



**FairfieldEnergy**

**2017 Annual  
Environmental Statement  
Fairfield Energy Limited**





**For Further Information,  
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# 1. Environmental Policy

It is the policy of Fairfield Energy Limited (Fairfield) to seek to conduct its business in a responsible manner that prevents pollution and promotes the preservation of the environment.

Fairfield appreciates that our activities can interact with the natural environment in many ways. We recognise that sustained development of Fairfield and our long term success depends upon achieving high standards of environmental performance. We are therefore committed to conducting our undertakings in an environmentally responsible manner.

This means that we will:

- Integrate environmental considerations within our business and ensure that we treat these considerations with at least equal importance to those of productivity and profitability;
- Incorporate environmental risk assessment in our business management processes, and seek opportunities to reduce the environmental impact of our activities;
- Continually improve our environmental management performance;
- Comply with all environmental laws, regulations and standards applicable to our undertakings;
- Allocate necessary resources to implement this policy;
- Communicate openly in matters of the environment with government authorities, industry partners and through public statements.

In particular, we will:

- Maintain an environmental management system in accordance with international best practice and with the ISO 14001:2015 standard, including arrangements for the regular review and audit of our environmental performance;
- Conduct environmental analyses and risk assessments in our areas of operation, in order to ensure that we understand the potential environmental impacts of our activities and that we identify the necessary means for addressing those impacts;
- Manage our emissions according to the principles of Best Available Techniques;
- Publish an annual statement on our public web site, providing a description of our environmental goals and performance;
- Maintain incident and emergency systems in order to provide assessment, response and control of environmental impacts.

Ultimate responsibility for the effective environmental management of our activities rests with the Managing Director and the Board.

This policy shall be implemented by line management through the development and implementation of working practices and procedures that assign clear responsibilities for specific environmental activities with our employees and contractors.

In addition, each of our employees has a personal responsibility to conduct themselves in a manner that enables us to implement this policy and our environmental management system.



**John Wiseman**  
Managing Director

## 2. Overview

### 2.1. Background

Fairfield Energy (Fairfield) was established in 2005 and was created specifically as a UK focused independent company to participate in the realignment of North Sea asset ownership in this mature province.

Having concluded that Dunlin had reached the point of maximum economic recovery, particularly in the light of prevailing industry conditions, termination of production from the Greater Dunlin Area was announced by Fairfield on 15<sup>th</sup> June 2015. Approval for Cessation of Production (CoP) was received from the Oil & Gas Authority (OGA) on 15<sup>th</sup> January 2016 with CoP confirmed to have occurred on 15<sup>th</sup> June 2015.

Fairfield is an experienced, late-life asset and decommissioning operator. Our current project is the decommissioning of the Greater Dunlin Area incorporating Osprey and Merlin subsea satellite fields and associated infrastructure.

### 2.2. Our Operations

The Greater Dunlin Area is located in Blocks 211/23 and 211/24 of the UK Continental Shelf which is in the Brent oil province in the Northern North Sea (NNS). The Dunlin Alpha platform stands some 500km north-northeast of Aberdeen within the East Shetland Basin, and 11 km from the boundary line with Norway.

#### 2.2.1. Dunlin Alpha

The main operations on the Dunlin Alpha platform in 2017 focussed on Plug and Abandonment (P&A) and Make Safe and Handover (MS&H) activities.

All forty five Dunlin platform wells are in the process of being permanently abandoned as part of a large-scale P&A campaign which commenced in January 2016. By the end of 2017, a total of forty four wells were worked on since the campaign began of which two had been abandoned to Phase 3 status, fourteen had been abandoned to Phase 2 status and a further four had been abandoned to Phase 1 status.

MS&H activities ensure that the topsides are hydrocarbon free in order to safely remove equipment and isolate modules prior to eventual removal. Key MS&H activities undertaken in 2017 included:

- Process vessel preparations and cleaning;
- Telecoms tower removal;
- Pipedeck remedial activity;
- Helideck fabric maintenance;
- Hazardous material, radiation, leg inventory and leg hazardous material surveys.

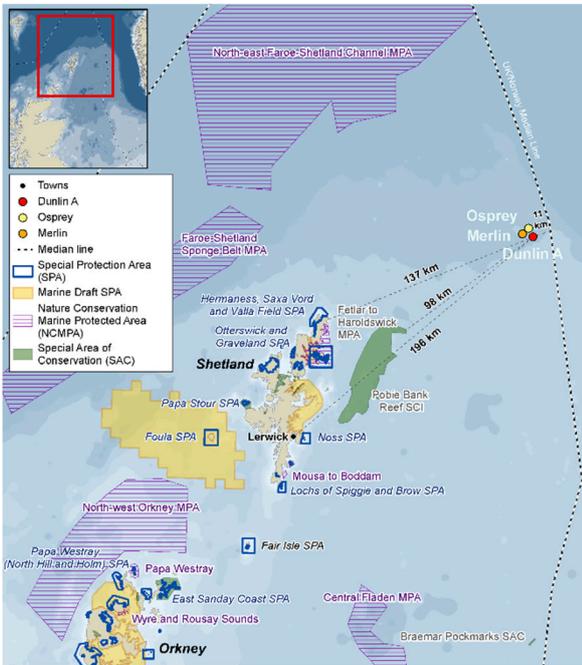
Dunlin Alpha continues to act as an export hub for crude oil from the Thistle field which, having historically being combined with production from the Greater Dunlin Area and Murchison field, is exported to Sullom Voe via the Dunlin/Cormorant export pipeline.

#### 2.2.2. Subsea Well Plug and Abandonment

In April 2017 the Transocean 712 arrived on location at Osprey to commence plug and abandonment operations on the eight production and four water injection wells. By the end of 2017, three of the wells had been Phase 2 abandoned, and a further three had been Phase 1 abandoned. The remaining six wells had all been mechanically plugged, two of which had had their subsea xmas trees recovered.

#### 2.2.3. Subsea Infrastructure Decommissioning

The Comparative Assessment Workshop for the Greater Dunlin Area Subsea Infrastructure Decommissioning was undertaken in January 2017. Subsequent efforts throughout the year led to the preparation and formal submission of the Comparative Assessment Reports, Environmental Statements and Decommissioning Programmes for the Dunlin, Osprey and Merlin Subsea infrastructure. All three Decommissioning Programmes were approved by OPRED on 14<sup>th</sup> December 2017.



## Dunlin Alpha

**Location:**  
196 km north east of Lerwick

**Block:**  
211/23

**Water Depth:**  
151 m

**Operator / Duty Holder:**  
Fairfield Betula Limited

**Installation Type:**  
Four-leg, concrete gravity base multi-cell substructure with a steel box girder based topsides supporting the drilling deck, module deck and lower deck.

**Platform Wells:**  
45

**Production Commenced:**  
August 1978

**Production Ceased:**  
June 2015

**Estimated Total Recovery:**  
522 million barrels

**Tie-backs:**  
The Osprey field is a subsea development located 6 km to the north-north west of the platform. The Merlin field is a subsea development located 7 km to the west-north west of the platform.

- Infrastructure:**
- 8" oil production pipeline from Merlin to Osprey crossover manifold
  - 38" Osprey south production bundle
  - 38"/31.5" Osprey north production bundle
  - 10" water injection pipeline to Osprey
  - 8" water injection pipeline to Merlin
  - 16" oil import pipeline from Thistle Alpha
  - 24" oil export pipeline to Cormorant Alpha
  - 4" fuel gas import line from Thistle Alpha (10.3 km)
  - Dunlin Power Import Cable from Brent Charlie (22.3 km)

### 3. Environmental Management System

Fairfield has a structured Environmental Management System (EMS) which communicates company policy and establishes the company standards for environmental risk management. The EMS provides a controlled and systematic approach to promoting best practice in environmental management as well as outlining the mechanisms through which compliance is maintained.

The EMS has been developed in accordance with current UK environmental legislation and is certified in accordance with ISO 14001:2015.

Progress against the key objectives / programmes within our 2017 environmental programme is summarised in Table 3.1.

Our 2018 environmental programme continues and builds upon our 2017 programmes and objectives. Specifically for 2018, targets and objectives have been set in the Environmental Management System within the following programmes.

- Audit / Inspection Programme;
- Completion of the Dunlin Alpha EIA/EA Delivery Programme;
- Completion of the PL5 EA/ES Delivery Programme;
- Continual improvement of EMS.

Objective / Programme	Summary of Progress
<b>Waste Management Improvement Programme</b>	A Fairfield Waste Management Strategy was produced as a guidance document for management of decommissioning waste. This document was share with Regulators with positive feedback.  Offshore and onshore waste audits were completed to identify waste management issues and learnings were shared with all personnel.
<b>Environmental Training &amp; Awareness Programme</b>	Full compliance with Fairfield environmental training and competency requirements was achieved for all relevant offshore and onshore personnel throughout 2017. A bespoke environmental awareness training module was developed and utilised for plug and abandonment operations undertaken by the Transocean 712.
<b>Audit / Inspection Programme</b>	Both the Dunlin Alpha and the Transocean 712 were audited / inspected twice by onshore Environmental Advisors during 2017.  Monthly platform-wide and weekly drilling package environmental inspections were undertaken on Dunlin Alpha throughout the year.
<b>EIA / ES Delivery Programme</b>	Environmental Statements for Dunlin, Merlin and Osprey subsea infrastructure were prepared following the Comparative Assessment Workshop for the Greater Dunlin Area Subsea Infrastructure Decommissioning and submitted in support of the associated Decommissioning Programmes. All three Decommissioning Programmes were subsequently approved by OPRED on 14 <sup>th</sup> December 2017.

Table 3.1 – 2017 Key Objectives and Summary of Progress

## 4. Environmental Performance

Given the nature of Fairfield's operations during 2017, the potential for significant environmental impact arose from:

- atmospheric emissions from power generation;
- chemical use and discharge;
- waste; and
- accidental releases.

The environmental performance of Fairfield's operations in 2017 are summarised in the sections that follow, and has been reported to the Department for Business, Energy & Industrial Strategy (BEIS) via the UK Environmental Emissions Monitoring System (EEMS).

### 4.1. Atmospheric Emissions

Atmospheric emissions from the Dunlin Alpha are derived from the generation of power required to support well plug and abandonment operations, as well as making the topsides safe prior to removal.

In 2017, 100% of the power generated by Dunlin was from diesel combustion, as fuel gas is no longer available and power is no longer imported from the Brent Charlie installation. In total, approximately 18,000 MWhrs of power was generated in support of decommissioning operations.

A summary of the atmospheric emissions generated from the Dunlin Alpha in 2017 is given below.

Emissions in tonnes	CO <sub>2</sub>	NO <sub>x</sub>	N <sub>2</sub> O	SO <sub>x</sub> *	CO	CH <sub>4</sub>	VOC
Power Generation	12,163.69**	225.79	0.84	7.60	59.68	0.68	7.60
Venting	0.14	0	0	0	0	0.84	0.89
Fugitive Emissions	3.06	0	0	0	0	18.22	19.20
<b>Total</b>	<b>12,166.89</b>	<b>225.79</b>	<b>0.84</b>	<b>7.60</b>	<b>59.68</b>	<b>19.74</b>	<b>27.69</b>

\*Diesel used for power generation has 0.1% sulphur content.

\*\*N.B. 488.07 t of CO<sub>2</sub> was reported under EU-ETS for 2017 as the installation fell below the EU-ETS qualifying threshold in January 2017, due to the reduction of power generation requirements. The Dunlin Alpha PPC permit was subsequently surrendered and revoked in November 2017. A Dunlin Alpha Vent Consent remains in place.

Table 4.1 – Summary of Atmospheric Emissions Generated From Dunlin Alpha in 2017.

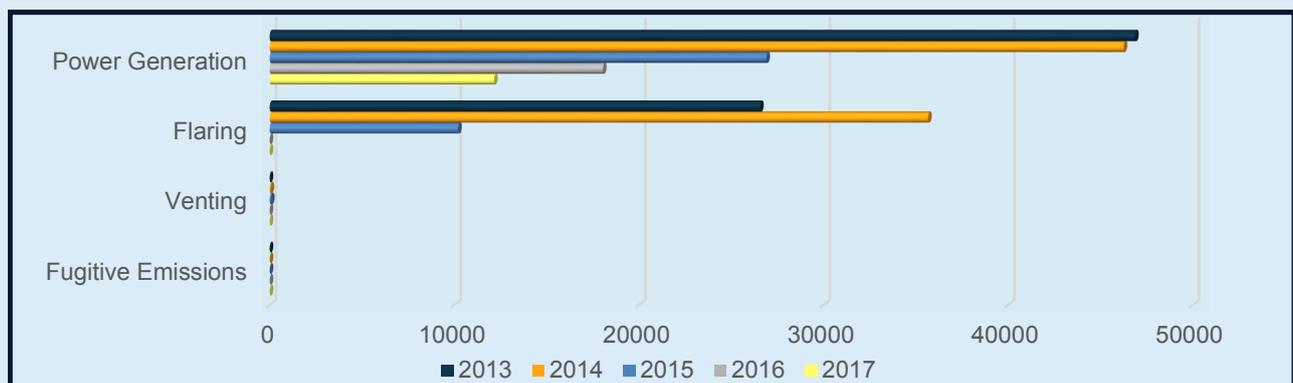


Figure 1 – CO<sub>2</sub> Discharges (mT) by Source

## 4.2. Accidental Releases

The prevention of oil and chemical releases is of the highest priority during Fairfield operations, and consequently we maintain procedures, training and awareness campaigns in order to minimise the risk of release and to ensure a rapid response to any such event.

Oil and chemical release incidents are reported to BEIS in accordance with the Petroleum Operations Notice 1 (PON1) system. Fairfield was responsible for the occurrence of five such incidents in 2017, a summary of which is provided in Table 4.2 below.

Reference	Date	Nature of Incident	Type of Spill	Estimated Maximum Quantity Released (kg)	Location
PON1/6329	20/05/2017	Spill of fluids during sand sampling being undertaken from a sand cyclone.	Oil	0.0002	Dunlin
PON1/6453	26/06/2017	Overflow of Drilling CATS engine diesel fuel tank.	Oil	33	Dunlin
PON1/6574	01/08/2017	Leak of hydraulic oil on Annulus master valve coupler on Lower riser package/subsea tree running tool.	Oil	0.09	Transocean 712 (Osprey)
PON1/6831	26/10/2017	Waste oil tank overflowed due to water ingress.	Oil	4.5	Dunlin
PON1/6989	21/12/2017	Leak of oil based mud from the slip joint packer.	Chemical	462	Transocean 712 (Osprey)

Table 4.2 – 2017 Oil and Chemical Release Incidents

## 4.3. Chemical Use and Discharge

Offshore use and discharge of operational chemicals is regulated by the Offshore Chemical Regulations 2002 (as amended), where the word “chemicals” refers to fully formulated products used offshore, whether these are comprised of one or more distinct chemical substances. Such chemicals must appear on both the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) Definitive Ranked Lists of Registered Products and on the relevant Chemical Permit application.

All chemicals are tested and classified by CEFAS according to their potential to cause harm. The assessment relates to a combination of the rate of biodegradation, toxicity and potential to bio-accumulate. Environmental data are provided below according to those which are:

- Environmentally benign i.e. labelled as **Pose Little Or NO Risk (PLONOR)**;

- Low risk i.e. listed in the CEFAS lowest risk categories ('E' or 'Gold' (excluding PLONOR));
- Higher risk i.e. listed in the CEFAS higher risk categories.

Products identified by CEFAS as containing chemicals marked for substitution with a more environmentally friendly alternative are flagged with a “SUB” warning. Use and discharge of such chemicals is included in the following sections.

As previously stated, production at Dunlin Alpha was ceased in June 2015 which means the use of chemicals relating to production operations has now ceased. No subsea / pipeline operations were undertaken in 2017. With this in mind, there are no PRA or PLA chemical returns to report

Fairfield continually work with chemical suppliers to evaluate the potential environmental hazards of chemicals used, and to select less hazardous alternatives where practicable.

#### 4.3.1. Wells Activities (DRA, WIA) Chemical Use and Discharge

In 2017, Fairfield used approximately 3,223 tonnes of chemicals during Wells Activities. This figure is in keeping with the previous year (3,352 tonnes) which is to be expected now that a full-scale plug and abandonment campaign is underway at Dunlin Alpha. Of the total amount of wells chemicals used, around 3% were discharged to the marine environment.

In terms of environmental performance, 100% of chemicals discharged during 2017 were "E" or "Gold" category chemicals. 97% of chemicals used and discharged during the year were classified "PLONOR". "SUB" chemical usage accounted for approximately 0.2% of all chemical usage and 0.02% of all chemical discharge during well operations at Dunlin Alpha in 2017.

N.B. Chemical usage / discharge from Transocean 712 operations at Osprey does not appear in this report as they are covered by a single WIA which expires in September 2018 meaning that no EEMS returns have been submitted at the time of writing.

Products by CEFAS Classification	2017 Chemical Use / Discharge (kg)	
	Use	Discharge
A	0.00	0.00
B	0.00	0.00
C	0.00	0.00
D	0.00	0.00
E	3,123,034.12	77,384.69
Purple	0.00	0.00
Orange	0.00	0.00
Blue	0.00	0.00
White	0.00	0.00
Silver	0.00	0.00
Gold	100,430.00	5840.52
<b>Total</b>	<b>3,223,464.12</b>	<b>83,225.21</b>

Table 4.3 – 2017 Wells Activities Chemical Use / Discharge by CEFAS Classification

Chemical Label Code	2017 Chemical Use / Discharge (kg)	
	Use	Discharge
PLONOR	3,121,281.57	77,384.69
SUB	6,606.11	19.95

Table 4.4 – 2017 Wells Activities PLONOR / SUB Chemical Use / Discharge



### 4.3.2. Decommissioning Activities (DCA) Chemical Use and Discharge

In 2017, Fairfield used approximately 18.31 tonnes of chemicals during Make Safe and Handover (MS&H) activities. Seeing as this is the first year that Fairfield has operated under a DCA, there is no previous data to compare this against. Of the total amount of MS&H chemicals used, less than 1% were discharged to the marine environment.

In terms of environmental performance, 100% of chemicals discharged during 2017 were "Gold" category chemicals. No "SUB" chemicals were used or discharged during make safe and handover operations at Dunlin Alpha in 2017.



Products by CEFAS Classification	2017 Chemical Use / Discharge (kg)	
	Use	Discharge
A	0.00	0.00
B	0.00	0.00
C	0.00	0.00
D	0.00	0.00
E	0.00	0.00
Purple	0.00	0.00
Orange	0.00	0.00
Blue	0.00	0.00
White	0.00	0.00
Silver	0.00	0.00
Gold	18,309.00	105.00
<b>Total</b>	<b>18,309.00</b>	<b>105.00</b>

Table 4.5 – 2017 Decommissioning Activities Chemical Use / Discharge by CEFAS Classification

	2017 Chemical Use / Discharge (kg)	
	Use	Discharge
PLONOR	0.00	0.00
SUB	0.00	0.00

Table 4.6 – 2017 Decommissioning Activities SUB Chemical Use / Discharge

**4.3.3. 2017 Chemical Use and Discharge: Aggregated Assessment**

Combined, Fairfield operations used around 3,242 mT of chemicals during 2017. Of this figure, around 3.1% of chemicals were discharged to the marine environment.

In terms of overall environmental performance for operational chemical use and discharge, 100% of chemicals used and discharged during 2017 were "E" or "Gold" category chemicals. Furthermore, "SUB" chemicals accounted for less than 0.2% of chemicals used and discharged during the year. Over 96% of chemicals used and 76% of chemicals discharged during the year were classified "PLONOR".



Products by CEFAS Classification	2017 Chemical Use / Discharge (kg)	
	Use	Discharge
A	0.00	0.00
B	0.00	0.00
C	0.00	0.00
D	0.00	0.00
E	3,123,034.21	77,384.69
Purple	0.00	0.00
Orange	0.00	0.00
Blue	0.00	0.00
White	0.00	0.00
Silver	0.00	0.00
Gold	118,739.00	5,945.52
<b>Total</b>	<b>3,241,773.12</b>	<b>83,330.21</b>

Table 4.7 – 2017 Aggregated Chemical Use / Discharge by CEFAS Classification

	2017 Chemical Use / Discharge (kg)	
	Use	Discharge
<b>PLONOR</b>	3,121,281.57	77,384.69
<b>SUB</b>	6,606.11	19.95

Table 4.8 – 2017 Aggregated PLONOR / SUB Chemical Use / Discharge

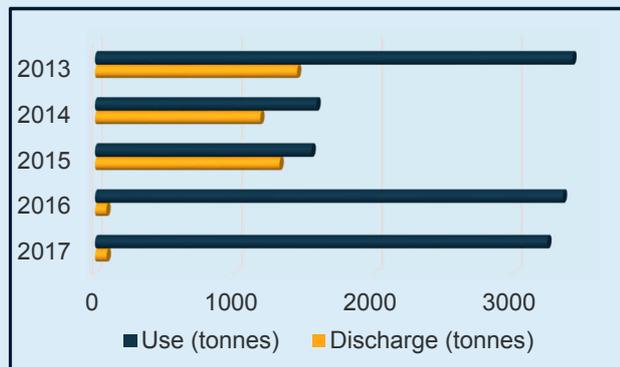


Figure 2 – Annual Chemical Use and Discharge

#### 4.4. Waste

Wastes are classified by EEMS according to whether special treatment is required prior to disposal.

During 2017 our offshore operations produced:

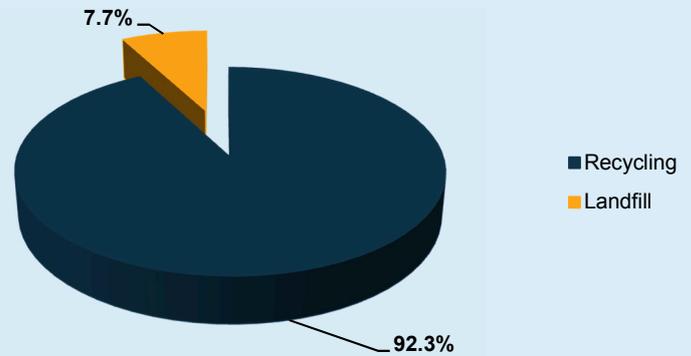
Category	Quantity in tonnes	Main components
General Waste	1,532.94	Scrap metals, segregated recyclable wastes and general waste
Special Waste	918.865	Slops, sludges, liquids and tank washings, chemicals, paints and oils.
Other Waste	0.072	Clinical

**Table 4.9 – Annual “General”, “Special” and “Other” Waste Resulting from 2017 Operations**

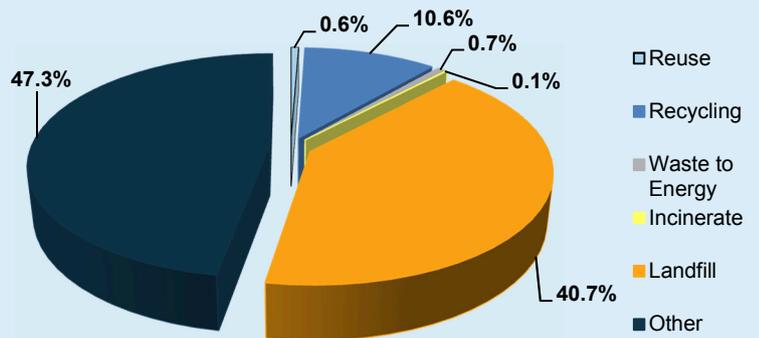
Over 1,100 tonnes of pulled tubing from Dunlin Alpha plug and abandonment (P&A) operations saw a significant rise in general waste generated by the platform. However, due to the nature of the waste being returned to the shore over 92% of general waste was recycled.

Special waste, predominantly slops generated during Dunlin Alpha P&A operations continued to rise in 2017 in keeping with the progression of the campaign.

Waste is managed with preference to re-use, recycling or energy recovery above other forms of disposal route. The proportion of waste by disposal route in 2017 for each of the above categories is shown in Figures 3 and 4.



**Figure 3 – 2017 Fate of General Waste from Dunlin Alpha**



**Figure 4 – 2017 Fate of Special Waste from Dunlin Alpha**



**Figure 5 – Annual Dunlin Alpha Waste Generation**

