Fairfield Energy Limited

2015 Environmental Statement

Contents

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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 BS-EN-ISO 14001:2004 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.

Fairfield has a structured Environmental Management System (EMS), which is certified to the ISO 14001:2004 standard and which establishes the company standards for environmental risk management in accordance with the environmental policy. The EMS is an integral part of the overall business management system and provides a structured and systematic framework for implementing our environmental policy as well as outlining the mechanisms through which compliance is maintained.

The system:

- Applies to all activities under the direct control of Fairfield throughout the entire life-cycle of managing oil and gas facilities within the UKCS, from exploration to production and eventual decommissioning,
- Applies to all levels within the Fairfield organisation, including subsidiary companies,
- Applies to all personnel – whether directly employed or contracted (when engaged in activities under Fairfield's direct control), and
- Provides a basis for establishing suitable interface arrangements with activities performed under contractual arrangement with Fairfield.

John Wiseman
Managing Director

2. Overview

2.1. Background

Fairfield Energy Limited (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.

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

As a credible and proven independent late-life mature field operator, Fairfield is now focused on successfully and responsibly decommissioning the Dunlin main field, the Osprey and Merlin subsea satellite fields and the associated infrastructure. This will be achieved working in close co-operation with the Dunlin joint venture partner, MCX, and the various UK regulatory bodies along with other UK operators and decommissioning specialists.

The purpose of this statement is to provide an overview on the environmental performance of the Fairfield operated activities during 2015.

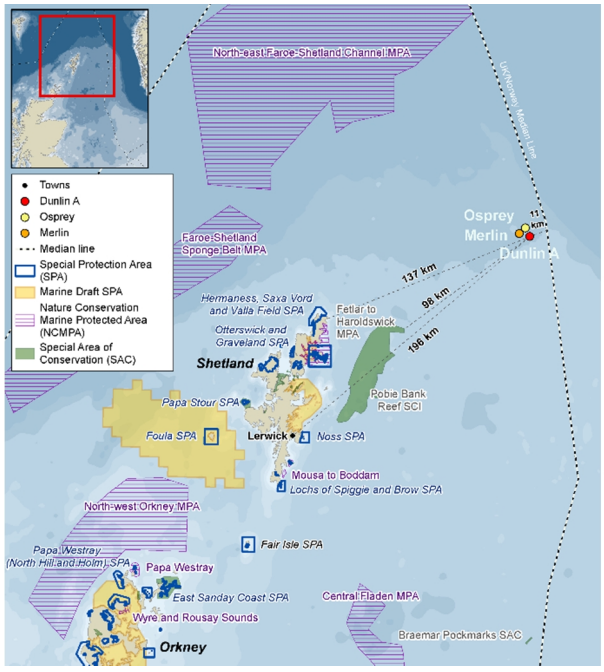
2.2. Our Operations

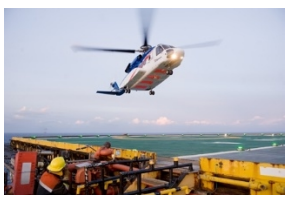
Fairfield's operations up until 16th June, 2015 comprised of production from, and intervention work within, the Dunlin Cluster. Following Cessation of Production (CoP) the remainder of the year's activities were focussed on the flushing clean of hydrocarbons and "making safe" for the commencement of decommissioning activities.

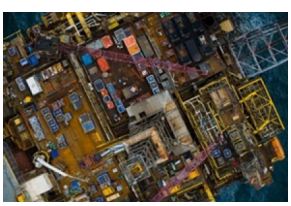
Dunlin is a mature field located within United Kingdom Continental Shelf (UKCS) Block 211/23 which is in the Brent oil province in the Northern North Sea (NNS). The Dunlin Alpha platform was installed in 1977 and started production in 1978. It lies approximately 137 km north east of Scotland, 11 km from the UK / Norwegian median line and in a water depth of approximately 151 m.

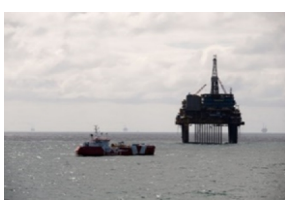
Two subsea tiebacks to Dunlin Alpha, Osprey and Merlin, were brought online in 1997 and 1999 respectively. Osprey was supported by eight production wells and four water injection wells, whilst Merlin was supported by three production wells and one water injection well. Osprey and Merlin are tied back to Dunlin Alpha via 8" crude pipelines. The Dunlin Cluster has produced over 522 million barrels over its 37 years of operation, extending the platform's original 25 year design life by 12 years to secure substantially more reserves.

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 Dunlin Cluster and Murchison field, is exported to Sullom Voe via the Dunlin / Cormorant export pipeline.









Dunlin Alpha

Location:
196 km north east of Lerwick

Block:
211/23

Water Depth:
151 m

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
- Dunlin Power Import Cable from Brent Charlie

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 based on the principles in BS-EN-ISO 14001:2004.

Progress against the key Objectives / Programmes within our 2015 Environmental Programme is summarised in Table 3.1.

Our 2016 Environmental Programme continues and builds upon our 2015 programmes and objectives. Specifically for 2016, the following goals have been set in the Environmental Management System.

- Successful recertification of the Environmental Management System;
- Delivery of the pre-Decommissioning Seabed Survey Programme;
- EIA / ES Delivery Programme;
- Environmental Management System Continuous Improvements

Objective / Programme	Summary of Progress
Hose Management Improvement	In response to the three hose management incidents in Q1 (see Section 4.5), a programme was developed and delivered with the aim of improving the awareness and management of hoses with a particular focus on bunkering and temporary hoses. This was achieved through thorough review and update to the existing Hose Management Procedure and Pre-Bunkering Inspection Checklist, a comprehensive third-party hose inspection campaign, the introduction of a weekly Bunkering Hose Inspection Protocol and amendments to the Fairfield Environmental Awareness Training Modules.
Waste Management Continuous Improvement	As part of continual improvement in environmental performance a greater emphasis was placed on the verification of waste management in 2015 which was achieved by undertaking site audits both at Fairfield's external waste handling contractor and at the Dunlin Alpha platform. Skip audits were also requested and reviewed throughout the year as part of an overall Waste Management Strategy to ensure ongoing compliance.
Pre-Decommissioning Seabed Surveys	In order to support the ES / EIA submissions associated with the Dunlin, Merlin and Osprey Decommissioning Programmes, a gap analysis was undertaken to identify Habitats Assessment, Environmental Baseline Study, Drilling Cuttings Assessment and, subsequently, sampling schedule requirements for the Dunlin Cluster. Surveying of the Dunlin Cluster and its associated infrastructure commenced in November 2015 and as a result of significant weather delays, was still ongoing by the turn of the year.
Post-COP Transition	Following the announcement to cease production at Dunlin a comprehensive review and update of environmental procedures was undertaken to ensure that all were fit for purpose and that new procedures were created and implemented where required. Similarly, all environmental permits were reviewed and subsequently amended where required. New Environmental Awareness Training packages were developed and rolled out to promote environmental hazard awareness in light of the change in operation status. Environmental Training requirements are recorded and managed through the Environmental Management System.

Table 3.1 – 2015 Key Objectives and Summary of Progress

4. Environmental Performance

Given the nature of Fairfield's operations during 2015, the potential for significant environmental impact arose from:

- atmospheric emissions from power generation and flaring,
- discharge of produced water,
- chemical use and discharge,
- waste, and
- oil or chemical release incidents

The 2015 Environmental Performance of Fairfield's operations are summarised in the sections that follow, and has been reported to the Department for Energy and Climate Change (DECC) 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 drilling, well intervention and oil production operations. Emissions are also generated from the flaring of gas associated with the produced oil that is not otherwise used for power generation.

In 2015, approximately 26% of the power generated by Dunlin Alpha was from diesel combustion and 32% of power was from the combustion of natural gas. A further 42% of power was imported from the Brent Charlie installation, equivalent to 20,509 MWhrs.

A summary of the atmospheric emissions generated from the Dunlin Alpha in 2015 is given below.

	CO_2	NO_X	N_2O	SO_X*	CO	CH_4	VOC
Power Generation	26,911.00	228.24	2.07	7.59	83.03	5.72	6.63
Flaring	10,207.00	4.79	0.32	0.00	26.74	34.28	36.17
Venting	72.46	0.00	0.00	0.00	0.00	433.76	457.63
Fugitive Emissions	3.17	0.00	0.00	0.00	0.00	18.98	20.02
Total	**37,193.63**	**233.03**	**2.39**	**7.59**	**109.77**	**492.74**	**520.45**

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

Table 4.1 – Summary of Atmospheric Emissions (tonnes) Generated from Dunlin Alpha in 2015.

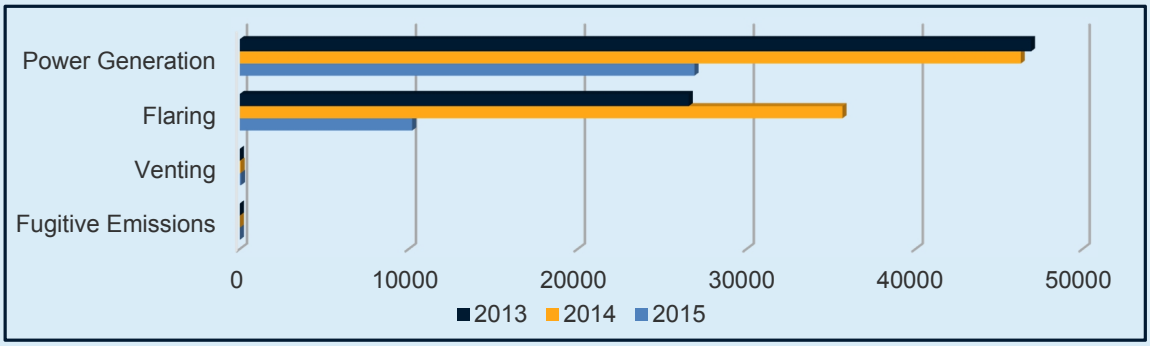


Figure 1 – CO_2 Discharges (tonnes) by Source

4.2. Oil in Produced Water

Formation water is naturally present in oil and gas reservoirs and is separated from the oil at offshore production facilities. In mature fields such as those in the Dunlin area, the naturally occurring formation water is greatly diluted by the seawater which has been injected into the reservoir to maintain pressure and increase recovery of the oil. The produced water which is separated from the oil is treated prior to disposal offshore. The discharged water contains residual quantities of both dispersed and dissolved hydrocarbons.

Oil in Produced Water discharges are regulated in line with the OSPAR commission recommendations through the Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 (as amended). The discharge consent for Dunlin Alpha required monthly average concentration of dispersed oil in discharged produced water to be less than 30 mg/l. During the reporting period 39.58 tonnes of oil were discharged in this way at an average concentration of 19.5 mg/l oil in produced water.

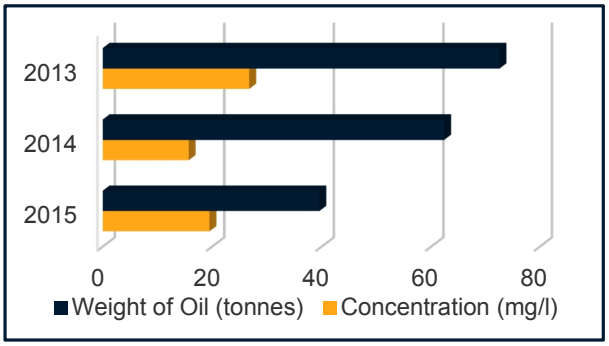


Figure 2 – Oil in Produced Water Discharges

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 **P**ose **L**ittle **O**r **N**o **R**isk (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 totals in the table below and are also reported separately.

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

4.3.1. Production Activities (PRA) Chemical Use and Discharge

In 2015, Fairfield used approximately 465 tonnes of chemicals during Production Activities at Dunlin Alpha. Of this figure, around 69% of chemicals were discharged to the marine environment. In terms of environmental performance, 95% of chemicals used and 92% of chemicals discharged during 2015 were "E" or "Gold" category chemicals. 16% of chemicals used and 1% of chemicals discharged during the year were classified "PLONOR". "SUB" chemicals accounted for 8% of chemicals used and 11% of chemicals discharged during the year.

As previously explained, Cessation of Production at Dunlin Alpha took place in June 2015 and the PRA Chemical Permit surrendered following the turn of the year. The vast majority of products on the PRA were associated with production activities and as such are no longer required. From 2016, Well Plug and Abandonment Operations will be the subject of Annual WIA applications. Chemical requirements associated with “Make Safe and Handover” Operations, routine platform maintenance and future Decommissioning Activities will be accounted for on Annual DCA applications.

	2015 Chemical Use / Discharge (kg)	
Products by CEFAS Classification	Use	Discharge
A	0.00	0.00
B	0.00	0.00
C	12.50	12.50
D	2,216.00	2,216.00
E	81,785.96	3,455.45
Purple	0.00	0.00
Orange	0.00	0.00
Blue	0.00	0.00
White	0.00	0.00
Silver	22,656.69	22,656.69
Gold	357,843.49	293,863.99

Table 4.2 – 2015 Production Activities Chemical Use / Discharge by CEFAS Classification

	2015 Chemical Use / Discharge (kg)	
Chemical Label Code	Use	Discharge
PLONOR	73,977.06	3,391.39
SUB	38,537.11	35,841.34

Table 4.3 – 2015 Production Activities PLONOR / SUB Chemical Use / Discharge

4.3.2. Subsea Activities (PLA) Chemical Use and Discharge

In 2015, Fairfield used approximately 10.335 tonnes of chemicals during Subsea Activities. Of this figure, less than 1% of chemicals were discharged to the marine environment. In preparation for decommissioning, Subsea operations in 2015 were limited to the flushing / isolation and associated barrier testing of production pipelines and water injection pipelines, at both Merlin and Osprey.

In terms of environmental performance, all chemicals used and discharged during 2013 were "E" or "Gold" category chemicals. Over 80% of chemicals used during the year were classified "PLONOR". Less than 1% of chemicals used carried "SUB" warnings and there was no discharge associated with these products.

Products by CEFAS Classification	2015 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	8,277.39	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	2,057.99	0.00

Table 4.4 – 2015 Subsea Activities Chemical Use / Discharge by CEFAS Classification

Chemical Label Code	2015 Chemical Use / Discharge (kg)	
	Use	Discharge
PLONOR	8,277.39	0.00
SUB	0.55	0.00

Table 4.5 – 2015 Subsea Activities PLONOR / SUB Chemical Use / Discharge

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

In 2015, Fairfield used approximately 1,075 tonnes of chemicals during Wells Activities. Of this figure, around 93% of chemicals were discharged to the marine environment. Activity for the year is considered relatively low with the completion of three platform well workovers and general well services / intervention activities contributing to these figures.

In terms of environmental performance, 100% of chemicals used and discharged during 2015 were "E" or "Gold" category chemicals. Over 99% of chemicals used and discharged during the year were classified "PLONOR". No "SUB" chemicals were used or discharged during well operations at Dunlin Alpha in 2015.

Products by CEFAS Classification	2015 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	1,073,346.86	996,970.49
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	1,610.47	1,502.90

Table 4.6 – 2015 Wells Activities Chemical Use / Discharge by CEFAS Classification

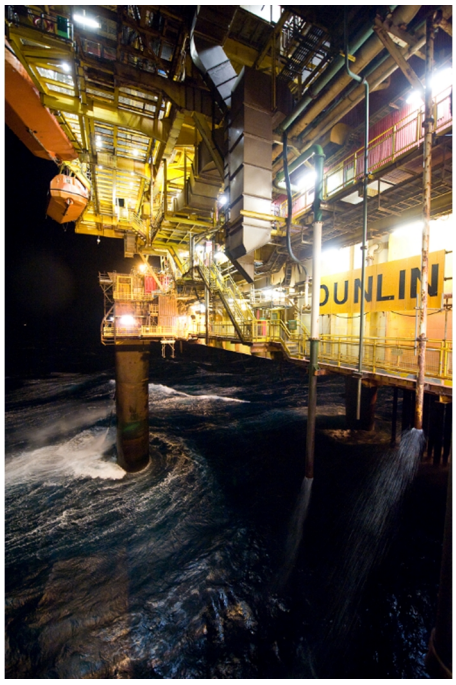
Chemical Label Code	2015 Chemical Use / Discharge (kg)	
	Use	Discharge
PLONOR	1,073,221.86	996,957.99
SUB	0.00	0.00

Table 4.7 – 2015 Wells Activities PLONOR / SUB Chemical Use / Discharge

4.3.4. Aggregated Chemical Use and Discharge Assessment

Combined, Fairfield operations used 1,550 tonnes of chemicals during our 2015. Of this figure, around 85% of chemicals were discharged to the marine environment.

In terms of overall environmental performance for operational chemical use and discharge, over 98% of chemicals used discharged during 2015 were "E" or "Gold" category chemicals. Furthermore, "SUB" chemicals accounted for less than 3% of chemicals used and discharged during the year. 75% of chemicals used and 76% of chemicals discharged during the year were classified "PLONOR ".



Products by CEFAS Classification	2015 Chemical Use / Discharge (kg)	
	Use	Discharge
A	0.00	0.00
B	0.00	0.00
C	12.50	12.50
D	2,216.00	2,216.00
E	1,163,410.21	1,000,425.94
Purple	0.00	0.00
Orange	0.00	0.00
Blue	0.00	0.00
White	0.00	0.00
Silver	22,656.69	22,656.69
Gold	361,511.95	295,366.89
Total	1,549,807.35	1,320,678.02

Table 4.8 – 2015 Aggregated Chemical Use / Discharge by CEFAS Classification

	2015 Chemical Use / Discharge (kg)	
	Use	Discharge
PLONOR	1,155,476.31	1,000,349.38
SUB	38,537.66	35,841.34

Table 4.9 – 2015 Aggregated PLONOR / SUB Chemical Use / Discharge

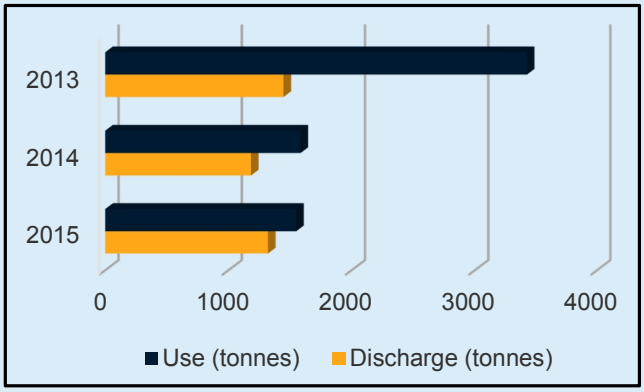


Figure 3 – Annual Chemical Use and Discharge

4.4. Waste

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

During 2015 our offshore operations produced:

Category	Quantity in tonnes	Main components
Special Waste	51.87	Sludges, liquids and tank washings, chemicals, paints and oils.
General Waste	226.49	Scrap metals, segregated recyclable wastes and general waste

Table 4.10 – Annual "Special" and "General" Waste Resulting from 2015 Operations

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 2015 for each of the above categories is shown in Figures 4 and 5.

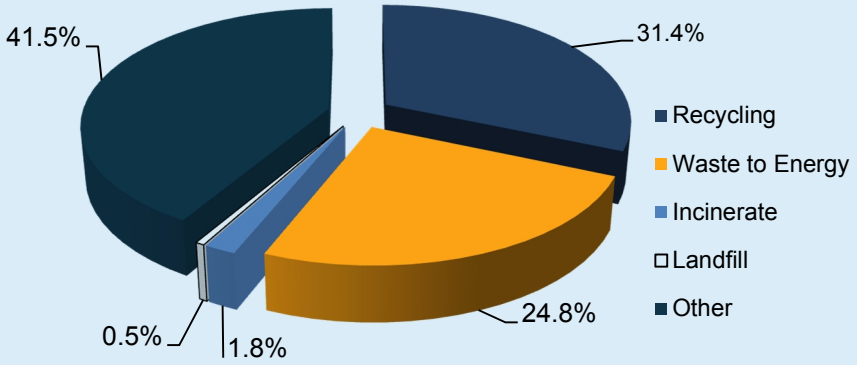


Figure 4 – 2015 Fate of Special Waste from Dunlin Alpha

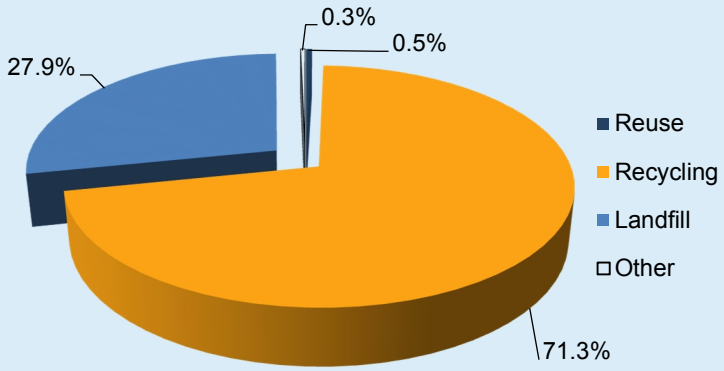


Figure 5 – 2015 Fate of General Waste from Dunlin Alpha

Note: The category of 'Other' comprises special wastes that are subject to special treatment before return to the environment by discharge.

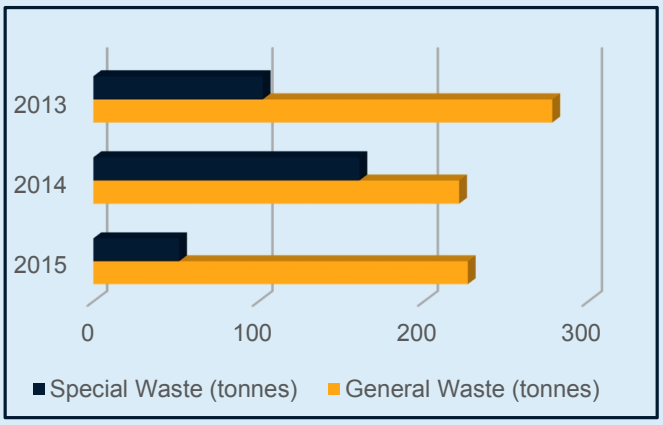


Figure 6 – Annual Dunlin Alpha Waste Generation

4.5. Operational Release Incidents

The prevention of oil and chemical releases is of the highest environmental 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 DECC in accordance with the Petroleum Operations Notice 1 (PON1) system. Fairfield was responsible for the occurrence of six such incidents in 2015 – three releases of oil resulted in a total of 0.104 tonnes of oil being released to sea. A further three unplanned releases resulted in approximately 2.937 tonnes of chemicals being released to sea. A seventh incident was reported by Fairfield following the release of approximately 0.40 kg of diesel from a supply vessel following completion of bunkering operations with the Dunlin Alpha platform.

A summary of all unplanned release events that took place in 2015 is presented in Table 4.11 below.

Reference	Date	Nature of Incident	Type of Spill	Estimated Maximum Quantity Released (kg)	Location
PON1/3751	14/01/2015	Hose failure from diesel bunkering hose which parted from the manifold at the bunkering station as a result of a prolonged period of severe wind and wave conditions causing repeated loading on the hose.	Oil	50.00	Dunlin Alpha
PON1/3806	12/02/2015	Hose failure from fire pump diesel engine cooling system – coolant released to sea.	Chemical	5.00	Dunlin Alpha
PON1/3881	14/03/2015	Hose failure during bunkering of Calcium Chloride Brine from supply vessel to platform.	Chemical	2,798.00	Dunlin Alpha
PON1/4269	10/07/2015	Heating medium leak into the potable water system. Subsequent flush of the potable water system was discharged through the platform drains to sea.	Chemical	133.97	Dunlin Alpha
PON1/4483	08/09/2015	Leak from supply vessel's diesel loading / discharging on port side cargo rail following completion of diesel bunkering.	Oil	0.40	Dunlin Alpha
PON1/4498	11/09/2015	Leak of hydraulic oil from Conductor Wear Sleeve Installation Tool (WSIT).	Oil	45.00	Dunlin Alpha
PON1/4530	20/09/2015	Leak of hydraulic oil from Conductor Wear Sleeve Installation Tool (WSIT).	Oil	9.00	Dunlin Alpha

Table 4.11 – 2015 Oil and Chemical Release Incidents