



FairfieldEnergy



Environmental Statement 2016

Contents

1. Environmental Policy

2. Overview

2.1. Background

2.2. Our Operations

3. Environmental Management System

4. Environmental Performance

4.1. Atmospheric Emissions

4.2. Accidental Releases

4.3. Chemical Use and Discharge

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

4.3.2. Decommissioning Activities (DCA) Chemical Use and Discharge

4.3.3. 2016 Chemical Use and Discharge: Aggregated Assessment

4.4. Waste

**For Further Information,
Please Contact:**

Andrew Corse

Environmental Advisor, Fairfield Energy Limited

Tel: +44 (0) 1224 320 806

Email: Andrew.Corse@Fairfield-Energy.com

Web: www.Fairfield-Energy.com

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.

Fairfield has a structured Environmental Management System (EMS), which is certified to the ISO 14001:2015 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 (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 15th June 2015. 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.

Fairfield is now in the process of applying its proven experience as an independent late-life, mature field operator to a complex multi-year decommissioning programme for the Greater Dunlin Area.

“Working closely with stakeholders including the Government and Regulators, we are applying operator-led knowledge to take a safety-assured, technically sound and cost-effective approach to the decommissioning of North Sea oil and gas assets. We are currently focused on the efficient decommissioning of the Greater Dunlin Area comprising the Dunlin field, Osprey and Merlin subsea satellite fields and associated infrastructure. Our team of professionals is actively applying best practice solutions to the challenges associated with topsides and subsea infrastructure that have reached end of life. The successful decommissioning of the Greater Dunlin Area will be the springboard for a new industry decommissioning operator model.”

John Wiseman

2.2. Our Operations

Dunlin Alpha is located within United Kingdom Continental Shelf (UKCS) Block 211/23 which is in the Brent oil province in the Northern North Sea (NNS).

The main operations on the platform in 2016 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. Thirty seven of these wells were worked on during the year of which four were abandoned to Phase 2 status (Reservoir, Intermediate and Top Barriers set).

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 2016 included:

- Service water reconfiguration;
- Disposal well re-route;
- Installation of Cormorant Alpha kicker line;
- All flowlines and clashes removed from wellbay;
- Pipe deck diesel hose handling upgrades (hose reels);
- Main platform power system reconfiguration.

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.



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

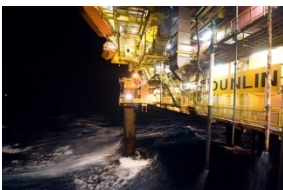
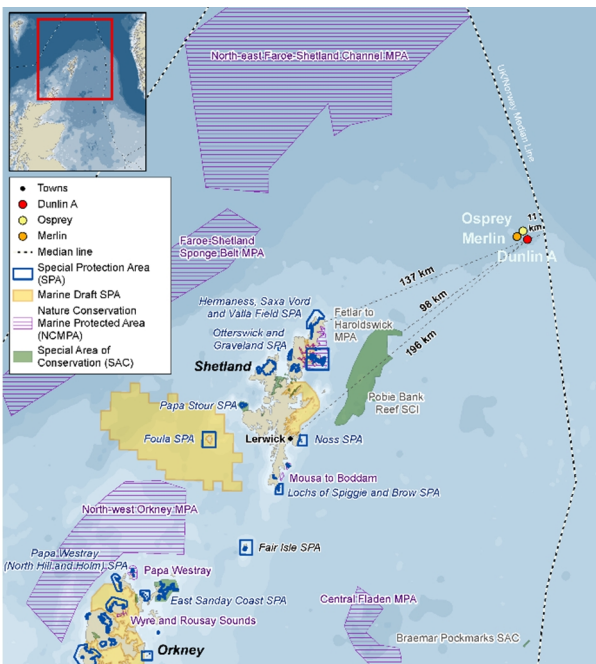
Production Ceased:
June 2015

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 based on the principles in ISO 14001:2015.

Progress against the key objectives / programmes within our 2016 environmental programme is summarised in Table 3.1.

Our 2017 environmental programme continues and builds upon our 2016 programmes and objectives. Specifically for 2017, targets and objectives have been set in the Environmental Management System within the following programmes.

- Waste Management Improvement Programme;
- Environmental Training & Awareness Programme;
- Audit / Inspection Programme;
- Completion of the EIA / ES Delivery Programme;
- Environmental Management System Continuous Improvements.

Objective / Programme	Summary of Progress
<p>Successful recertification of the Environmental Management System</p>	<p>Recertification of the Environmental Management System was successfully achieved in September 2016. Fairfield voluntarily took the proactive step to move from the old standard, being assessed instead against the ISO 14001:2015 standard well ahead of the September 2018 deadline.</p>
<p>Delivery of the pre-Decommissioning Seabed Survey Programme</p>	<p>April 2016 saw the completion of pre-decommissioning seabed surveys of the Greater Dunlin Area which resulted in the production of five Environmental Baseline Survey, five Habitat Assessment and three Drill Cuttings Assessment Survey reports which will inform the Dunlin, Merlin and Osprey Subsea Infrastructure, and the Dunlin Alpha Comparative Assessments, Environmental Statements and Decommissioning Programmes.</p>
<p>EIA / ES Delivery Programme</p>	<p>Good progress was made on the EIA / ES Delivery Programme during 2016. Numerous supporting studies, technical notes and data sets were prepared during 2016 to support the production of the Environmental Statements and to inform the Comparative Assessment processes. Fairfield remain on schedule to meet targeted Decommissioning Programme and the Environmental Statement submission dates in 2017.</p>
<p>Environmental Management System Continuous Improvements</p>	<p>Other than the recertification of the EMS to the ISO 14001:2015 standard, 2016 EMS continuous improvement highlights include:</p> <ul style="list-style-type: none"> • Reinvigoration of the roles of E-Reps which focussed on recruitment, formal training for individuals and review and development of the E-Reps Charter. • Development of an Environmental Awareness Training Package specific to well plug and abandonment operations. • Completion of the review of Environmental Work Orders and publication of the ECE Strategy document.

Table 3.1 – 2016 Key Objectives and Summary of Progress

4. Environmental Performance

Given the nature of Fairfield's operations during 2016, 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 2016 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 2016, 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 18,500 MWhrs of power was generated in support of decommissioning operations.

A summary of the atmospheric emissions generated from the Dunlin Alpha in 2016 is given below.

Emissions in tonnes	CO ₂	NO _x	N ₂ O	SO _x *	CO	CH ₄	VOC
Power Generation	18,059.30	251.79	1.25	11.36	61.61	0.75	8.18
Venting	0.22	0	0	0	0	1.31	1.38
Fugitive Emissions	3.17	0	0	0	0	18.98	20.02
Total	18,062.69	251.79	1.25	11.36	61.61	21.04	29.58

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

Table 4.1 – Summary of Atmospheric Emissions Generated From Dunlin Alpha in 2015.

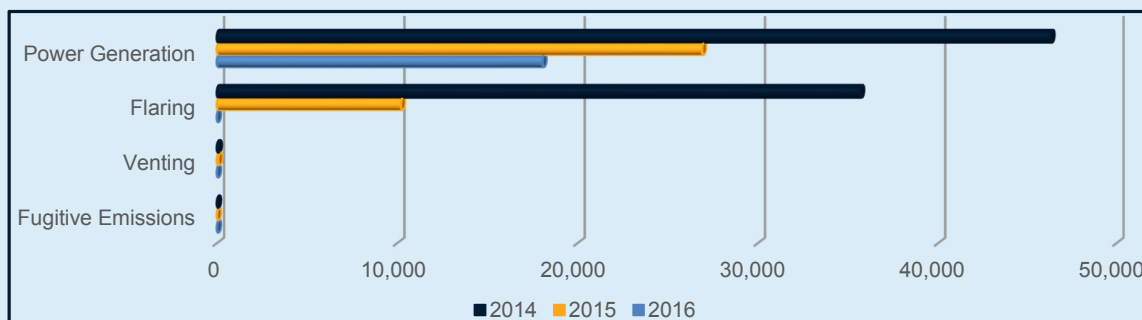


Figure 1 – CO₂ Discharges (mT) by Source

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 three such incidents in 2016 – these releases resulted in a total of 0.737 tonnes of diesel being released to sea. Approximately 0.816 tonnes of oil from an unknown source in the vicinity of the Osprey field was observed by the Emergency Response and Rescue Vessel (ERRV) and reported via the Dunlin Alpha platform.

There were no chemical release incidents from Dunlin Alpha in 2016.

Reference	Date	Nature of Incident	Type of Spill	Estimated Maximum Quantity Released (kg)	Location
PON1/4930	20/02/2016	Pin hole leak on diesel supply line on pipe deck	Oil	100	Dunlin Alpha
PON1/5176	10/05/2016	Over flow of Generator Diesel Fuel Day Tank	Oil	587	Dunlin Alpha
PON1/5380	01/07/2016	Diesel spill to sea due to failed diesel bunkering hose.	Oil	50	Dunlin Alpha
PON1/5694	02/10/2016	Unknown source - noted by ERRV and reported to platform	Oil	816	Unknown 3rd Party

Table 4.2 – 2016 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 bioaccumulate. 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 2016. 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 2016, Fairfield used approximately 3,352 tonnes of chemicals during Wells Activities. This figure is a significant rise from the previous year (1,075 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 2% were discharged to the marine environment.

In terms of environmental performance, 100% of chemicals discharged during 2015 were "E" or "Gold" category chemicals. 97% of chemicals used and discharged during the year were classified "PLONOR". "SUB" chemical usage accounted for approximately 0.6% of all chemical usage and 0.1% of all chemical discharge during well operations at Dunlin Alpha in 2016.



Products by CEFAS Classification	2016 Chemical Use / Discharge (kg)	
	Use	Discharge
A	0.00	0.00
B	0.00	0.00
C	0.00	0.00
D	255.84	0.00
E	3,247,721.43	71,916.25
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	104,393.55	8,744.00
Total	3,352,370.82	80,660.25

Table 4.3 – 2016 Wells Activities Chemical Use / Discharge by CEFAS Classification

Chemical Label Code	2016 Chemical Use / Discharge (kg)	
	Use	Discharge
PLONOR	3,246,345.15	71,916.25
SUB	19,287.24	71.82

Table 4.4 – 2016 Wells Activities PLONOR / SUB Chemical Use / Discharge

4.3.2. Decommissioning Activities (DCA) Chemical Use and Discharge

In 2016, Fairfield used approximately 2.37 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, around 18% were discharged to the marine environment.

In terms of environmental performance, 100% of chemicals discharged during 2015 were "Gold" category chemicals. "SUB" chemical usage accounted for approximately 82% of all chemical usage discharge during make safe and handover operations at Dunlin Alpha in 2016. However, no SUB chemicals were discharged during these activities.



Products by CEFAS Classification	2016 Chemical Use / Discharge (kg)	
	Use	Discharge
A	0.00	0.00
B	0.00	0.00
C	0.00	0.00
D	1,955.00	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	418.00	418.00
Total	2,373.00	418.00

Table 4.5 – 2016 Decommissioning Activities Chemical Use / Discharge by CEFAS Classification

Chemical Label Code	2016 Chemical Use / Discharge (kg)	
	Use	Discharge
PLONOR	0.00	0.00
SUB	1,955.00	0.00

Table 4.6 – 2016 Decommissioning Activities SUB Chemical Use / Discharge

4.3.3. 2016 Chemical Use and Discharge: Aggregated Assessment

Combined, Fairfield operations used around 3,355 mT of chemicals during 2016. Of this figure, around 2.4% of chemicals were discharged to the marine environment.

In terms of overall environmental performance for operational chemical use and discharge, over 99% of chemicals used and discharged during 2015 were "E" or "Gold" category chemicals. Furthermore, "SUB" chemicals accounted for less than 1% of chemicals used and discharged during the year. Over 96% of chemicals used and 88% of chemicals discharged during the year were classified "PLONOR".

Products by CEFAS Classification	2016 Chemical Use / Discharge (kg)	
	Use	Discharge
A	0.00	0.00
B	0.00	0.00
C	0.00	0.00
D	2,210.84	0.00
E	3,247,721.43	71,916.25
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	104,811.55	9,162.00
Total	3,354,743.82	81,078.25

Table 4.7 – 2016 Aggregated Chemical Use / Discharge by CEFAS Classification



	2016 Chemical Use / Discharge (kg)	
	Use	Discharge
PLONOR	3,246,345.15	71,916.25
SUB	21,242.24	71.82

Table 4.8 – 2016 Aggregated PLONOR / SUB Chemical Use / Discharge

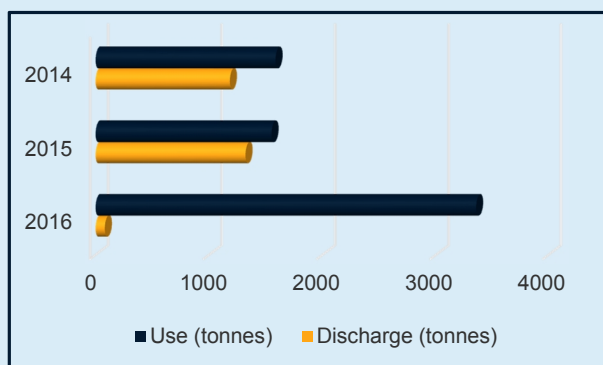


Figure 2 – Annual Chemical Use and Discharge

4.4. Waste

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

During 2016 our offshore operations produced:

Category	Quantity in tonnes	Main components
General Waste	422.30	Scrap metals, segregated recyclable wastes and general waste
Special Waste	743.19	Slops, sludges, liquids and tank washings, chemicals, paints and oils.

Table 4.9 – Annual “General” and “Special” Waste Resulting from 2016 Operations

2016 saw a significant increase in the total amount of waste sent onshore for disposal as a result of plug and abandonment activities, as well as preparation of the installation for final removal.

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 2016 for each of the above categories is shown in Figures 3 and 4. Approximately 80% of general waste was reused, recycled or recovered.

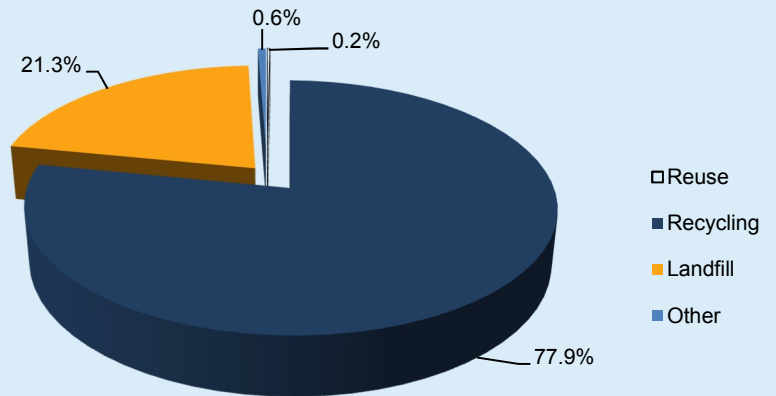


Figure 3 – 2016 Fate of General Waste from Dunlin Alpha

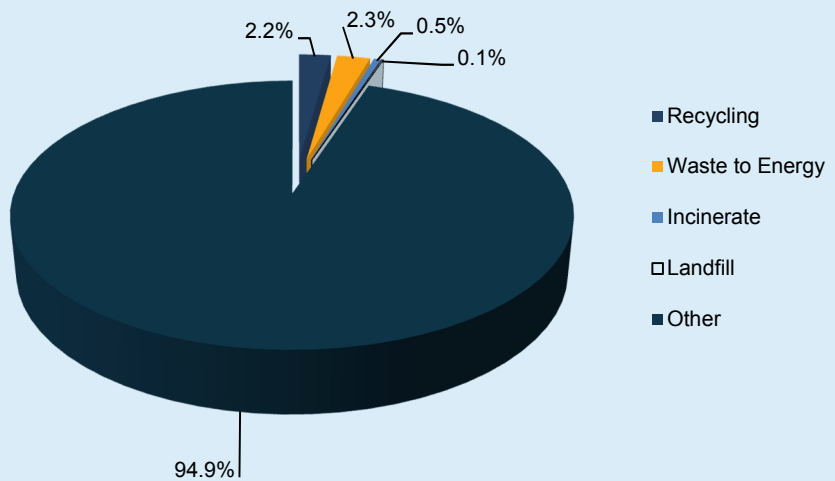


Figure 4 – 2016 Fate of Special Waste from Dunlin Alpha



Figure 5 – Annual Dunlin Alpha Waste Generation

