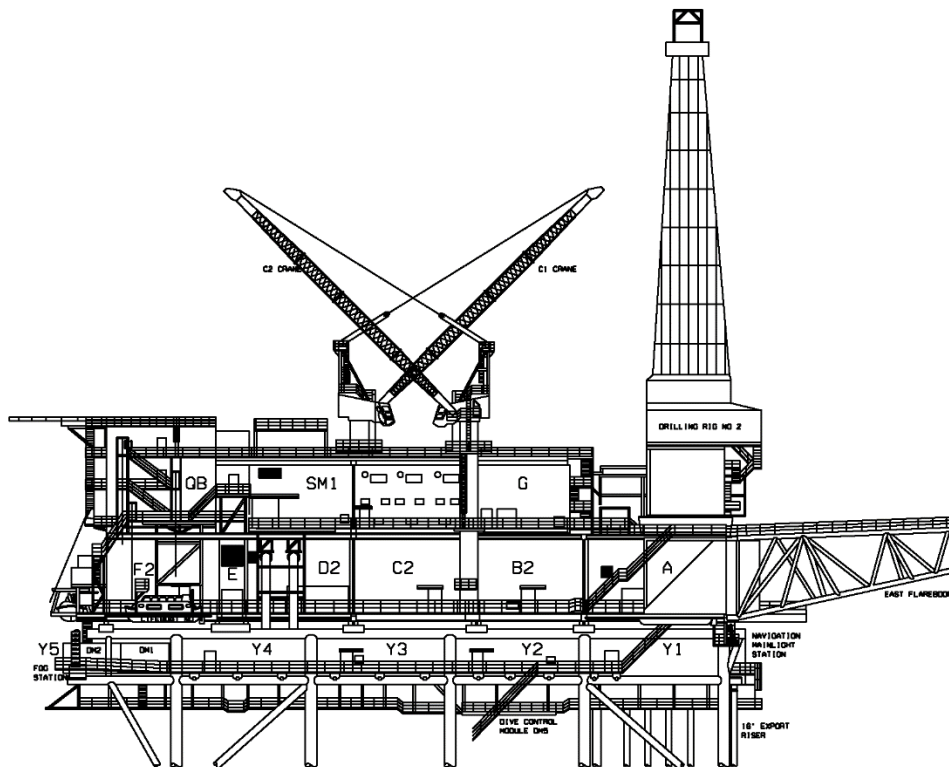


Figure 3.2.4: View Looking West

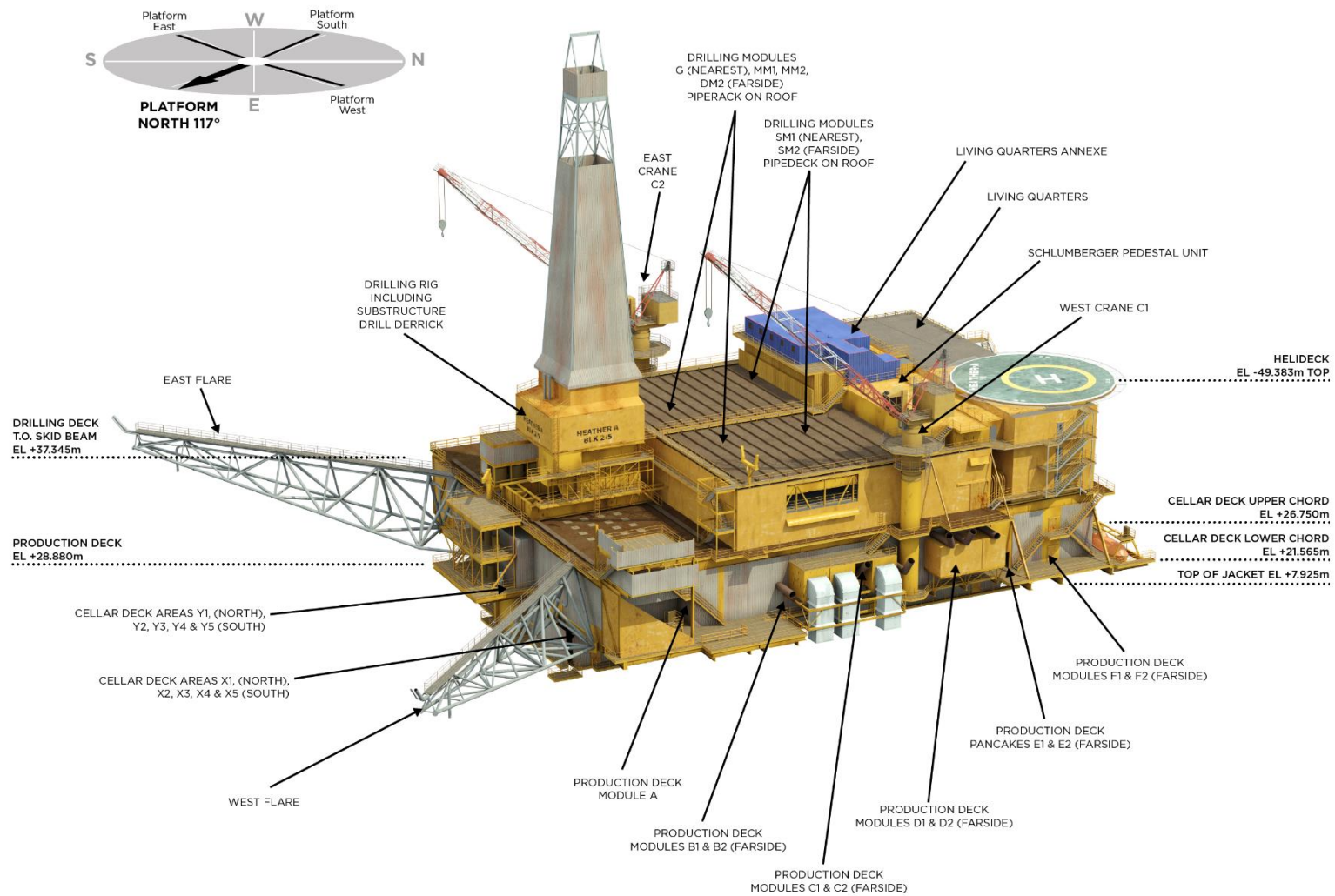


Figure 3.2.5: Schematic of Heather Topsides

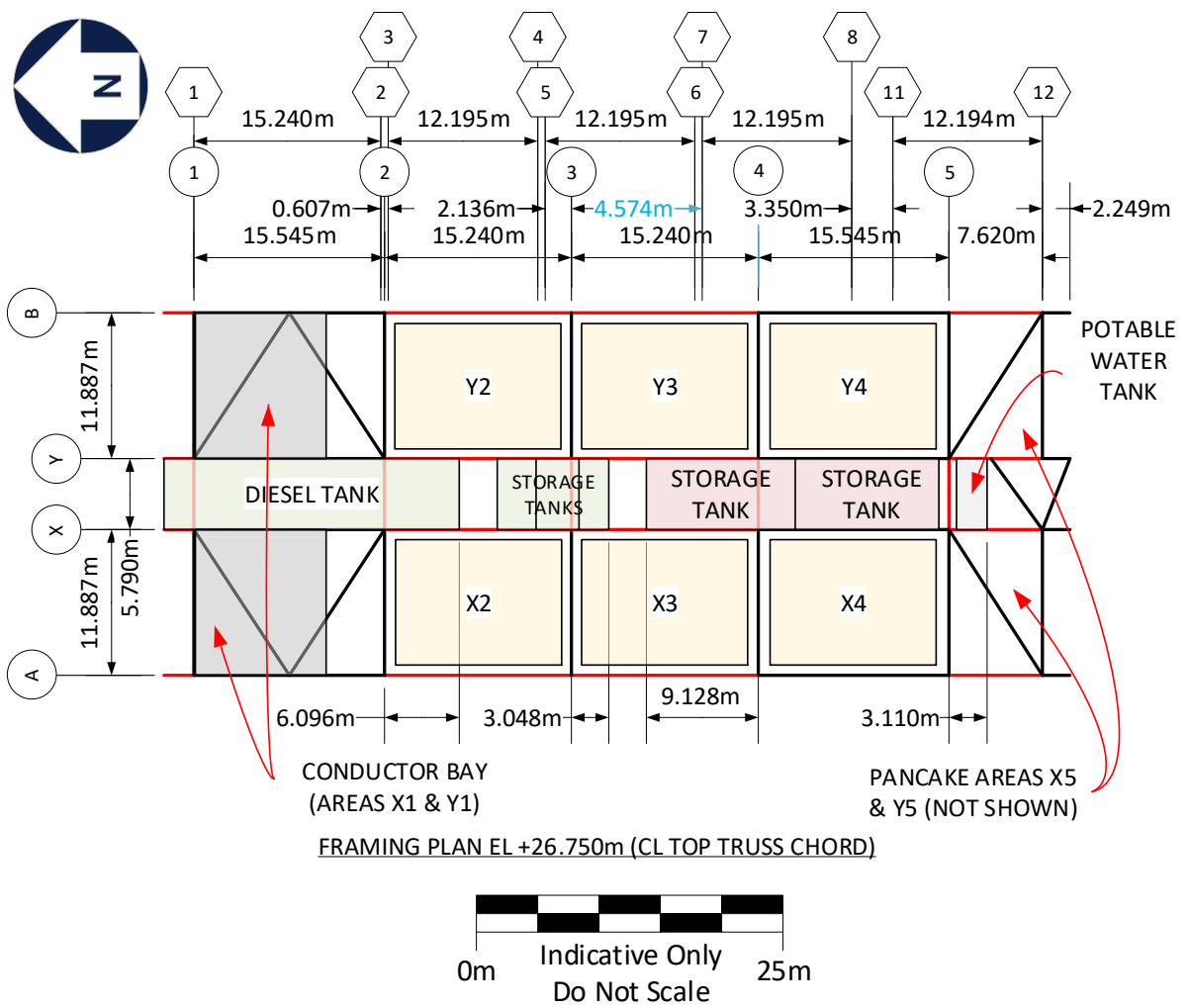
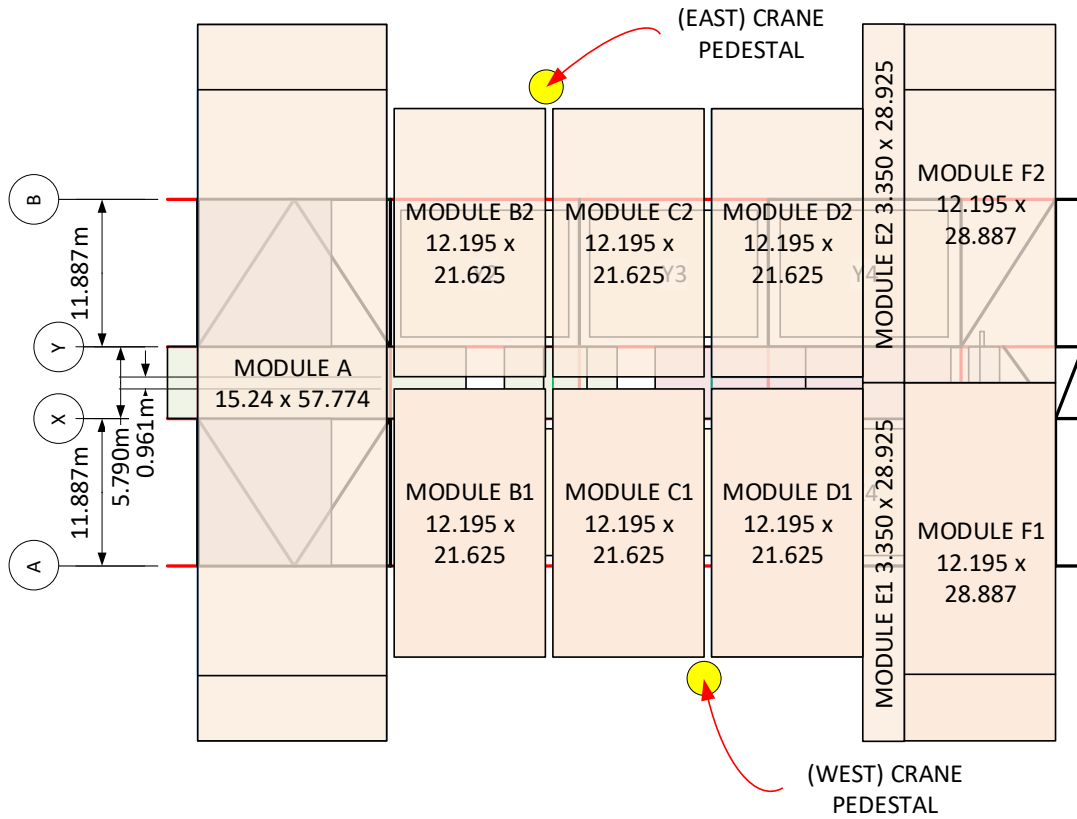
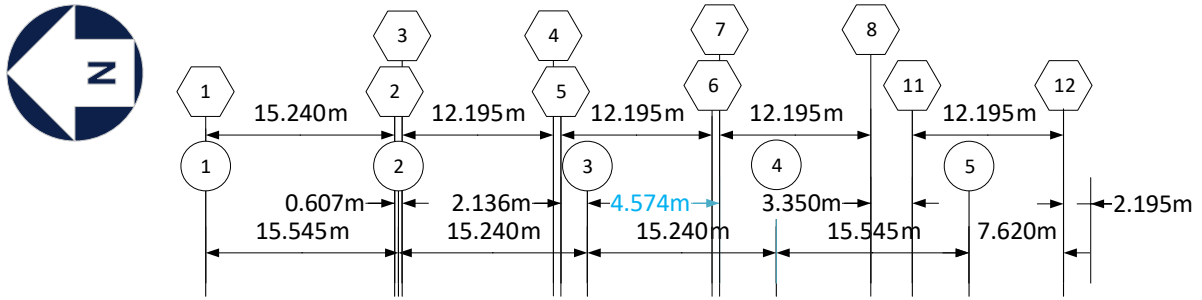


Figure 3.2.6: Framing Plan @Cellar Deck EL.+26.750m



FRAMING PLAN EL +28.880m (TOS, PRODUCTION DECK)

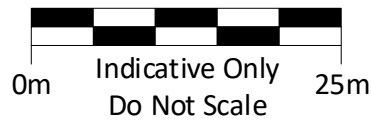
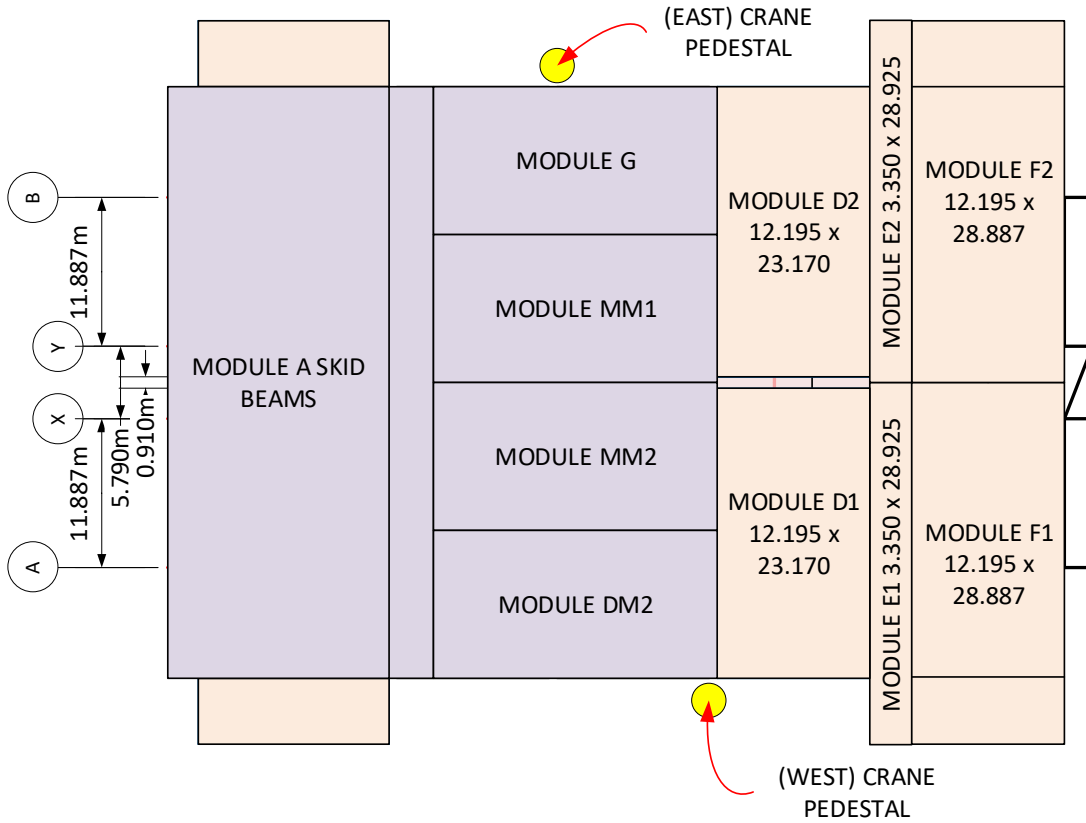
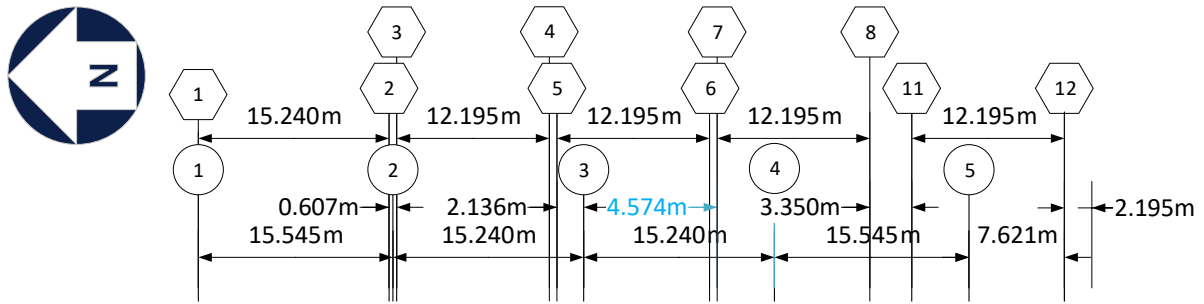


Figure 3.2.7: Framing Plan, Top of Steel, Production Deck EL+28.880m



FRAMING PLAN EL +37.035m (TOS, DRILLING DECK)

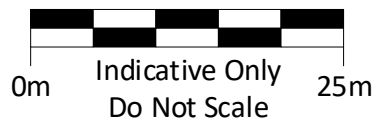


Figure 3.2.8: Framing Plan Top of Steel, Drilling Deck EL+28.880m

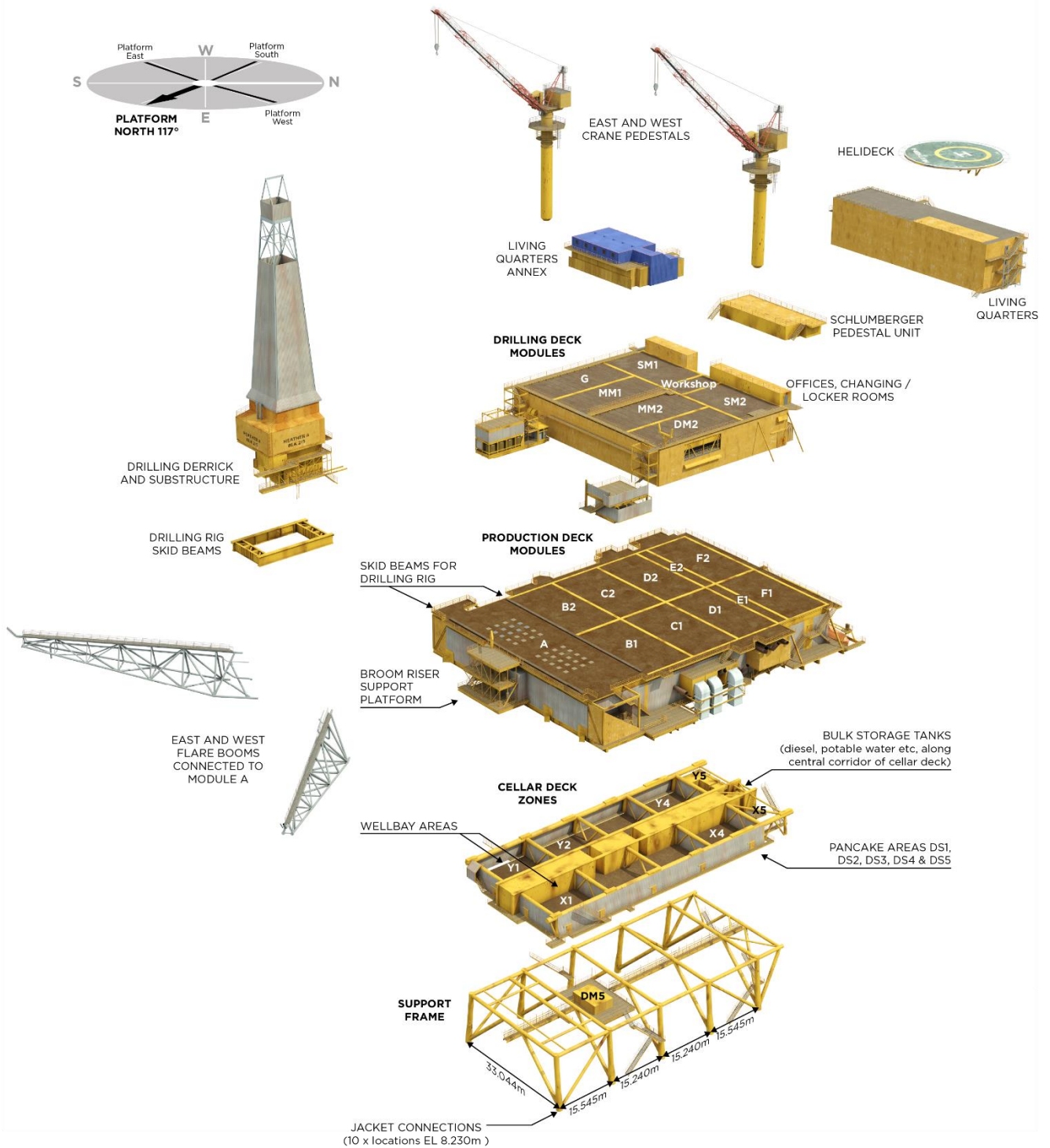


Figure 3.2.9: Heather Topsides – Exploded View

Preparation and cleaning: The methods that will be used to vent and purge the topsides equipment and pipework prior to removal to shore are summarised in Table 3.2.1.

Table 3.2.1: Cleaning of Heather topsides for removal		
Waste type	Composition of Waste	Disposal Route
Hydrocarbons	Process fluids	Will be flushed, Nitrogen purged vented and made liquid free and will be done under applicable MAT and SAT permits.
Production and drilling chemicals	Proprietary preparations and bulk chemicals	Equipment will be drained, flushed, and cleaned and residual effluent will be transported ashore for appropriate reuse, recycling, or disposal.
Produced solids	Sand, NORM	Any pipeline debris captured in filter packages, will be returned onshore for disposal. Any solids remaining in vessels will be removed and disposed of during the dismantlement of the Topsides onshore. Produced solids may be processed offshore prior to removal of topsides, or process onshore.
Diesel	Bunkered diesel fuel	Bunkered diesel will be drained and returned onshore for re-use or disposal.
Lubricating oils	Lubricants for equipment e.g. gearboxes, pumps, pedestal crane compressor skid	Lubricating oils will be drained and returned onshore for re-use or disposal.

Table 3.2.2: Heather Topsides removal method	
1) Single Lift Vessel <input checked="" type="checkbox"/> ; 2) Semi-Submersible Crane Vessel <input checked="" type="checkbox"/> ; 3) Hybrid <input checked="" type="checkbox"/> ; 4) Piece small <input checked="" type="checkbox"/> ; 5) Other <input type="checkbox"/>	
Method	Description
Single lift removal by SLV	Removal of topsides as complete unit by a single lift vessel and transported to an onshore decommissioning facility to be broken up for reuse, recycling or disposal
Modular removal by SSCV	Removal of the topsides modules and supporting structures by semi-submersible crane vessel. The resulting material would then be taken to an onshore decommissioning facility to be broken up for reuse, recycling or disposal
Piece small	Breaking up the topsides offshore using manual labour or mechanical excavators fitted with hydraulic shears etc. Materials would be transported to shore by ship or barge and sorted at an onshore decommissioning facility.
Other - Hybrid	Hybrid options of piece small and SSCV cut and lift may be feasible and would likely depend on the type of crane vessel being used.
Proposed removal method and disposal route	Removal of topsides followed by recovery to shore for reuse, recycling, and final disposal to landfill as appropriate. A final decision on the decommissioning method will be made following a feed study and commercial tendering process.

3.3 Well Decommissioning

Table 3.3.1: Well Decommissioning

The Heather fields hosts several wells as listed in Table 2.2.1. All wells will be decommissioned in accordance with latest version of the Oil & Gas UK Well Decommissioning Guidelines. A Master Application Template (MAT) and the supporting Subsidiary Application Template (SAT) will be submitted in support of works carried out. An application to decommission the wells will be made via the online Well Operations Notification System (WONS) on the OGA Energy Portal. Well decommissioning will be scheduled in accordance with the outline schedule presented in 6.3.

3.4 Waste Streams

Table 3.4.1: Waste stream management methods

Waste Stream	Removal and disposal method
Bulk liquids	Bulk and residual hydrocarbons will be removed from topsides, although small quantities of residues may remain. Any closed systems will be identified and managed before the topsides is removed. Further cleaning and decontamination will take place onshore prior to re-use or recycling.
NORM	Based on production records to date, NORM can be expected. As a precaution, tests for NORM will be undertaken offshore and any NORM encountered will be dealt with and disposed of in accordance with guidelines and company policies and any permit requirements.
Asbestos	Given the age of the facility it is likely that there will be asbestos. Any such material found will be dealt with and disposed of in accordance with guidelines and company policies.
Original paint coating	The presence of lead-based paints will be identified as these may give off toxic fumes or dust if flame-cutting, grinding or blasting is used so appropriate safety measures will be taken. Painted items will be disposed of with consideration given to any toxic components.
Other hazardous wastes	Discharge of cleaning chemicals offshore will be managed under appropriate permits. Other hazardous wastes will be recovered to shore and disposed of according to guidelines, company policies and permit requirements.
Onshore dismantling sites	Appropriate licensed sites will be selected. Dismantling site must demonstrate proven disposal track record and waste stream management throughout the deconstruction process and demonstrate their ability to deliver re-use and recycling options. If a non-UK yard is selected, appropriate Trans-frontier Shipment of Waste licences will be used.

Table 3.4.2: Inventory disposition

Inventory	Total inventory (Te)	Planned tonnage to shore (Te)	Planned left <i>in situ</i> (Te)
Heather Topsides	12,783	12,783	0

Table 3.4.3: Re-use, recycle & disposal aspirations for recovered material			
Inventory	Re-use	Recycle	Disposal (e.g. Landfill)
Heather Topsides	<5%	>95%	<5%

All recovered material will be transported onshore for re-use, recycling or disposal. Should synthetic materials be encountered the aspiration is that they would be incinerated, with the resultant heat being used for energy. It is not possible to predict the market for reusable materials with any confidence so the figures in Table 3.4.3 are aspirational. Given the age of the facility it is unlikely that much of the equipment recovered to shore would be suitable for reuse.

4. ENVIRONMENTAL APPRAISAL

4.1 Impact Management

There will be some planned and unplanned environmental impacts arising from decommissioning of the Heather topsides. Long-term environmental impacts from the decommissioning operations are expected to be low. Incremental cumulative impacts and trans-boundary effects associated with the planned decommissioning operations are also expected to be low.

Table 4.1.1: Environmental Impact Management		
Activity	Main Impacts	Management
Topsides removal	<p>Decommissioning of the topsides will require cutting of the structure above sea level and lifting activities using large lift vessels that are potentially anchored. The principal impacts will include:</p> <ul style="list-style-type: none"> • physical presence of vessels and equipment; • energy use and atmospheric emissions; • underwater noise from vessels; • noise from cutting operations; • discharges to the marine environment from vessels and residues from topsides; • disturbance of the seabed from anchors; • generation of waste materials. <p>Risks of additional impact will include:</p> <ul style="list-style-type: none"> • disturbance to the seabed from potential dropped objects; • accidental releases of hydrocarbons to the marine environment; • disruption to fishing or shipping during vessel transits. 	<p>The impacts associated with the topsides decommissioning operations are expected to be short-term, localised and of low significance provided the proposed mitigation measures are in place.</p> <p>Activities will be planned to be executed as efficiently as possible, minimising cutting to reduce potential noise impacts.</p> <p>The contractors' capability, processes and procedures will be subject to audit and evaluation as part of the selection process. Vessels will be audited as part of selection and pre-mobilisation and marine assurance standards will be adhered to.</p> <p>Cleaning and flushing of the topsides in preparation for removal will remove hydrocarbons as far as possible to reduce the risk of releases to sea.</p> <p>Vessels will be managed to minimise durations and on-board operational practices will address fuel efficiency, noise management, and minimise waste.</p> <p>DP vessels will be used in preference over vessels with anchors, however in the event these vessels are required, anchoring procedures will be developed. Risk assessments will be undertaken for the work at key stages throughout planning and execution.</p> <p>As part of the OPEP, specialist oil spill management and response services will be in place, to minimise impacts from potential releases to the marine environment.</p> <p>The waste hierarchy will be followed and only if other options are not possible will waste material be sent to landfill. EnQuest will monitor the performance of the contractors throughout operational activities. EnQuest will comply with EU and UK waste legislation and the requirements of duty of care.</p> <p>The assessment of potential cumulative impacts concludes that these are not anticipated to be significant.</p>

5. INTERESTED PARTY CONSULTATIONS

5.1 Informal Consultations

Table 5.1.1: Summary of stakeholder comments		
Who	Comment	Response
INFORMAL CONSULTATIONS		
NFFO		
NIFPO		
SFF		
CONSULTATIONS		
Who	Comment	Response
GMG		
NFFO		
NIFPO		
SFF		
Public		

6. PROGRAMME MANAGEMENT

6.1 Project Management and Verification

An EnQuest project management team will manage the operations of competent contractors selected for all decommissioning activities. The team will ensure the decommissioning is executed safely, in accordance with legislation and EnQuest Health and Safety principles. If required, changes to the Decommissioning Programme will be discussed with OPRED with any necessary approvals sought.

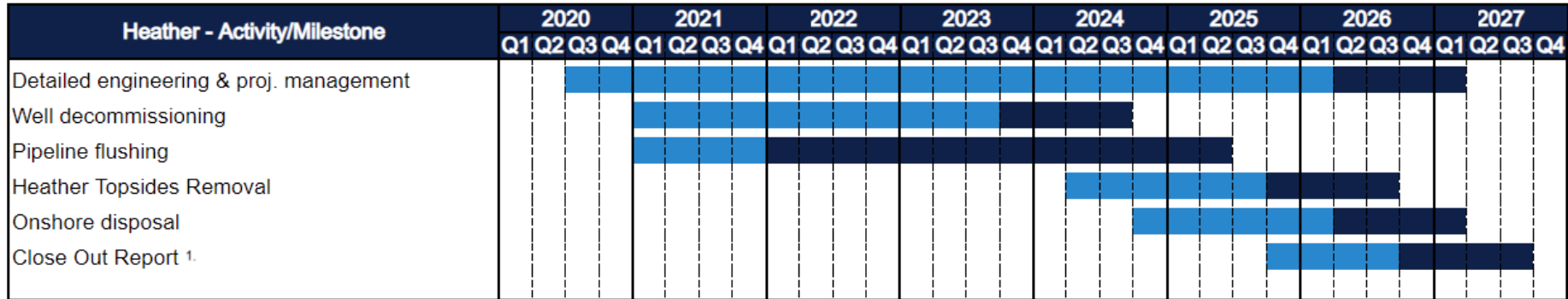
6.2 Post-Decommissioning Debris Clearance and Verification

This Decommissioning Programme covers Topsides removal. Post-decommissioning debris surveys and seabed verification will be described in the subsequent Heather jacket and pipeline infrastructure Decommissioning Programmes.

6.3 Schedule

A proposed schedule is provided in Figure 6.3.1. The activities are subject to the acceptance of the Decommissioning Programme presented in this document and any unavoidable constraints (e.g. vessel availability) that may be encountered while executing the decommissioning activities. Therefore, activity schedule windows have been included to account for this uncertainty.

The commencement of offshore decommissioning activities will depend on commercial agreements and commitments.



Notes / Key

Earliest potential activity

Activity window to allow commercial flexibility associated with well decommissioning and decommissioning activities

1. Close out report within 1 year of completion of offshore activities.

Figure 6.3.1: Gantt-chart of project plan

6.4 Costs

Decommissioning costs will be provided separately to OPRED and OGA.

6.5 Close Out

After the topsides have been removed, OPRED will be notified and a decommissioning Close Out report will be submitted following the completion of the offshore scope, earliest Q4 2026.

6.6 Post-Decommissioning Monitoring and Evaluation

Following removal of the Heather topsides there may be a period of time before the jacket is removed. During this time, the jacket top will remain above sea level. Throughout this phase of decommissioning the existing 500m zone will remain in place and the Heather Consent to Locate will be revised to reflect the change to the installation. In addition, appropriate navigational aids will be fitted, and the jacket logged in FishSAFE.

Upon completion of the topsides removal activities the jacket will remain where it is until it is decommissioned. During this period, the jacket integrity will continue to be monitored as per the Company jacket inspection & monitoring strategy. It will be furnished with a temporary Aid to Navigation. The system will be developed in consultation with the Northern Lighthouse Board.

EnQuest will develop maintenance and monitoring procedures that will include remote monitoring, periodic maintenance and testing in compliance with the Heather 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.

Residual liability for the jacket will remain with the Section 29 holders identified in section 1.3. Unless agreed otherwise in advance with OPRED, EnQuest will remain the focal point for such matters, such as any change in ownership, for example.

Once the wider Heather Area has been decommissioned the requirement for legacy and liability management will be described in more detail in the final close out report.

APPENDIX A HEATHER BASELINE ENVIRONMENT

Appendix A.1 Summary of Characteristics & Sensitivities

Table A.1.1: Summary of environmental characteristics and sensitivities
<p>Physical Environment: Heather Alpha is in Block 02/05 of the NNS in water depth of approximately 145m. Mean residual currents for the field are 0.12m/s, with direction of residual water movement generally to the south or east. Prevailing winds are from the south-west or north-north-east.</p>
<p>Seabed Sediments and Contamination: Sediments in the NNS are predominantly sand and muddy sand and in the vicinity of Heather comprise of sand and gravelly sand. Multi-Beam Echo Sounder identifies a drill cuttings pile below the platform, and historical records of some OBM discharge will likely result in elevated levels of hydrocarbon contamination above background in the vicinity of platform.</p>
<p>Fish: Heather is in spawning grounds for Norway pout, saithe and cod (Jan to Apr), haddock (Feb to May), whiting (Feb to June) and sandeel over winter months; and in nursery grounds for anglerfish, blue whiting, European hake, haddock, herring, ling, mackerel, Norway pout, sandeel, spurdog and whiting (throughout the year).</p>
<p>Benthic Communities: The area is dominated by species characteristic of fine sediments and benthic communities typical of the NNS. It is expected that elevated levels of hydrocarbons close to the platform will lead to modified communities of hydrocarbon tolerant species. No evidence of OSPAR threatened or declining species have been identified in the area. Deep sea sponge aggregations which are listed as a Priority Marine Feature, are known to occur within the field area.</p>
<p>Plankton: Phytoplankton and zooplankton communities are typical of the north and central North Sea with seasonality in abundance.</p>
<p>Seabirds: The following species have been recorded in the wider area: Fulmar, European Storm Petrel, Gannet, Kittiwake, Gulls, Gannet, Skua, Tern. Seabird sensitivity in the Heather area is low throughout the year. Heather is located approximately 94km from the nearest coast and is remote for sensitive seabird breeding areas on the coast.</p>
<p>Marine Mammals: Harbour porpoise and minke whale have been recorded in the vicinity of Heather in moderate densities in July with harbour porpoise in low densities in May and August. Grey and harbour seals may be encountered but are unlikely to be in great numbers, since the platform is located approximately 94km offshore.</p>
<p>Conservation Designations: The closest designated conservation sites to Heather are the Pobie Bank Reef Sites of Community Importance (49km south-west) and the Fetlar to Haroldswick MPA (95km south-west).</p>
<p>Commercial Fisheries: The project area lies within ICES rectangle 50F0. Commercial fishing activity within this area is high in comparison with other areas. Landings are a combination of demersal, pelagic and shellfish species representing 0.4% of total UK fishing effort in 2017.</p>
<p>Shipping: Shipping density within the area is low, with any traffic associated with oil and gas developments or cargo vessels.</p>
<p>Other Offshore Industries: Heather is in the Northern North Sea oil and gas development area with several fields nearby.</p>
<p>Other Users of the Sea: The closest submarine telecommunication cable is 107km from Heather. The area is used by Ministry of Defence for military training, however the work will be undertaken within the 500m exclusion zone, so the impact will be limited. There are no known wrecks in the area.</p>

APPENDIX B PUBLIC NOTICE & CONSULTEE CORRESPONDENCE

Appendix B.1 Public Notices (HOLD)

Appendix B.2 Correspondence with Statutory Consultees (HOLD)