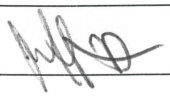
Fairfield Betula Limited

Dunlin Alpha Topsides
Final Decommissioning Programme

FBL-DUN-DUNA-HSE-01-PLN-00001-01

Document Control

Approvals

	Name	Signature	Date
Prepared by	Jonathan Bird		30th April 2019
Reviewed by	Jeff Burns		30/04/19
Approved by	Peter Lee	PL	30/04/19

Revision Control

Revision No.	Reference	Changes/Comments	Issue Date
R1	Issued for Comment (Internal Departmental Review)	1st draft of topsides only DP	4th Dec 2018
R2	Issued for Comment (Fairfield Review)	2nd draft of topsides only DP	11th Jan 2019
A1	Issued for Comment (OPRED and Joint Venture Partner Review)	R2 comments included	12th Feb 2019
A2	Issued for Comment (OPRED)	A1 comments included	1st Mar 2019
A3	Issued for Regulatory Consultation	A2 comments included	11th Mar 2019
A4	Formal submission of Final DP	No comments received from regulatory consultation	30th Apr 2019

Distribution List

Name	Company / Organisation
Internal Distribution	Fairfield
Offshore Decommissioning Unit	Offshore Petroleum Regulator for Environment and Decommissioning

Preface

Proposals for the decommissioning of the Dunlin Alpha installation were submitted to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) and subjected to formal consultation in Q3-2018. Following this consultation period, and in agreement with OPRED, it has been decided to split the Dunlin Alpha Decommissioning Programme (FBL-DUN-DUNA-HSE-01-PLN-0001) into two separate programmes. These are:

- Dunlin Alpha Topsides Decommissioning Programme[1] (this document)
- Dunlin Alpha Substructure Decommissioning Programme[2]

These documents are supported by individual Environmental Appraisals, the combined Dunlin Alpha Comparative Assessment Report and a combined Stakeholder Engagement Report.

Responses to the consultation draft Decommissioning Programme (DP) have been considered and are addressed, where applicable, in this document. Consultation feedback relating to the substructure will similarly be addressed and incorporated into the Substructure DP which will form the basis for consultation with OSPAR Contracting Parties.

It has been demonstrated that there are no feasible options for re-use of the installation, and that removal of the topsides is not prejudicial to the decommissioning of the substructure. As such there is no reason to delay the removal of the topsides.

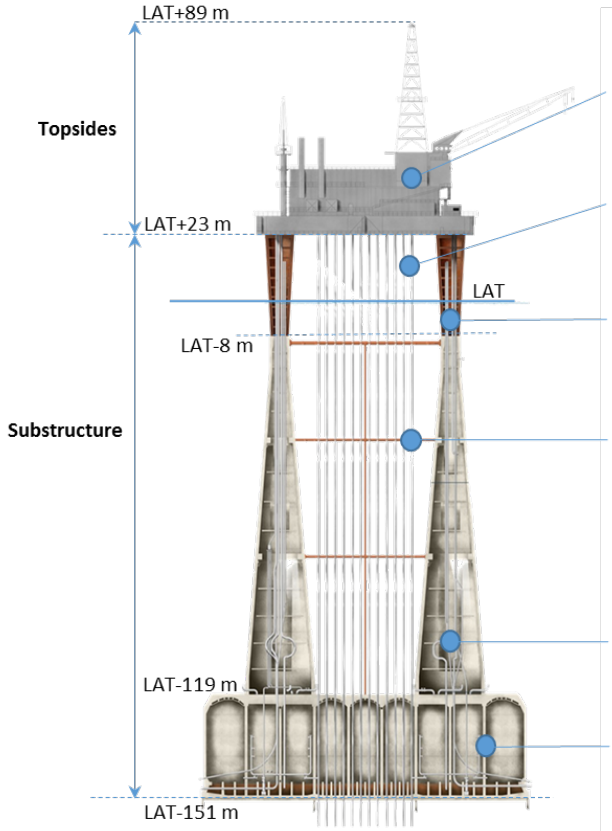
[1] FBL-DUN-DUNA-HSE-01-PLN-0001-01
[2] FBL-DUN-DUNA-HSE-01-PLN-0001-02

Contents

Terms and Abbreviations

Abbreviation	Explanation
CA	Comparative Assessment
CGBS	Concrete Gravity Base Substructure
COP	Cessation of Production
DFGI	Dunlin Fuel Gas Import
DP	Decommissioning Programme
DPI	Dunlin Power Import
EA	Environmental Appraisal
FBL	Fairfield Betula Limited
HLV	Heavy Lift Vessel
HSE	Health and Safety Executive
HS&E	Health, Safety and Environment
LAT	Lowest Astronomical Tide
LSA	Low Specific Activity (related to NORM)
MER	Maximising Economic Recovery
MS&H	Make-Safe & Handover
MSF	Module Support Frame
N/A	Not Applicable
Navaid	Navigational Aid (sometimes referred as Aid to Navigation (AtoN))
NORM	Naturally Occurring Radioactive Material (related to LSA)
OGA	Oil and Gas Authority
OGUK	Oil and Gas UK
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	Oslo Paris Convention
PETS	Portal Environmental Tracking System
PMT	Project Management Team
PON	Petroleum Operations Notice
S29	Section 29 Notices
SLV	Single Lift Vessel
SSCV	Semi-Submersible Crane Vessel
TFSW	Trans-Frontier Shipment of Waste
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
WONS	Well Operations and Notification System

Definitions



Topsides - Those parts of the installation which are not part of the substructure and includes the module support frame and the three module decks.

Conductors – The outer conduits for conveying the wells from the topsides to subsurface. These are part of the well decommissioning programme.

LAT – Sea level (Lowest Astronomical Tide).

Transitions - Steel columns which rise from LAT-8 m to LAT+23 m upon which the topsides sit. The transitions are classified as part of the substructure.

Conductor Guide Frames – Three supporting frames to prevent lateral movement of the conductors from wave/current action.

CGBS – Concrete Gravity Base Substructure (the substructure) consisting of the Base Caisson, Legs and Transitions.

Legs - The concrete shafts rising from the top of the base caisson from LAT -119 m to LAT-8 m.

Base Caisson - Lower section of the structure containing the 81 cells. The caisson footprint is 104 m x 104 m and reaches up 32 m from the seabed.

Installation – All the components listed above as a complete assembly.

Units of Measure

Unit	Explanation
m (dimension)	Metre
m (currency)	Million
km	Kilometre (one thousand metres)
m^2	Square metre
m^3	Cubic metre
%	Percentage
t	Metric tonne
Te	Tonne – mass equal to 1,000 kilograms (SI unit is t)

Figures

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1 EXECUTIVE SUMMARY

1.1 Decommissioning Programme

Fairfield has written to OPRED to gain approval (12th March 2018) to de-couple the topsides and substructure Decommissioning Programme (DP) and have demonstrated that this does not prejudice any decommissioning options for the remaining substructure. This document sets out the DP for the Dunlin Alpha Topsides as required by the relevant Section 29 (S29) Notice, issued August 2008. The Dunlin Alpha Substructure DP will be detailed separately[3] and subject to OSPAR consultation. The decommissioning of the Greater Dunlin Area subsea facilities is the subject of separate, approved Decommissioning Programmes[4].

1.2 Requirement for a Decommissioning Programme

MCX Dunlin (UK) Limited holds a 100% interest in the Dunlin licence and is therefore the Owner of all Dunlin infrastructure. Fairfield Betula Limited (Fairfield) is the appointed Licence Operator under a joint operating agreement in relation to the Dunlin licence with Fairfield as the 'Lead Operator' under the same joint operating agreement in relation to all Dunlin, Osprey and Merlin facilities.

In conjunction with statutory, public and regulatory consultation, the Dunlin Alpha Topsides Decommissioning Programme is submitted in compliance with national and international regulations and guidance notes. This programme, once approved, will form part of the overall Greater Dunlin Area decommissioning activity.

1.2.1 Installation

In accordance with the Petroleum Act 1998, the S29 Notice holders (see Table 1.2) for the Dunlin Alpha installation are applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for decommissioning of the topsides as detailed in Section 2.1 of this programme. This programme has the full support of the Joint Venture partners.

[3] Dunlin Alpha (Substructure) Decommissioning Programme FBL-DUN-DUNA-HSE-01-PLN-00001-02. In the interim period before it is published refer to the Dunlin Alpha Consultation Draft Decommissioning Programme FBL-DUN-DUNA-HSE-01-PLN-00001

[4] See www.gov.uk/guidance/oil-and-gas-decommissioning-of-offshore-installations-and-pipelines

1.3 Introduction

The Dunlin Alpha installation served as the production facility for the Greater Dunlin Area and is located in UK Continental Shelf Block 211/23a, approximately 137 km north east of Shetland and 11 km from the UK/Norwegian median line. It was installed in 1977 and two subsea tiebacks, Osprey and Merlin, were developed in 1991 and 1997 respectively. During its lifetime, over 522 million barrels of oil were produced from the Greater Dunlin Area.

Termination of Production from the Greater Dunlin Area was announced in May 2015, having Maximised Economic Recovery (MER) from these oilfields. Termination of Production was agreed with the Oil & Gas Authority (OGA) on 9th July 2015, with Cessation of Production (COP) on 15th June 2015, confirmed by letter dated 15th January 2016.

The Dunlin Alpha installation consists of a four leg Concrete Gravity Base Substructure (CGBS), herein referred to as the substructure; a steel box girder Module Support Frame (MSF) deck; and two further levels of modules. The installation stands in 151 m of water and is 240 m high from the seabed to the top of the drilling derrick. The concrete legs extend to 8 m below Lowest Astronomical Tide (LAT), with 31 m tall steel transitions spanning the splash zone to support the topsides at LAT+23 m.

The Dunlin Alpha topsides were designed as a drilling and production facility. They will be fully removed by optimised reverse installation for onshore recovery and disposal, in accordance with the Oslo and Paris Convention (OSPAR) Decision 98/3.

Fairfield has exhausted all safe and feasible options to access the substructure cell contents via the legs and topsides facilities in order to retrieve further supporting physical survey and sample data. There are no viable options for the cell contents to be investigated or recovered utilising the existing topsides facilities. Therefore the legs will be cleared of known hazardous materials and flooded as part of make safe and handover preparation. This process does not impact the final proposed decommissioning activities and end-state of the substructure.

The interface between the topsides and substructure is at the LAT+23 m level between the top of the transitions and the underside of the MSF. To remove the topsides, the transitions will be cut a few metres below the +23 m level.

The installation scope of work include:

a. Make safe and handover ‘engineering down’ including removal of bulk fluids
b. Well decommissioning
c. Conductor removal down to LAT-74 m
d. Removal of the upper two conductor guide frames at LAT-10 m and LAT-40 m
e. Removal of the hazardous material in the legs
f. Clearing the associated transition internals for the cut zone
g. Flooding and plugging of the upper legs
h. Removal of the entire platform topsides for onshore reuse and recycling
i. Addition of navaid and associated support structure on one leg

1.4 Overview of Installation Being Decommissioned

1.4.1 Installation

Table 1-1: Installation Being Decommissioned			
Field	Dunlin	**Production Type (Oil/Gas/Condensate)**	Oil
Water Depth (m)	151	**UKCS block**	211/23a
Surface Installation[5]			
Number	**Type**	**Topsides Weight (Te)**	**Substructure Weight (Te)**
1	Topsides	19,640	2,890[6]
Subsea Installations		**Number of Wells**	
Number	**Type**	**Platform**	**Subsea**
N/A	N/A	45	N/A
Drill Cuttings Pile		**Distance to Median**	**Distance from UK coastline**
Number of Piles	**Total Estimated volume (m³)**		
N/A	N/A	11 km	137 km

Table 1-2: Installation Section 29 Notice Holders Details		
Section 29 Notice Holders	**Registration Number**	**Equity Interest (%)**
Esso Exploration and Production UK Limited	00207426	0
Fairfield Betula Limited	04465204	0
Fairfield Energy Limited	05562373	0
MCX Dunlin (UK) Limited	**06451712**	**100**
Mitsubishi Corporation	BR005199	0
Shell U.K. Limited	00140141	0
Siccar Point Energy E&P Limited[7]	01504603	0
Equinor UK Limited[8]	01285743	0

[5] See Appendix 1 'Dunlin Alpha Installation Fast Facts' for further detail on weight distribution
[6] Weight includes removal of; Transition tops (155 Te), Conductors (2,290 Te) & Conductor Guide Frames (445 Te)
[7] Siccar Point Energy E&P Limited was formerly OMV (U.K.) Limited
[8] Equinor UK Limited was formerly Statoil (U.K.) Limited

1.5 Summary of Proposed Decommissioning Programme

Table 1-3: Summary of Decommissioning Programme		
Selected Option	**Reason for Selection**	**Proposed Decommissioning Solution**
1. Topsides		
Complete removal of topsides for recycling.	Meets OPRED regulatory requirements.	Cleaned equipment refurbished for re-use where possible. Equipment which cannot be re-used will be recycled or other disposal routes considered as appropriate.
2. Substructures		
N/A Addressed in Dunlin Alpha Substructure Decommissioning Programme.		
3. Subsea Installations		
N/A		
4. Pipelines, Flowlines & Umbilicals		
N/A Addressed in Dunlin Fuel Gas Import (DFGI) / Dunlin Power Import (DPI) Decommissioning Programme.		
5. Wells		
Abandoned in accordance with latest Oil and Gas UK Guidelines for the Abandonment of Wells, (currently issue 6, June 2018).	Meets OGA and HSE regulatory requirements.	Decommissioning of the 45 wells will be permitted as required under approved Chemical Permit, Oil Discharge Permit, Marine Licence (via PETS) and PON5 (via WONS) applications.
6. Drill Cuttings		
N/A Addressed in Dunlin Alpha Substructure Decommissioning Programme.		
7. Interdependencies		
None		

1.6 Field Location Including Field Layout and Adjacent Facilities

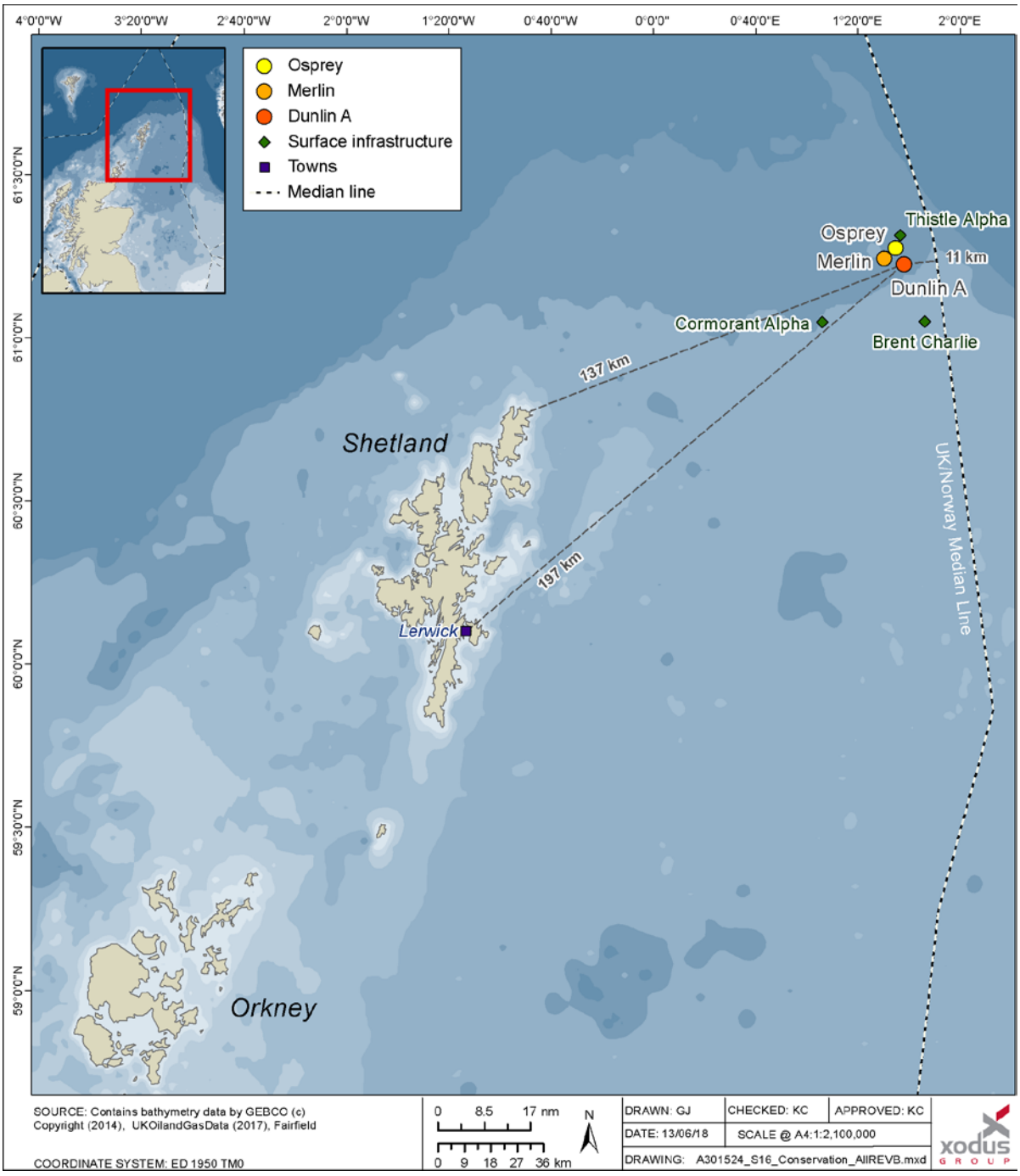


Figure 1-1: Field Location in UKCS

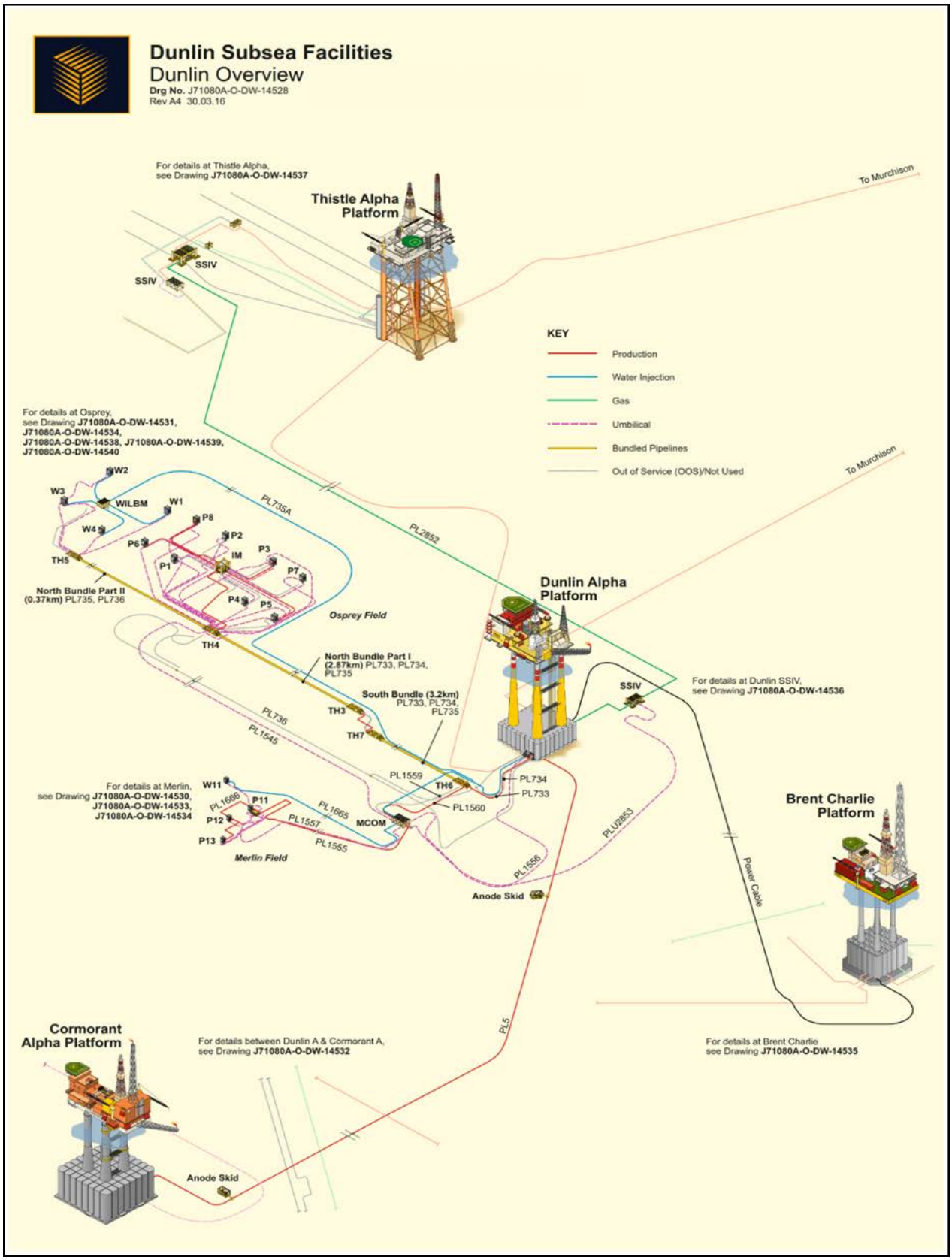


Figure 1-2: Greater Dunlin Area Field Layout

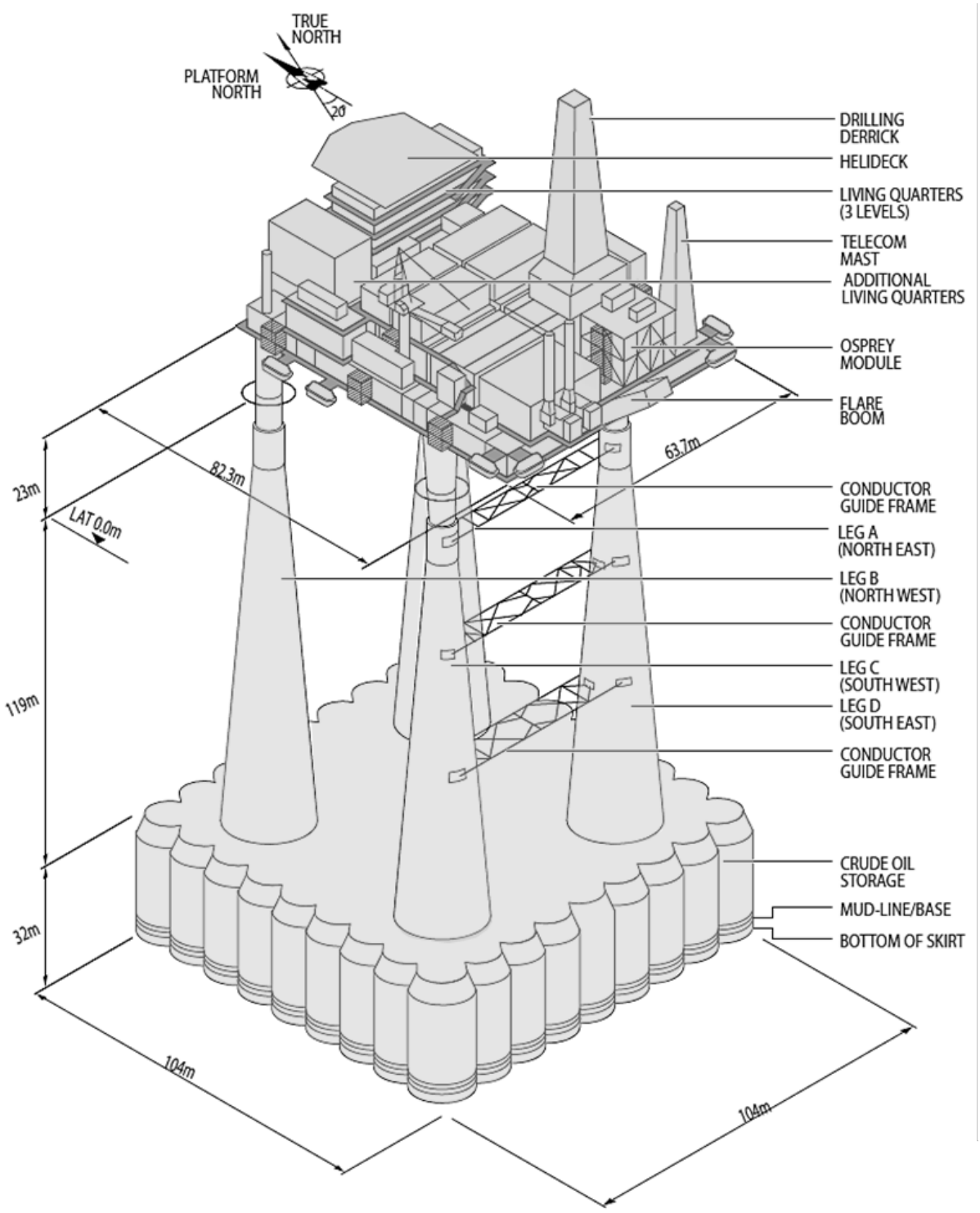


Figure 1-3: Dunlin Alpha Installation

Note: Installation elevations and weights can be found in Appendix 1.

Table 1-4: Adjacent Facilities					
Owner	**Name**	**Type**	**Distance/Direction**	**Information**	**Status**
MCX Osprey (UK)	Osprey	Subsea tie-back	Dunlin Alpha – Osprey 6.11 km (3.8 miles) north west	Osprey ties into Dunlin Alpha and will be decommissioned	Decommissioning Programme Approved
MCX Osprey (UK)	Merlin	Subsea tie-back	Dunlin Alpha – Merlin 6.98 km (4.36 miles) north west	Merlin ties into the Osprey system and will be decommissioned	Decommissioning Programme Approved
EnQuest	Thistle Alpha	Installation	Dunlin Alpha – Thistle Alpha 9.87 km (6.17 miles) north north west	Thistle Alpha exports production fluids via Dunlin Alpha to Cormorant Alpha PL5 pipeline and Brent Pipeline System to Sullom Voe Terminal	Operational
TAQA	Cormorant Alpha	Installation	Dunlin Alpha – Cormorant Alpha 34.12 km (21.33 miles) south west	Dunlin Alpha exports Thistle Alpha production fluids to Brent system via Cormorant Alpha	Operational
Shell	Brent Charlie	Installation	Dunlin Alpha – Brent Charlie 20.99 km (13.12 miles) south east	Provided electrical power and communications to Dunlin Alpha	Operational
CNRI	Murchison	Installation	Dunlin Alpha – Murchison 15.89 km (9.93 miles) north east	Disconnected from Dunlin Alpha	Currently being decommissioned
Impacts of Decommissioning Proposals					
The Dunlin field will be decommissioned along with Osprey, Merlin and associated Dunlin subsea infrastructure including PL5 export pipeline to Cormorant Alpha. Dunlin Alpha currently provides the export route for Thistle Alpha production fluids. This service will terminate in 2019 and alternate arrangements are expected to be announced in due course.					

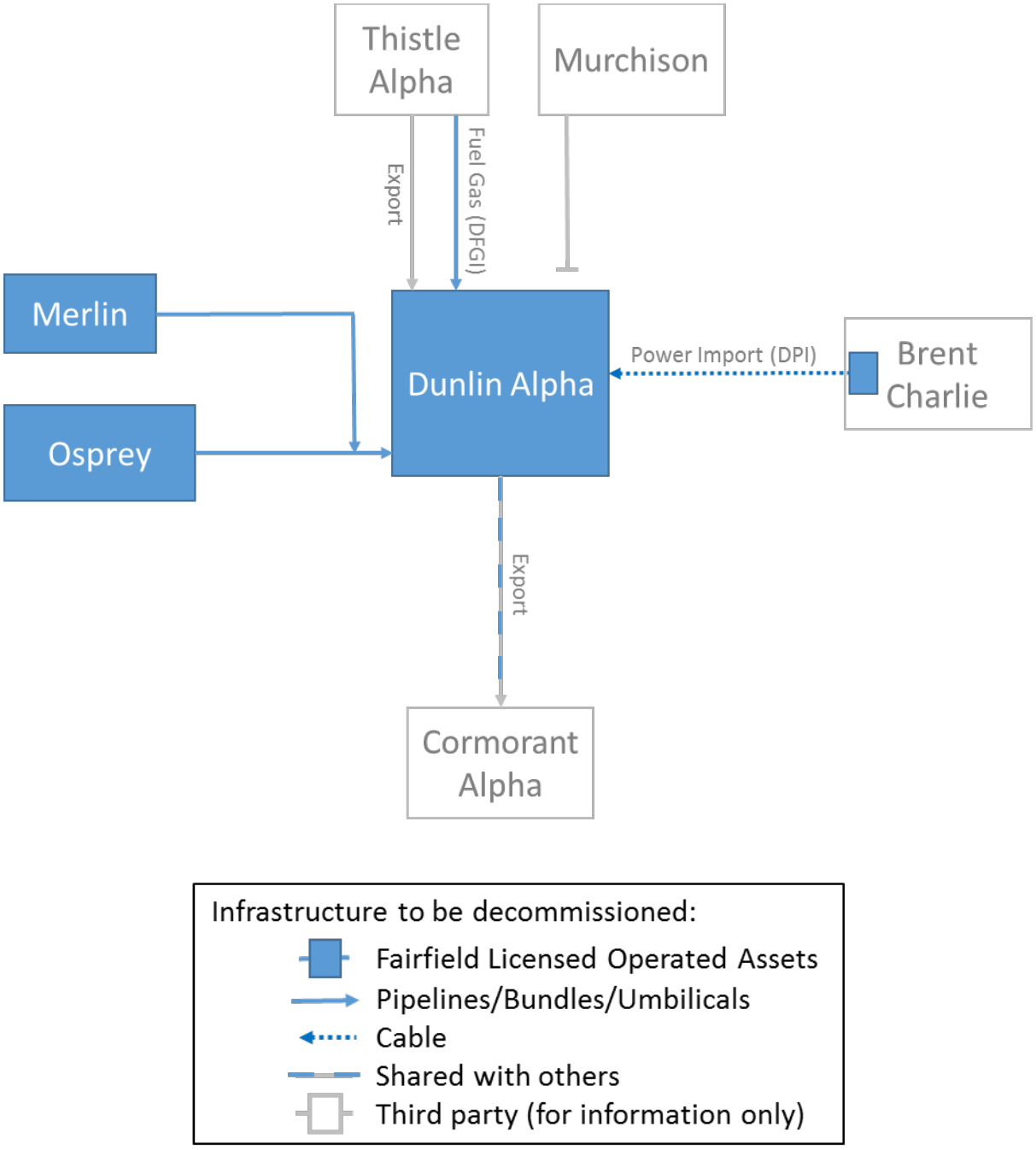


Figure 1-4: Greater Dunlin Area Adjacent Facilities

1.7 Industrial Implications

The Dunlin Alpha Topsides Decommissioning Programme will be managed by Fairfield in Aberdeen. A number of specialist contract services will be required for the execution of the programme including, but not limited to: Engineering Studies; Topsides Preparation for Removal; Topsides Removal; and Topsides Recycling and/or Disposal.

In planning, preparing and executing the programme, Fairfield will ensure that all contracts are raised and administered in a consistent and effective manner and that these:

- Adhere to the ethical and safety standards of the company
- Meet the requirements of legislation and all other relevant external organisations
- Are processed and awarded with tight and proper controls
- Are focused on safe, efficient and cost effective decommissioning service delivery

Fairfield will continue to work with the OGA Decommissioning & Supply Chain teams, and will also engage with the industry supply chain to identify effective technological solutions that are environmentally acceptable and safe.

2 DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

The scope of the Dunlin Alpha Topsides Decommissioning Programme, covers:

- Dunlin Alpha topsides (full removal of topsides facility)
- Small upper section of the steel transitions
- Well Conductors (removal of well conductors down to the lower conductor guide frame), and
- Conductor Guide Frames (removal of the middle and upper conductor guide frames)

Figure 2-1 provides an illustration of the infrastructure to be recovered (indicated in colour). The remaining infrastructure will be addressed as part of the Dunlin Alpha Substructure Decommissioning Programme.

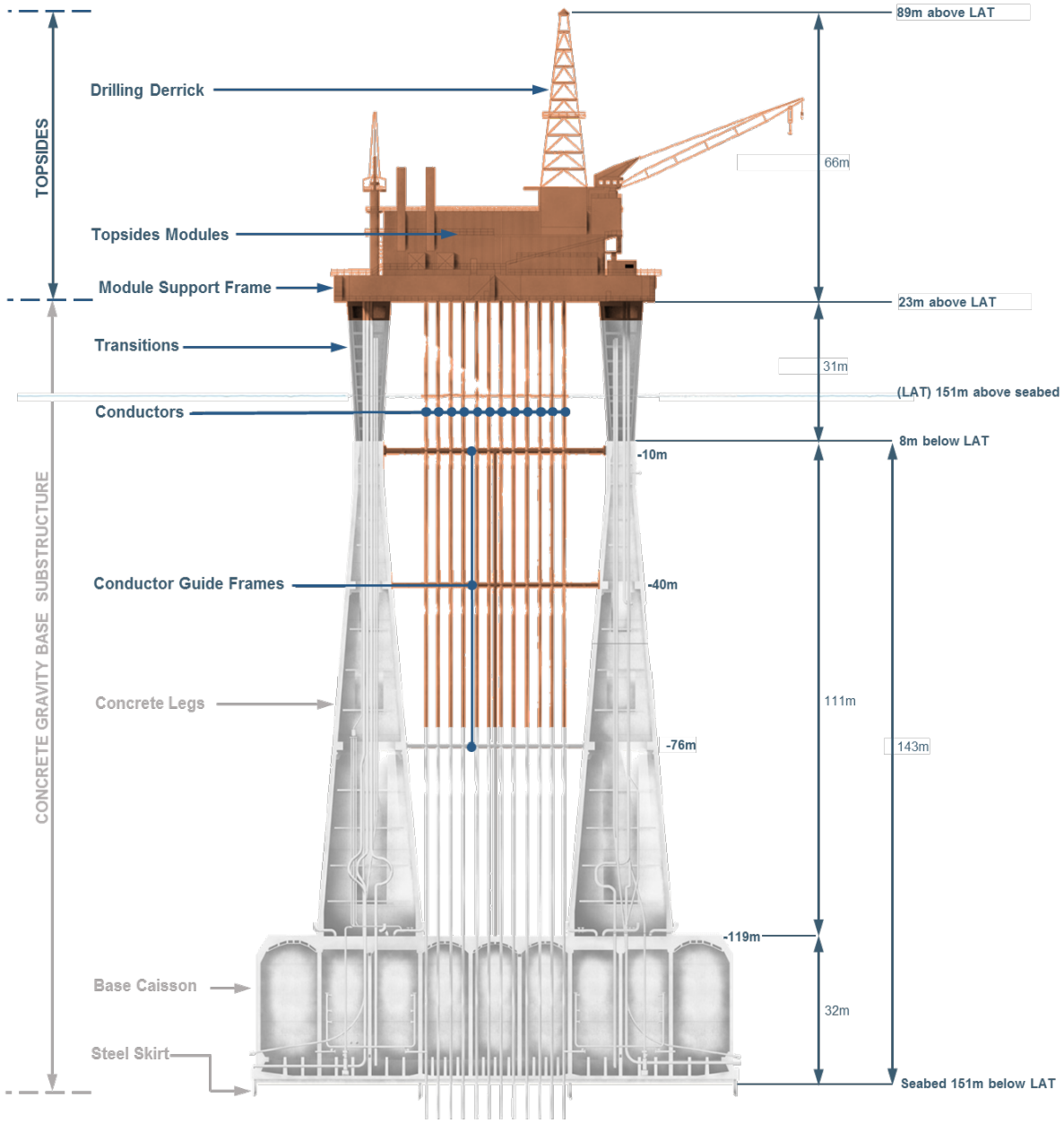


Figure 2-1: Scope of the Dunlin Alpha Topsides Decommissioning Programme

2.1 Installation: Surface Facilities – Topsides

Table 2-1: Surface Facilities Information								
Name	Facility Type	Location		Topsides/Facilities		Substructure		
				Weight (Te)	Number of Modules	Weight (Te)	Number of Legs	Number of Piles
Dunlin Alpha Installation	Concrete Gravity Base Substructure (CGBS)	WGS84 Decimal	61.275 01.598	19,640	24	2,890[9]	4	N/A
		WGS84 Decimal minute	61° 16.487' N 01° 35.856' E					

Figure 2-2: Dunlin Alpha Installation (Operational March 2012)

[9] Weight includes removal of; Transition tops (155 Te), Conductors (2,290 Te) & Conductor Guide Frames (445 Te)

Figure 2-3: Dunlin Alpha Installation (Operational March 2012)

The Dunlin Alpha topsides was originally designed as a drilling and production installation, with accommodation facilities for over 140 personnel. The topsides is constructed over three levels and weighs approximately 19,640 tonnes.

Figure 2-4 shows the topsides construction/layout of modules, comprising:

- The Lower Deck (known as the MSF) with six sections creating 45 void spaces.

  This deck consists of compartmentalised steel box girders, and is approximately 85 m x 67 m. The flare boom is cantilevered from the lower deck on the southern side.

- The Module Deck with 10 main modules and additional utility modules for various services.

  The module deck is located above the MSF and consists of ten main production and utilities modules, including the well bay, process vessels, and power generation equipment.

- The Drilling Deck with 14 modules including the accommodation.

  The drilling deck is located above the module deck and consists of the drilling package, platform cranes and living quarters. The helideck is located above the accommodation modules.

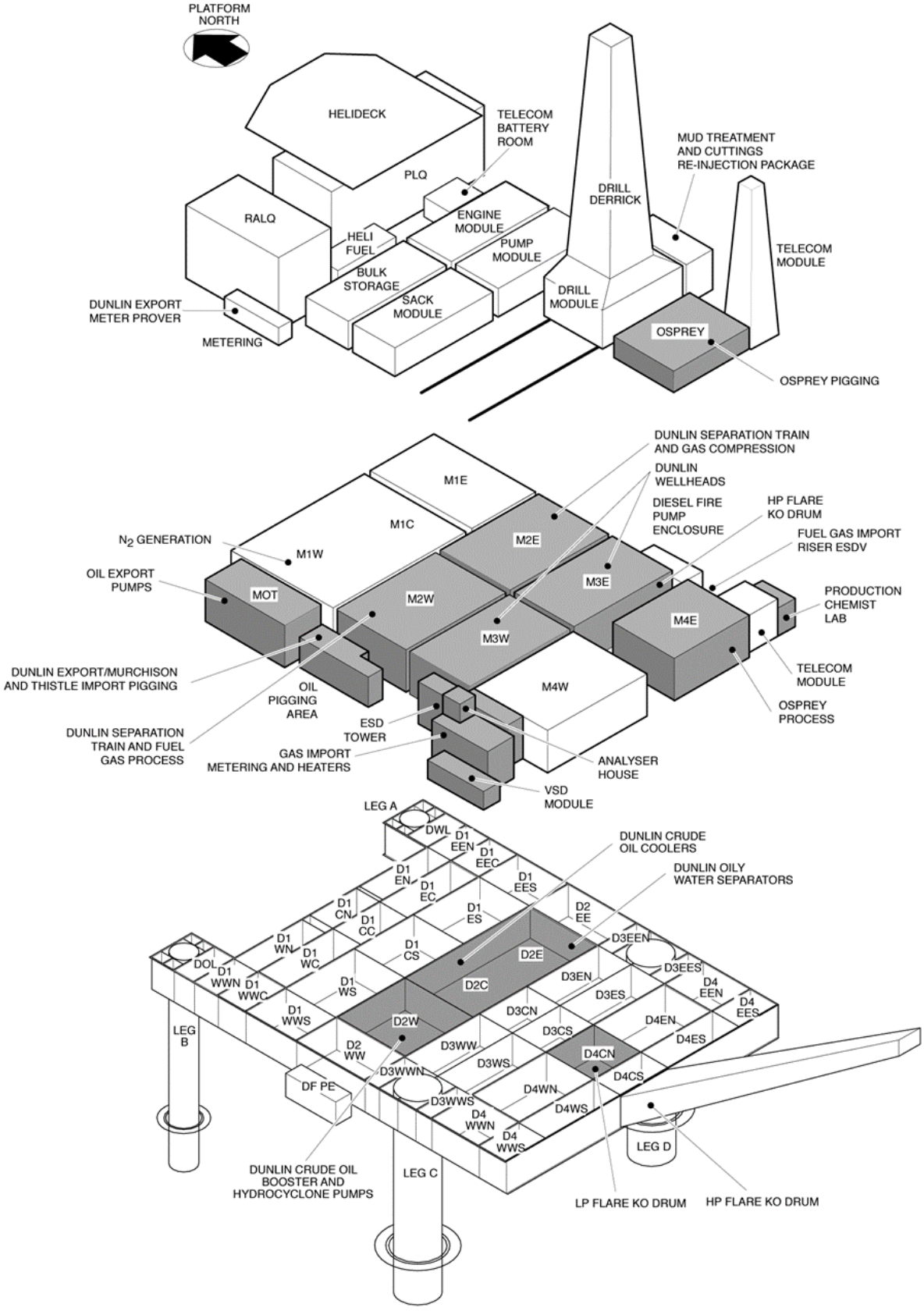


Figure 2-4: Dunlin Alpha Module Layout

2.2 Wells

Table 2-2: Platform Well Information				
Common Name	**Well Name**	**Designation**	**Status[10]**	**Category of Well**
DA-01	211/23-A48	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-02	N/A	N/A	Slot utilised for fire pump	N/A
DA-03	211/23-A19	Water Injector	Phase 3 Decommissioned	PL-0-0-0
DA-04	211/23-A18	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-05	211/23-A8	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-06S2	211/23-A17	Water Injector	Phase 2 Decommissioned	PL-0-0-3
DA-07S3	211/23-A7	Water Injector	Phase 2 Decommissioned	PL-0-0-3
DA-08	211/23-A34	Oil Producer	Phase 3 Decommissioned	PL-0-0-0
DA-09	N/A	N/A	Slot utilised for water discharge	N/A
DA-10	211/23-A24	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-11S1	211/23-A5	Oil Producer	Phase 3 Decommissioned	PL-0-0-0
DA-12	211/23-A30	Water Injector	Phase 1 Decommissioned	PL-0-4-3
DA-13S1	211/23-A56	Water Injector	Phase 2 Decommissioned	PL-0-0-3
DA-14S2	211/23-A49Z	Oil Producer	Plugged	PL-3-4-3
DA-15S2	211/23-A61	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-16S1	211/23-A9	Water Injector	Phase 2 Decommissioned	PL-0-0-3
DA-17	211/23-A6	Oil Producer	Phase 3 Decommissioned	PL-0-0-0
DA-18	211/23-A10	Water Injector	Phase 2 Decommissioned	PL-0-0-3
DA-19	211/23-A43	Oil Producer	Plugged	PL-3-4-3
DA-20S1	211/23-A63	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-21	211/23-A44	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-22	211/23-A1	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-23S1	211/23-A54	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-24S1	211/23-A58	Oil Producer	Phase 3 Decommissioned	PL-0-0-0
DA-25S4	211/23-A62	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-26S6	211/23-A52Y	Oil Producer	Phase 3 Decommissioned	PL-0-0-0
DA-27S1	211/23-A46	Oil Producer	Phase 3 Decommissioned	PL-0-0-0

[10] The well status definitions are consistent with Oil and Gas UK Guidelines for Well Decommissioning June 2018. Phase 3 decommissioned wells that are in their final state are shaded dark grey.

Table 2-2: Platform Well Information				
Common Name	**Well Name**	**Designation**	**Status[10]**	**Category of Well**
DA-28	211/23-A23	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-29	211/23-A26	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-30S6	211/23-A57W	Oil Producer	Plugged	PL-3-4-3
DA-31	211/23-A38	Oil Producer	Plugged	PL-3-4-3
DA-32S2	211/23-A42	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-33S1	211/23-A59	Oil Producer	Active (Disposal)	PL-3-4-3
DA-34S1	211/23-A53	Oil Producer	Plugged	PL-3-4-3
DA-35	211/23-A41	Oil Producer	Plugged	PL-3-4-3
DA-36S2	211/23-A55	Oil Producer	Active (Disposal)	PL-3-4-3
DA-37S1	211/23-A50	Oil Producer	Plugged	PL-3-4-3
DA-38	211/23-A27	Water Injector	Plugged	PL-3-4-3
DA-39	211/23-A39	Oil Producer	Plugged	PL-3-4-3
DA-40S1	211/23-A37	Oil Producer	Active (Disposal)	PL-3-4-3
DA-41	N/A	N/A	Slot utilised for cuttings discharge	N/A
DA-42S2	211/23-A47Z	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-43S3	211/23-A65	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-44S4	211/23-A20Z	Water Injector	Phase 2 Decommissioned	PL-0-0-3
DA-45S3	211/23-A28Z	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-46S1	211/23-A60	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-47S2	211/23-A64Z	Oil Producer	Phase 2 Decommissioned	PL-0-0-3
DA-48S1	211/23-A2	Water Injector	Phase 3 Decommissioned	PL-0-0-0
Subsea Wells				
N/A		N/A	N/A	N/A

For details of well categorisation, see Oil and Gas UK Well Decommissioning Guidelines (Issue 6 June 2018). Well decommissioning operations are in progress and well status will change. The above well status is correct as of April 2019.

2.2.1 Conductor Guide Frames

As part of the well decommissioning and removals scope the conductors will be cut and removed to approximately LAT-74 m and the upper two guide frames at LAT-10 m and LAT-40 m removed. Guide frame removal may occur either during or after the topsides have been removed. The conductor guide frame at LAT-76 m will be decommissioned *in situ* to support the conductor stubs proud of the drill cuttings pile. Planned derogation will be addressed in the substructure Decommissioning Programme.

2.3 Inventory Estimates

Table 2-3 provides an overview of the estimated weight of materials associated with the Dunlin Alpha topsides (as described in Section 2.1), transition pieces, conductors and conductor guide frames. A further breakdown of the relative inventory types, excluding marine growth, is provided in Figure 2-5. The weight of steel associated with removing the top of the transitions, conductors and upper two conductor guide frames is detailed in Table 3-5.

Table 2-3: Estimated Material Inventory Associated with Dunlin Alpha Removals

Material	Description	Mass (t)
Steel	*Ferrous; Topsides (17,790 t), Transitions (155 t), Conductors (2,290 t) and Conductor Guide Frames (445 t)*	20,680
	Non-Ferrous (copper, aluminium, alloys)	750
Concrete	*Aggregates (concrete; cement)*	110
Plastics	*Polymers (PVC/uPVC; nylon)*	340
Hazardous	*Asbestos (asbestos-containing material)*	170
	Residual fluids (hydrocarbons; chemicals; control fluid)	30
	Waste Electrical and Electronic Equipment (WEEE), Cables	105
	Heavy metals (batteries; paint coatings)	45
	NORM scale	30
	Other hazardous	10
Other	*Fibreglass; manolite; insulation; wood; glass; ceramics*	260
	Total (tonnes)	**≈ 22,530**
	Total mass removed per inventory type	
	Dunlin Alpha Topsides	≈ 19,640
	Transition Pieces	≈ 155
	Conductors	≈ 2,290
	Conductor Guide Frames	≈ 445
	Plus Marine Growth on removed sections of Conductors & Conductor Guide Frames	≈ 80

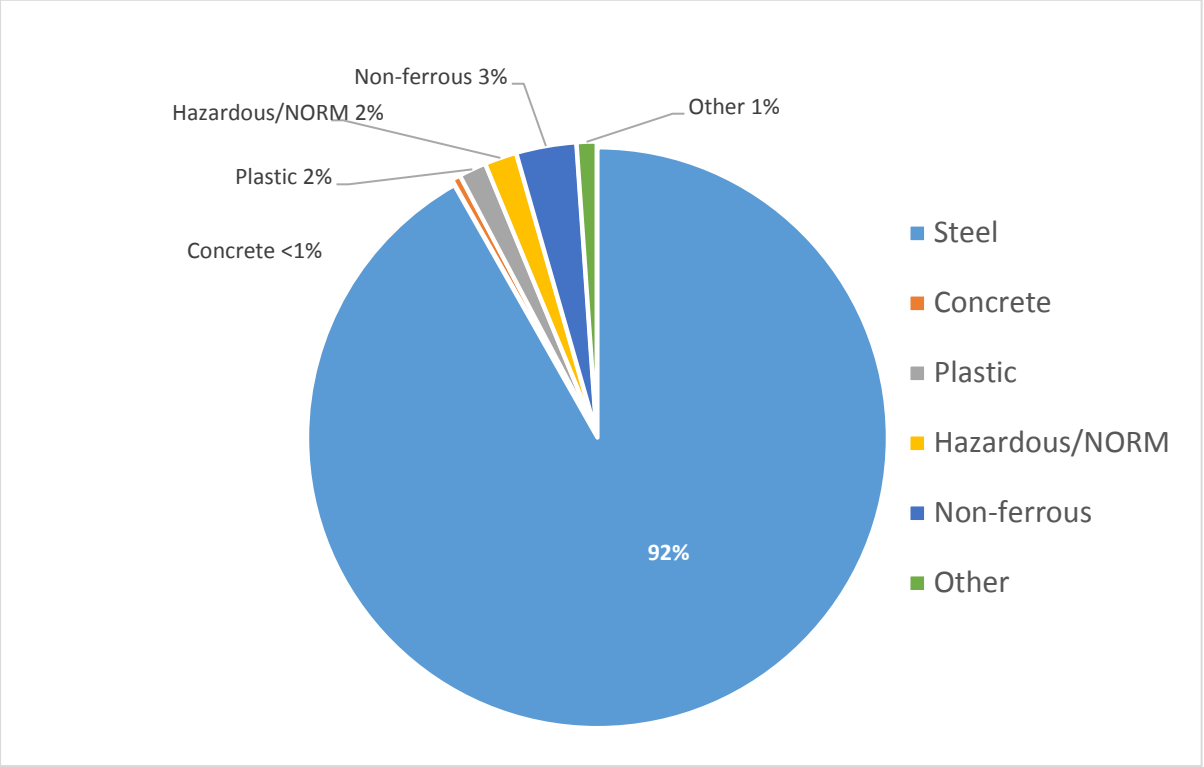


Figure 2-5: Estimated Recovered Inventories from Decommissioning Activities

3 REMOVAL AND DISPOSAL METHODS

As operator of the Dunlin Alpha installation, Fairfield recognises its Duty of Care for all waste materials generated from the proposed decommissioning activities. Fairfield has therefore developed a waste management strategy for the project in order to outline the processes and procedures necessary to ensure that waste is managed in a manner that complies with legislative requirements and prevents harm to people and the environment.

Fairfield's strategy is underpinned by the waste hierarchy, shown in Figure 3-1. The hierarchy is based on the principle of waste disposal only where reuse, recycling and waste recovery cannot be undertaken. In line with these principles, reuse of an installation (or parts thereof) is first in the order of preferred decommissioning options for assessment.

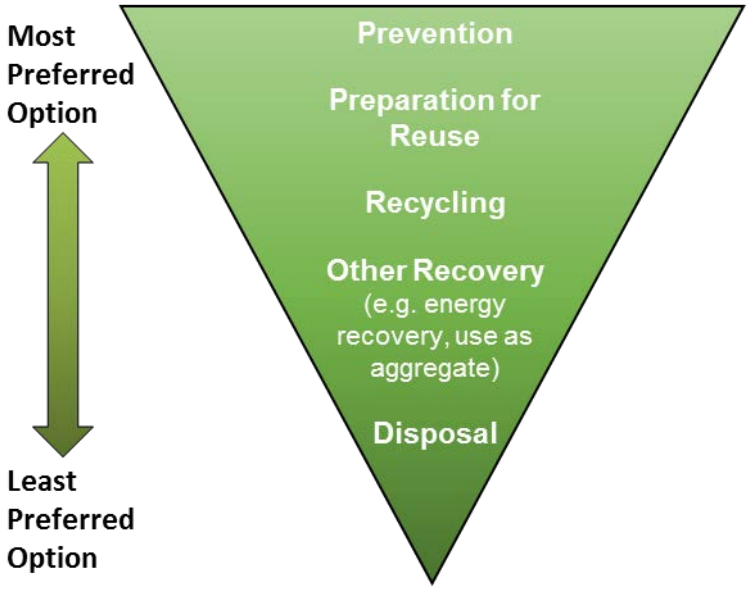


Figure 3-1: Waste Hierarchy

Detailed inventory assessments have been undertaken in order to characterise and quantify both hazardous and non-hazardous materials to be decommissioned. Where required, this has involved specific sampling and analysis by competent specialists in order to ensure materials are classified correctly. Steel and other recyclable metal are estimated to account for the greatest proportion of the materials to be removed to shore. It is expected that steelwork would be cleaned before being largely recycled. Any hazardous wastes remaining in recovered infrastructure will be disposed of under an appropriate licence or permit.

Fairfield has selected a waste management contractor with considerable experience in decommissioning of offshore installations, repeatedly demonstrating the ability to receive, dismantle and dispose of all platform objects in a safe and environmentally responsible manner. In addition, project HS&E and Waste Management Plans will be developed to ensure that dismantling and disposal operations meet regulatory requirements and company objectives.

The decommissioning yard chosen for dismantling the Dunlin Alpha topsides has all relevant permits and consents required for handling anticipated waste streams. Fairfield has identified that the

selected waste management contractor has the required expertise to achieve the highest level of recycling. Fairfield will also continue to engage with other companies and wider industries to discuss reuse opportunities for topsides equipment where applicable.

Transfrontier Shipment of Waste (TFSW) regulations require operators to apply for permission to export waste outside the UK. Where required, Fairfield will seek early engagement with the regulatory authority to obtain guidance on completing applications and ensure that any potential issues are addressed.

3.1 Topsides

3.1.1 Topsides Decommissioning Overview

Options to re-use the Dunlin Alpha installation for further hydrocarbon developments were assessed[11] but did not yield any viable commercial opportunities. As a result, the Dunlin Alpha topsides will be fully removed for onshore recovery and disposal, in accordance with OSPAR Decision 98/3 and OPRED guidance notes on decommissioning requirements.

3.1.2 Preparation/Cleaning

Prior to removal, Fairfield will undertake offshore operations required to depressurise, flush and isolate systems in order to make the topsides safe for removal activities. Where possible, pipework and vessels will be visually inspected and may be further treated should any sources of potential spills of oils or other fluids be identified. Activities will also be undertaken to remove hazardous materials and substances from the legs.

[11] Dunlin Alpha Re-use Report (2011)

Table 3-1: Preparation of Topsides for Removal		
Waste Type	**Composition of Waste**	**Disposal Route**
Residual hydrocarbons	Process fluids, fuels and lubricants	Process vessels and pipework will be drained and flushed, with fluids reinjected into the reservoir under an approved oil discharge permit. Residual hydrocarbons will be shipped to an appropriately licensed facility for recovery or disposal.
Residual sand	Residual hydrocarbons and NORM	Residual process sand will be removed from process vessels, washed and disposed of offshore under an approved oil discharge permit.
Other hazardous materials	NORM, LSA scale, instruments containing heavy metals, batteries	Hazardous materials will be recovered and transported onshore for recovery or disposal at an appropriately licensed facility.
Original paint coating	Lead-based paint	It is not proposed to remove lead-based paint coatings prior to shipment of materials onshore for disposal. All hazardous materials will be treated and disposed of at an appropriately licensed facility.
Asbestos	Asbestos and ceramic fibre	Asbestos will be managed in accordance with appropriate controls and transported onshore for disposal at an appropriately licensed facility.

3.1.3 Topsides Removal Options

Fairfield has assessed the different methods available for the removal of the Dunlin Alpha Topsides, including use of a Single Lift Vessel (SLV) or use of a Heavy Lift Vessel (HLV) for reverse installation (piece large), offshore deconstruction (piece small), or a combination of these methods. These are outlined in Table 3-2.

Table 3-2: Topsides Removal Methods

1) HLV (semi-submersible crane vessel) ☑ 2) Monohull crane vessel ☑ 3) SLV ☑
4) Piece small ☑ 5) Other (Combination) ☑

Method	Description
Single lift removal by SLV	Removal of topsides as a complete unit using an SLV, and transportation to onshore facility for deconstruction. Selected equipment to be re-used, and deconstructed material to be recovered for recycling and/or disposal.
Reverse installation (piece large) by SLV/HLV	Removal of separated topsides modules by HLV for transportation to onshore facility for deconstruction. Selected equipment to be re-used, and deconstructed material to be recovered for recycling and/or disposal.
Offshore deconstruction (piece small)	Removal of topsides by breaking up offshore and transporting to shore using monohull crane vessel and work barge. Recovered materials will be sorted for re-use, recycling or disposal at an onshore facility.
Combination of removal methods	A combination of piece small and reverse installation methods, with potential single or multi-lift of the MSF (one to six sections) using an HLV. All materials will be transported to onshore facility for reuse, recycling and/or disposal.
Proposed removal method and disposal route	**Topsides removed by an optimised reverse installation by a Dynamically Positioned HLV and recycled / disposed of onshore in Norway (Vats) following an approved trans-frontier shipment of waste and other relevant permits. Final details of the decommissioning method will be made following the contractors' engineering phase.** **Navaids will be fitted to the substructure and the 500 m safety zone maintained.**

3.1.4 Overview of Topsides Removal Methodology

Fairfield has completed engineering study work and engaged with a number of experienced contractors in order to understand the feasibility of different decommissioning methods. A commercial tender process has subsequently been completed and an Engineering, Preparation, Removal and Disposal (EPRD) contract has been awarded to deliver an optimised reverse installation method.

The optimised reverse installation method adapts the original installation methodology to make full use of currently available lifting capacity and ensures that the topsides are removed in the most efficient, safe and environmentally responsible manner. The envisaged removal process may be summarised as follows:

A. Once all of the wells have been decommissioned the platform may be 'cold stacked' until the heavy lift contractor vessel arrives to start the removals programme. During the 'cold stack' period, no personnel will remain on board, and the platform will be fully powered down and isolated. Temporary navaids will be provided on the platform during this period with monitoring of the system provided via a service contract with a specialist contractor.

B. Prior to the 'cold stack' period the platform will have been made safe (see Sections 3.1.2 and 3.3) and all necessary preparations agreed with the heavy lift contractor will have been completed in order to enable them to remove, transport and dispose of the topsides safely.

C. Upon arrival at the platform to start removal activities the heavy lift contractor will ensure that the platform is safe to access and will perform any remedial work required to achieve this. During the removal activities all accommodation will be provided on the lift vessel and all utilities will be provided by the contractor including any required navaids.

D. The contractor will prepare the platform for removal including module separation and all preparation required for each individual lift including lift point installation and final structural separation.

E. Modules will be lifted from the platform utilising the HLV cranes and will be stored and secured on the HLV vessel deck, according to the planned removal sequence.

F. The HLV will transport the modules to the disposal yard for offload or will perform an on-site or sheltered water transfer of modules to transportation barges, for onward travel to the disposal yard.

G. On arrival at the disposal yard the modules will be offloaded and moved to suitable locations on the yard to enable dismantling to commence.

H. The removal sequence will be optimised in order to minimise vessel movements i.e. removal of modules in batches from east or west side and in order to enable preparatory work for lower modules to be undertaken in a timely manner.

I. The removal methodology aims to minimise the preparation work that needs to be completed offshore by combining some of the module lifts, including the final lift which is planned to comprise of the MSF and a number of remaining modules. This lift will not be set down on the Semi-Submersible Crane Vessel (SSCV) deck but will be carried directly to shore on the vessel hooks after appropriate restraints have been installed. The topsides removal is planned to be completed in one season.

J. Before leaving the field, the heavy lift contractor will install navaids as required on the remaining facility, and these will thereafter be maintained by a specialist contractor including real-time status and analysis.

3.2 Wells

Table 3-3: Well Plug and Abandonment
The wells which remain to be decommissioned, as listed in Section 2.2 (Table 2-2), will be done so in accordance with Oil and Gas UK Well Decommissioning Guidelines (June 2018). A Well Operations and Notification System (WONS) / Portal Environmental Tracking System (PETS) / Marine Licence application will be submitted in support of any such work that is to be carried out.

3.3 Waste Streams

Waste stream information is provided below.

Table 3-4: Waste Stream Management Methods	
Waste Stream	**Removal and Disposal Method**
Bulk liquids	Topsides vessels will be drained and flushed as part of Make-Safe & Handover (MS&H) activities. The majority of residual hydrocarbons will be reinjected into the reservoir in compliance with an approved permit. Additional hydrocarbons may be transported to shore in accordance with maritime transportation guidelines, and disposed of at an appropriately licensed facility.
Residual fluids (e.g. Diesel, aviation fuel, chemicals)	Fuel oil vessel contents will be minimised as part of MS&H activities. The diesel system (including day tanks) will be drained back to the main storage tank and run down prior to cold stack phase. Residual diesel will be shipped onshore for recovery, or disposed of at an appropriately licenced facility. Aviation fuel will be drained back and removed from the platform prior to cold stack phase. Chemical tanks will be cleaned and isolated, and pipework will be drained and flushed prior to topsides removal. Residual chemicals will be disposed of at an appropriately licensed facility.
Fluorinated gas (F-gas)	F-gas sources will be depressurised and recovered prior to cold stack phase. Heating, Ventilation and Air Conditioning (HVAC), refrigeration and freezer units will be transported to shore as part of the topsides removal scope in accordance with maritime transportation guidelines. These units and residual F-gas contents will disposed of at an appropriately licensed facility.
NORM/LSA Scale	The majority of NORM will be removed offshore and discharged under an appropriate consent. NORM / LSA contaminated equipment will be transported to shore and treated by qualified professionals at a suitably licensed facility. Stabilised NORM waste will then be transported to a specialist permitted site for disposal.
Asbestos	Asbestos will be contained offshore and transported to shore for disposal at an appropriately licensed facility.
Marine growth	Marine growth will be removed offshore during recovery operations, or shipped onshore for disposal at an appropriately licensed facility.
Other hazardous wastes	Other hazardous materials will be recovered and transported onshore for disposal at an appropriately licensed facility.
Onshore Dismantling sites	A decommissioning yard with extensive experience has been selected for dismantling the Dunlin Alpha topsides. The selected facility has all relevant permits and consents required, and has repeatedly demonstrated the ability to successfully manage waste streams throughout the deconstruction process. A Transfrontier Shipment of Waste (TFSW) permit will be required for the shipment of the Dunlin Alpha topsides. Early engagement with the regulatory authority will ensure any issues with this are addressed.

Table 3-5: Inventory Disposition			
	Total Inventory (Tonnes)	**Planned Return to Shore (Tonnes)**	**Planned Left *In situ* (Tonnes)**
Topsides	19,640	19,640	All the material within the envelop of this DP will be removed. The remainder of the substructure will be addressed in FBL-DUN-DUNA-HSE-01-PLN-00001-02
Transitions	155	155[12]	
Conductors[13]	2,290	2,290	
Guide Frames[14]	445	445	
Total	**22,530**	**22,530**	

Table 3-6: Anticipated Waste Management Target				
Waste stream	**Reuse**	**Recycle**	**Other recovery**	**Landfill**
Ferrous metal	0 - 15%	95 - 98%	0%	0 - 5%
Non-ferrous metal	0%	95 - 98%	0%	0 - 5%
Concrete (aggregates)[15]	0 - 50%	0%	50 - 100%	0 - 25%
Plastics	0%	50 - 75%	15 - 40%	0 - 10%
Residual hydrocarbons	0%	0%	85 - 100%	0 - 15%
NORM[16]	0%	0%	0%	100%
Marine growth	0%	0%	75 - 100%	0 - 25%

[12] *The final amount of transition material removed will depend on the cut point selected to remove the topsides. The cut point is likely to be 2-3 m below the MSF equating to approximately 10% of the combined transition weight.*

[13] *The conductors will be cut to LAT-74 m. Conductor sections removed will be 45 x 105 m (LAT-74 m to LAT+31 m) and conductors left in situ will be 45 x 80 m (LAT-74 m to LAT-154 m (3 m below mudline which is the decommissioning datum point), of which 32 m will be contained within the CGBS structure).*

[14] *The upper two guide frames will be removed leaving the lower guide frame decommissioned in situ*

[15] *Reuse and recovery opportunities will be dependent on availability of infrastructure projects.*

[16] *NORM may be sent for incineration prior to landfill in order to reduce volume.*

4 ENVIRONMENTAL APPRAISAL

An environmental assessment of the proposed decommissioning operations has been undertaken in support of the Dunlin Alpha Decommissioning Programme and is detailed in the Environmental Appraisal (EA) Report. The process involved the identification of key environmental sensitivities in the Dunlin area in order to assess potential impacts arising from decommissioning operations, and identify management measures required to minimise impact on the environment. A summary of the EA is provided below.

4.1 Environmental Sensitivities (Summary)

Table 4-1: Environmental Sensitivities

Environmental Receptor	Main Features
Conservation interests	None of the survey work undertaken in the Dunlin area has identified any seabed habitats or species that are of specific conservation significance, apart from low numbers of juvenile ocean quahog, which is considered to be a threatened species[17]. There are no designated or proposed sites of conservation interest in the Dunlin area; the closest designated site, the Special Area of Conservation (SAC) 'Pobie Bank Reef', lies approximately 98 km to the south west of Dunlin, off the east coast of Shetland.
Seabed	The habitat assessment undertaken has determined the sediments to be mainly muddy sand and mixed sediment. The visible animals found across the survey area included polychaete worms, crustaceans and molluscs. Surveys showed the seabed to host a relatively diverse range of species, with little variation across the area.
Fish	The fish populations in the Dunlin area are characterised by species typical of the northern North Sea. The Dunlin area is located within the spawning grounds of cod, haddock, Norway pout, saithe and whiting; meaning that these species use the area for breeding. Nursery grounds, where juvenile fish remain to feed and grow for anglerfish, cod, haddock, herring, mackerel, plaice, sandeel, saithe, sprat, Norway pout, blue whiting, spurdog, herring and ling are also found in the wider area.
Fisheries	Saithe and mackerel (often targeted by the larger pelagic vessels in January and February) are the key commercial species landed from the Dunlin area. However, they are of relatively low value when compared to total landings into Scotland; combined, landings of these species from the wider area within which Dunlin Alpha sits comprise only 0.1% of the value of landings into Scotland. Other species of commercial value include megrim, cod and monks/anglers.
Marine Mammals	Spatially and temporally, harbour porpoises, white-beaked dolphins, minke whales, killer whales and white-sided dolphins are the most regularly present cetacean species in the North Sea. Given the distance to shore, species such as the bottlenose dolphin and grey and harbour seals are unlikely to be sighted in the Dunlin area.

[17] The ocean quahog is on the OSPAR list of threatened and/or declining species and habitats in the North Sea. Further information can be found in the Dunlin Alpha Environmental Appraisal Report

Table 4-1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
Birds	The project area is important for northern fulmar, northern gannet, great black-backed gull, Atlantic puffin, black-legged kittiwake, and common guillemot for the majority of the year. In the project area the sensitivity of seabirds to oil pollution, reflected by the Seabird Oil Sensitivity Index (SOSI), is low between February and October, except in May as no data is available for this month. Between November and January, the SOSI is high.
Onshore Communities	Fairfield has selected a decommissioning yard with considerable experience in the dismantling and disposal of offshore installations, and involved consideration of how site construction and design have been developed to minimise impact. As such, the facility has the established processes and procedures required for managing potential environmental issues and community relations as part of their existing site management plans.
Other Users of the Sea	There is very little shipping activity in the Dunlin area, and no site of renewable energy, cabling or archaeological interest. There is also limited infrastructure related to other oil and gas developments.
Atmosphere	Atmospheric emissions generated from vessels can contribute to local air quality issues; the absence of vulnerable receptors in the offshore area means this is not an issue for the Dunlin area. In addition, atmospheric emissions from the proposed decommissioning activities is occurring in the context of the cessation of production. As such, almost all future atmospheric emissions from Dunlin Alpha operations and vessels will cease. Emissions to air can also act cumulatively with those from other activities (such as onshore power generation and use of vehicles) to contribute to global climate change. These emissions may come from vessel use but also through linked activities such as the recycling of materials brought onshore.

4.2 Potential Environmental Impacts and their Management

4.2.1 Environmental Appraisal Summary

The Dunlin Alpha Topsides Environmental Appraisal has been informed by a number of different processes, including scoping with the Regulators and their statutory advisors and workshops with specialists. An Environmental Impact Identification (ENVID) was undertaken to identify the key potential environmental impacts of the project. This included the management of waste associated with Dunlin Alpha topsides decommissioning activities.

A review of potentially significant environmental interactions was completed and, considering the extent of potential interaction with receptors and the mitigation measures that will be built into decommissioning activities, no significant impact on receptors is expected. As part of this review, cumulative and transboundary impacts have also been assessed and determined not to be significant.

The assessment also considered the objectives and marine planning policies of the National Marine Plan across the range of policy topics including biodiversity, natural heritage, cumulative impacts and oil and gas and the proposed decommissioning activities are in broad alignment with its objectives and policies.

In summary, the proposed operations have been rigorously assessed, resulting in a decommissioning programme that is thought to present the least risk of environmental impact whilst satisfying safety risk, technical feasibility, societal impacts and economic requirements.

4.2.2 Overview

Table 4-2: Environmental Impact Management

Activity	Main Impacts	Management
Topsides Removal	Atmospheric emissions	Planning of removal operations to reduce vessel numbers and durations. Onshore facilities will have appropriate management procedures in place to ensure that atmospheric emissions are below levels that could affect local air quality.
	Dropped objects	Dropped object procedures are well established industry practices. Compliance with all marine operations standards is a fundamental requirement of Fairfield's contract tendering and project assurance processes. Consideration of sensitive nearshore environments is a key element of these systems. On this basis, Fairfield are confident that all necessary preventative measures will be implemented.

Table 4-2: Environmental Impact Management		
Activity	**Main Impacts**	**Management**
Topsides Removal	Onshore management of waste.	The selection of a competent decommissioning and waste management contractor is key to managing potential onshore impacts. Fairfield has developed a waste management strategy for the project in order to outline the processes and procedures necessary to ensure that waste is managed in a manner that complies with legislative requirements and prevents harm to people and the environment.
	The permanent physical presence of the substructure could result in potential interaction with other users of the sea.	A 500 m safety zone will remain around the installation. A navaid including radar beacon or Automatic Identification System (AIS) will be fitted to a transition to visibly show the location of the substructure to other sea users. Admiralty Charts and the FishSafe system will be updated to show the permanent location of the Dunlin Alpha substructure.

5 INTERESTED PARTY CONSULTATIONS

5.1 Consultations Summary

Informal engagement to date has been conducted in tandem for the topsides and substructure. There were two principal engagement phases during preparation of the Decommissioning Programme:

1) 2010-2012 to establish scope requirements, including:
   - Initiation and sharing of technical studies
   - Formation of Cell Contents Expert Discussion Group
   - Consultation with five OSPAR Contracting Parties
   - Bilateral stakeholder meetings
   - Regulatory liaison
   - Regularly updated website
2) 2016-2018 following Cessation of Production in 2015, with refreshed stakeholder base (c100 organisations)
   - Consultation on scope of Environmental Impact Assessment to inform further studies
   - Bilateral and multilateral meetings with stakeholders
   - Two major stakeholder engagement workshops (pre- and post-CA evaluation) with reports circulated to all stakeholders, not just attendees
   - Participation of key stakeholders in CA evaluation workshop
   - Sharing of key documents with stakeholders, notably Cell Contents Technical Report and Drill Cuttings Technical Report, plus other documentation as requested
   - Regulatory liaison
   - Regularly updated website
   - Conference and Parliamentary presentations on project progress
   - Supply chain engagement
   - Industry liaison on 'lessons learnt'

Full details can be found in the Stakeholder Engagement Report.

Formal statutory and public comments shown below are those which related to the topsides only. Substructure comments will be detailed separately in the Substructure Decommissioning Programme.

Note that following the decision to separate the topsides from the CGBS into two separate programmes, further consultation from 15th to 29th March 2019 was undertaken with statutory and (via OPRED) regulatory consultees, and the proposed topsides Decommissioning Programme posted on the Fairfield website. No comments were received.

Table 5-1: Summary of Stakeholder Comments		
Stakeholder	**Comment**	**Response**
Statutory Consultations		
Global Marine Systems	No comment	N/A
National Federation of Fishermen's Organisations	No comment (represented by Scottish Fishermen's Federation)	N/A
Northern Ireland Fish Producers Organisation	No comment (represented by Scottish Fishermen's Federation)	N/A
Scottish Fishermen's Federation	No comments received on topsides scope	N/A
Public Consultations		
Tom Baxter	Queried basis of costings regarding leave *in situ* solutions for topsides/ economics of alternative solutions, asking as a taxpayer for costing detail for scrutiny and potential influence on cessation of production dates and revenues if the possibility of leave *in situ* solution had been available. Sought Fairfield's view on the regulatory position with respect to removal requirements and taxpayer interests.	Analysis of feasible options for decommissioning followed regulatory requirements. Anticipated topsides removal costs have been provided in confidence for scrutiny to OPRED and OGA (on behalf of Treasury). Actual costs will appear in the close-out report. Derogation for topsides removal would not have extended the period before Cessation of Production, given the particular circumstances precipitating the decommissioning requirement.

6 PROGRAMME MANAGEMENT

6.1 Project Management and Verification

A Project Management Team (PMT) has been appointed to manage suitable sub-contractors for the removal of the Dunlin Alpha topsides. Standard procedures for operational control and hazard identification and management will be used. Where possible the work will be coordinated with other decommissioning operations in the Northern North Sea. The PMT will monitor and track the progress of consents and the consultations required as part of this process. Any changes in detail to the offshore removal programme will be controlled by Fairfield through its Management of Change procedures and discussed and agreed with OPRED.

6.2 Post-Decommissioning Debris Clearance and Verification

During site clearance activities, Fairfield will make best endeavours to recover any dropped objects subject to any outstanding Petroleum Operations Notices (PON). All recovered seabed debris related to offshore oil and gas activities will be returned for onshore disposal or recycling in line with existing disposal methods. A post-decommissioning site survey will be carried out around a 500 m radius of the installation site. This will be followed by independent verification and provision of a statement of seabed clearance to all relevant authorities.

6.3 Schedule

The Dunlin Alpha decommissioning schedule is shown below.

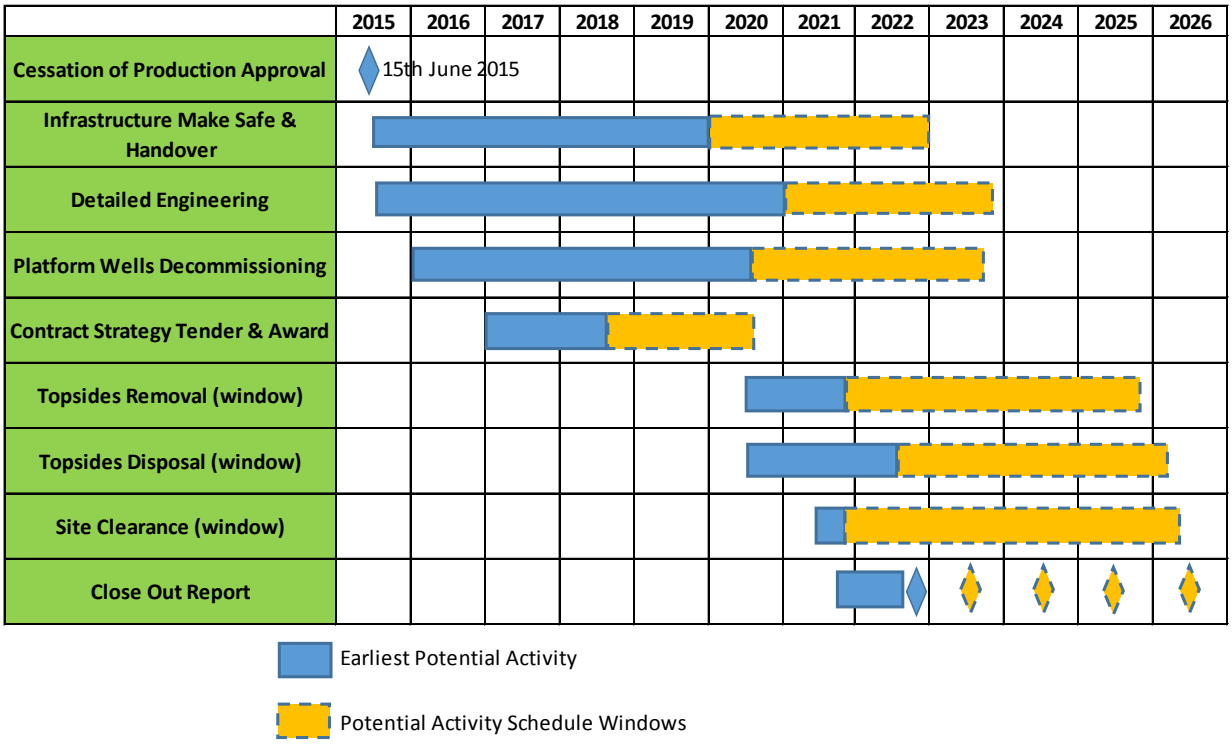


Figure 6-1: Gantt Chart of Dunlin Alpha Topsides Project Schedule

6.4 Costs

Fairfield has followed Oil and Gas UK Guidelines on Decommissioning Cost Estimation (Issue 3, September 2013) for the decommissioning of the Greater Dunlin Area.

Table 6-1: Provisional Decommissioning Programme Costs

Item	Estimated Cost (£m)
Installation Preparation / Removal and Disposal	Provided to OPRED separately
Pipelines Decommissioning	N/A
Subsea Installation and Stabilisation Features	N/A
Well Decommissioning	Provided to OPRED separately
Continuing Liability – Future Pipeline and Environmental Survey Requirements	Provided to OPRED separately
Total Cost	Provided to OPRED separately

6.5 Close Out

In accordance with the OPRED guidance notes, a close out report will be submitted to OPRED explaining any applicable variations from the Decommissioning Programme within 12 months of the completion of the overall Greater Dunlin Area offshore decommissioning scope. This will include details of the first post-decommissioning environmental survey. In the interim, quarterly reports on progress of the decommissioning operations will be provided to the regulator.

6.6 Post-Decommissioning Monitoring and Evaluation

The arrangements for post-decommissioning monitoring and evaluation, including a second environmental survey, will be covered in the Dunlin Alpha Substructure Decommissioning Programme.

7 SUPPORTING DOCUMENTS

Table 7-1: Supporting Documents		
Title	**Document Number**	
Dunlin Alpha Comparative Assessment Report	A-301649-S07-REPT-005	www.fairfield-energy.com/public-consultation
Dunlin Alpha Environmental Appraisal Report	XOD-DUN-HSE-RPT-00005	
Dunlin Alpha Environmental Appraisal Report (Topsides only)	XOD-DUN-HSE-RPT-00005-01	
Dunlin Alpha Stakeholder Engagement Report	FBL-DUN-DUNA-FAC-01-RPT-00006	
Fairfield Waste Management Strategy	FBL-DUN-HSE-STR-00003	
Dunlin Alpha Cost Summary Report (confidential, issued to OPRED only)	FBL-DUN-DUNA-HSE-01-RPT-00004	

Table 7-2: Reference Documents	
Title	**Document Number / Date**
OPRED Decommissioning of Offshore Oil and Gas Installations and Pipelines Guidance Notes	May 2018 notes have been used due to timing (now updated to Nov 2018) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/760560/Decom_Guidance_Notes_November_2018.pdf
DECC Guidance Notes for the Decommissioning of Offshore Oil and Gas Installations and Pipelines Under the Petroleum Act 1998 (now replaced by OPRED guidance notes, see above)	Version 6, March 2011
Oil and Gas UK Guidelines for Well Abandonment (for decommissioned wells pre October 2018)	Issue 5, Jul 2015
Oil and Gas UK Well Decommissioning Guidelines (October 2018 onwards)	Issue 6 June 2018
Dunlin Alpha Re-use Report	2011
Dunlin Alpha Consultation Draft Decommissioning Programme	FBL-DUN-DUNA-HSE-01-PLN-00001 www.fairfield-energy.com/public-consultation
Dunlin Alpha Substructure Decommissioning Programme (Awaiting publication)	FBL-DUN-DUNA-HSE-01-PLN-00001-02
Dunlin Fuel Gas Import (DFGI) / Dunlin Power Import (DPI) Decommissioning Programme	FBL-DUN-DUNA-HSE-01-PLN-00002

8 PARTNER LETTER OF SUPPORT

MCX DUNLIN (UK) LTD.
Mid City Place, 71 High Holborn
London, WC1V 6BA, United Kingdom

May 1, 2019

Offshore Petroleum Regulator for Environment & Decommissioning
Offshore Decommissioning Unit
AB1 Building
Crimon Place
Aberdeen
AB10 1BJ

FAO: Ms. Debbie Taylor, Senior Decommissioning Manager

Dear Ms. Taylor,

DUNLIN ALPHA TOPSIDES DECOMMISSIONING PROGRAMME

We, MCX Dunlin (UK) Limited, confirm that we authorise Fairfield Betula Limited to submit on our behalf the Dunlin Alpha Topsides Decommissioning Programme [Rev A4, April 2019] as directed by the Secretary of State in August 2008.

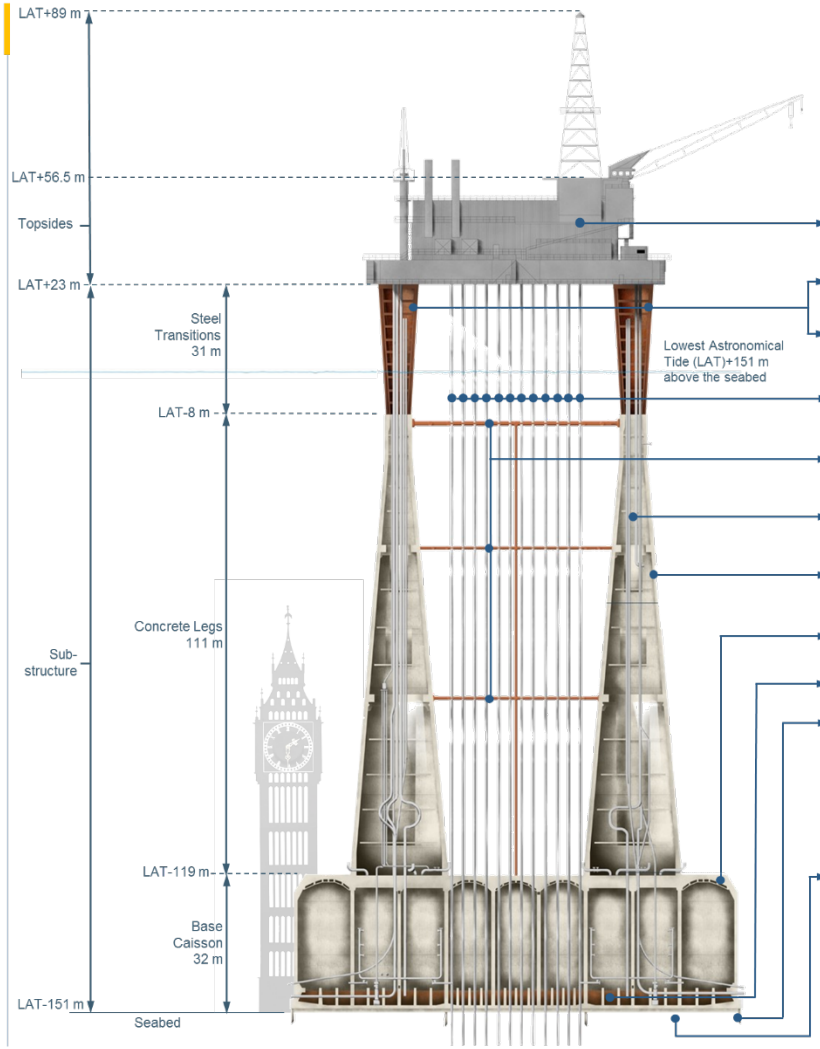
We confirm that we support the proposals detailed in the Dunlin Alpha Topsides Decommissioning Programme [Rev A4, April 2019], which is to be submitted by Fairfield Betula Limited in so far as they relate to those facilities in respect of which we are required to submit an abandonment programme under Section 29 of the Petroleum Act 1998.

Yours Sincerely,

M. Kawamata

Michio Kawamata
Director
MCX Dunlin (UK) Limited

APPENDIX 1 – DUNLIN ALPHA INSTALLATION FAST FACTS



Dunlin Alpha Installation Fast Facts

Platform installed in 1977
Production from 1978 - 2015

FairfieldEnergy

Infrastructure	Dimensions	Weight (te)	Weight Excludes
Topsides (dry)	19,250 te 82.3 m x 63.7 m footprint Incl. ≈ 30 te of NORM ≈ 360 te of hazardous materials	**≈ 19,640**	Operational Weights e.g. Process Fluids/Laydown
Steel Transition A & B	2 x 295 te 5.4 m in diameter (cylindrical) 31 m tall	**≈ 590**	Leg Internals Marine Growth
Steel Transition C & D	2 x 500 te 5.4 m to 8.9 m in diameter (conical) 31 m tall	**≈ 1,000**	Leg Internals Marine Growth
Conductors	45 x 185 m (long) x 30" conductors from LAT+31 m to 3 m below seabed	**≈ 4,030**	Inner completions Marine Growth Clamps / Braces
Conductor Guide Frames and Vertical Supports	1 at LAT-10 m 1 at LAT-40 m 1 at LAT-76 m	**≈ 570**	Marine Growth Cathodic Protection Skid
Leg Internals (e.g. pipework, stairs)	Within 4 steel transitions and concrete legs from LAT+23 m to LAT-119 m	**≈ 1,250**	-
Concrete Legs (reinforced concrete)	Concrete legs: 4 x 8,625 te 22.65 m to 6.7 m in diameter (conical) 111 m tall	**≈ 34,500**	Leg Internals
Base Caisson	104 m x 104 m x 32 m	**≈ 202,000**	Base Caisson Internals Cell Contents Ballast
Iron Ore Ballast and Concrete Cover Layer	Approximately 104 m x 104 m x 3 m deep	**≈ 96,800**	-
Seabed Skirts	8 x 104 m x 4 m	**≈ 1,450**	-
Total Weight of substructure (including contingency)	-	**≈ 342,000**	Topsides Marine Growth Debris Drill Cuttings Cell Contents Under Caisson Grout
Marine Growth (wet)	-	**≈ 1,400**	-
Under Caisson Grout	-	**≈ 500**	-
Drill Cuttings	19,555 m^3 over 9,184 m^2	**≈ 48,888**	-
Note, weights are estimates as of Cessation of Production (CoP) June 2015			

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APPENDIX 2 – PUBLIC NOTICES

Printed in the Press & Journal (Aberdeen), The Shetland Times, The Edinburgh Gazette and The Guardian (UK national) newspapers on Friday 3rd August 23rd 2018:

THE PETROLEUM ACT 1998

DUNLIN ALPHA DECOMMISSIONING PROGRAMME

Fairfield Betula Limited has submitted, for the consideration of the Secretary of State for Business, Energy and Industrial Strategy, a draft Decommissioning Programme for the Dunlin Alpha concrete gravity base installation 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 facilities covered by the draft Decommissioning Programme are located in Block 211/23a in the Northern North Sea, approximately 137 km north east of Shetland and 11 km from the UK/Norwegian median line. They comprise a four leg concrete gravity base substructure with storage cells, and steel transitions spanning the splash zone to support the topsides which consist of a steel box girder module support frame deck and two further levels of modules.

Fairfield Betula Limited hereby gives notice that the draft Decommissioning Programme can be viewed online at www.fairfield-energy.com/public-consultation. Alternatively a digital copy of the Decommissioning Programme can be requested from, or hard copies inspected at:

Reception
Fairfield Energy Limited
19 Abercrombie Court
Prospect Road
Arnhall Business Park
Westhill, Aberdeen AB32 6FE
Tel: 01224 320500

Representations regarding the Dunlin Alpha draft Decommissioning Programme should be submitted to stakeholder.mailbox@fairfield-energy.com before the consultation closing date, 14 September 2018, and should state the grounds upon which any representations are being made. Representations can also be made in writing to Peter Lee, Regulatory Affairs & Stakeholder Engagement Manager, at the above address.

3 August 2018