

Dana Petroleum UKCS Environmental Statement 2014



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Introduction

This statement describes the 2014 environmental performance of Dana Petroleum's 2014 UK offshore oil and gas operations. It has been prepared to satisfy the requirements of OSPAR Recommendation 2003/5 and the associated DECC guidance (OSPAR 2003/5 DECC Guidance: Rev 5 May 2014).

Dana, is a wholly owned subsidiary of the Korea National Oil Corporation that operates internationally with offices in the UK, Egypt, the Netherlands and Norway. In the North Sea, Dana operates two assets as well as being a partner in several non-operated ventures. Through 2014 Dana also continued drilling operations for its forthcoming Western Isles development.

One of Dana's key values is to respect the environment and work to minimise the impact of its operations. Dana achieves this through active use of its EMS system, development of its E-Reps, proactive engagement with offshore and operational groups. Through the use of its EMS and workforce engagement Dana ensures work activities incorporate current and developing legislation, and initiatives shared from government and industry work groups.

Through increasing production and reserves, Dana intends to become a leading oil and gas company in Europe, the Middle East and Africa that wherever it works minimisation of environmental impact is a key business driver.

Dana Petroleum Vision and Values

Environment

We understand the environment and work to minimise the impact of our operations.

Safety

Our values are equally important but safety is always our first consideration.

People

We respect and trust each other, take accountability for our actions and work as a team to deliver great results.

Performance

We expect high levels of performance from the business, ourselves and each other.

Integrity

We are always professional, fair and honest, acting responsibly in everything we do.

Mutual Advantage

We aim to meet the needs of society through education, employment and enterprise.

Health, Safety, Security & Environment (HSSE) Policy

Our policy

The safety of people and assets, and respect for the environment are two of our core values and are an integral part of how we do business. We believe strong Health, Safety, Security and Environmental (HSSE) performance creates strong commercial performance.

Accountability

The Group Chief Executive has overall accountability to the Dana Board of Directors for the management of HSSE.

Scope

Our policy applies to all employees (staff, contract and temporary), officers and directors of Dana Petroleum Limited (collectively referred to as 'employees') in each of our operating units worldwide and anywhere that we conduct business or visit in the course of our business. It also extends to all our joint ventures business, in all countries in which we or our subsidiaries and associates operate. Where we have a minority interest we will encourage the application of this policy amongst our business partners including contractors, suppliers and joint venture partners.

Policy in practice

Dana strives to continually improve its HSSE performance by setting and monitoring clear objectives, supported by its HSSE Standards. This requires the commitment of everyone at Dana and a culture where people are encouraged and feel able to intervene and report on HSSE issues of concern. It is expected that each individual will recognise their responsibility to put our policy into practice.

We will:

- Provide a safe working environment that protects against injury and minimises work-related ill health
- Provide appropriate security protection for employees and assets
- Commit to prevent pollution, minimising the impact to the environment from Dana's operations
- Ensure compliance with applicable legislation and apply Dana's standards and oil industry best practice in locations where local laws do not exist
- Identify and manage HSSE risks in a systematic way as part of Dana's Risk Management Framework
- Create clear accountabilities and expectations for HSSE at every level of the organisation
- Provide resources to successfully manage HSSE risk
- Ensure that our employees and contractors are competent and able to perform the work we are asking them to undertake
- Ensure that our employees and contractors understand their HSSE accountabilities and are aware of the behaviours expected by Dana
- Identify and manage operational interfaces internally and with third parties
- Communicate standards based on oil industry best practice which are consistent with legal and regulatory requirements in all operating areas
- Communicate and report openly on HSSE objectives and performance
- Actively engage with relevant stakeholders to understand and take account of their concerns
- Make sure that appropriate emergency response, crisis management and business continuity plans are in place and are regularly tested
- Investigate HSSE incidents, identify root causes, take effective action to prevent recurrence and identify opportunities for organisational learning
- Strive for continuous improvement of Dana's HSSE performance.

A handwritten signature in blue ink, appearing to read "Roy Elliot".

Roy Elliot
Acting Group Chief Executive

Overview of Operations

Dana's portfolio in the UK consists of various exploration, production and development assets throughout the northern, central and southern North Sea, West of Shetland and in the Moray Firth (Figures 1 & 2).

Dana is the operator of the Greater Guillemot Area produced through the Triton FPSO (also operated by Dana) and the Hudson field that is produced through the TAQA operated Tern Platform.

Dana is operator of the Western Isles Project, which is developing two oilfields called Harris and Barra in the northern North Sea, 160 km east of Shetland and 12 km west of Tern field. It involves a subsea development of five production and four water injection wells tied back to a new FPSO (currently under construction) with oil export using shuttle tankers. When onstream, plateau production is expected to be around 40,000 boepd, adding more than 30,000 boepd to Dana's UK production.

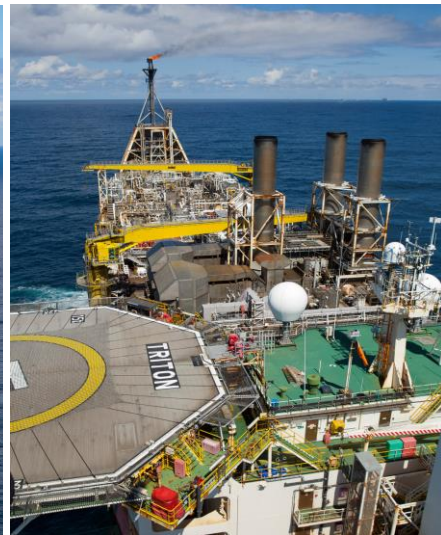
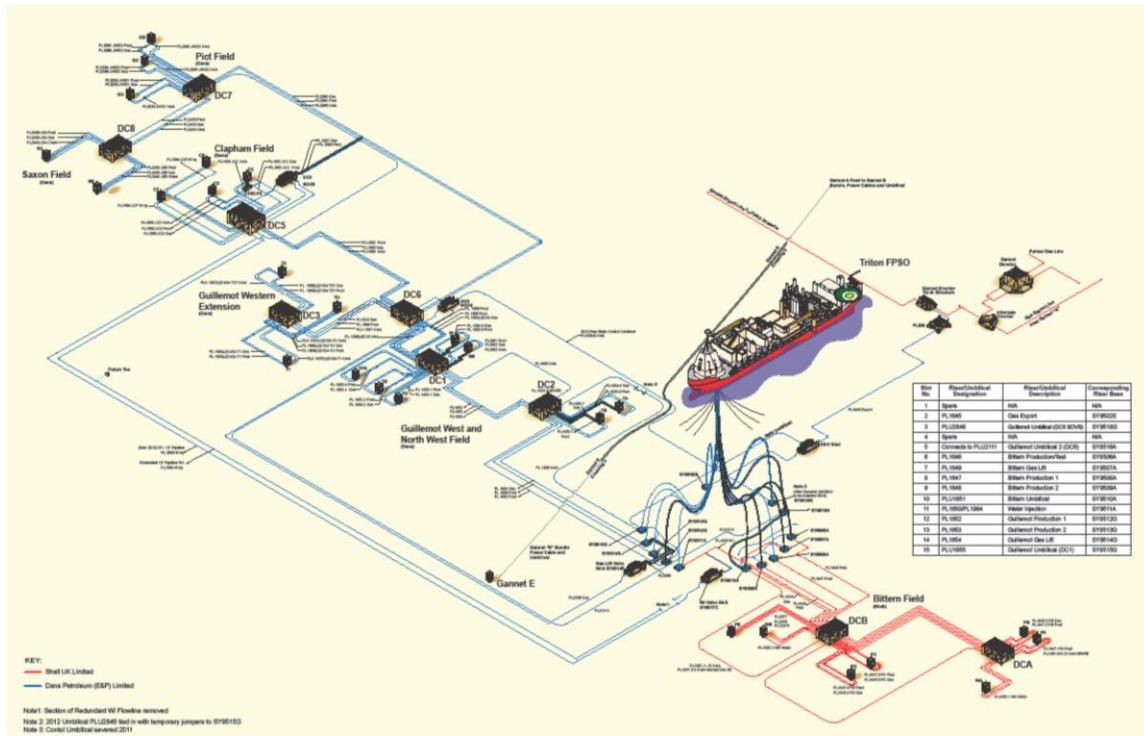
Figure 1: Dana Operated Production and Exploration Assets



Figure 2: Non-Operated Production and Exploration Assets



Figure 3. Triton and GGA



Production Operations

Triton

Dana has been operator of the Triton FPSO (Figure 3) since October 2012 and the Greater Guillemot Field since October 2010. The Triton FPSO is located in the central North Sea (in Block 21/30) approximately 193 km east of Aberdeen. The Triton FPSO produces oil and gas from the Dana operated Clapham, Pict, Saxon, Guillemot West and North West fields as well as from the Shell operated Bittern Field.

Guillemot West

Guillemot West is located in the central North Sea in UKCS Blocks 219/29a, 21/25, 21/30 and 21/29b. The field is located approximately 14 km northwest of the Triton FPSO. First production at Guillemot West was March 2000 and currently has 4 production wells.

Guillemot North-West

Guillemot North-West is located in the central North Sea in UKCS Block 21/24. The field is located approximately 14 km northwest of the Triton FPSO. First production at Guillemot North-West was March 2000 and currently has 1 production well.

Clapham

Clapham is located in the central North sea in UKCS Block 21/24. The field is located approximately 22 km northwest of the Triton FPSO. First production at Clapham was October 2003 and currently has 2 production wells and 2 water injection wells.

Pict

Pict is located in the central North sea in UKCS Block 21/23b. The field is located approximately 34 km northwest of the Triton FPSO. First production at Pict was June 2005 and currently has 3 production wells.

Saxon

Saxon is located in the central North sea in UKCS Block 21/23b. The field is located approximately 35 km northwest of the Triton FPSO. First production at Pict was November 2007 and currently has 2 production wells.

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Hudson

The Hudson field is located in Block 210/24a and lies approximately 85 km northeast of the Shetland Islands. The field is produced as a subsea tieback via the TAQA Tern Alpha platform that is located approximately 11 km to its east. The Hudson field comprises 7 production wells and 2 water injection wells.

Drilling Operations

Drilling on the Western Isles Development's North Drill Centre continued throughout 2014 from the Ocean Nomad where 2 production and 1 water injection wells were completed ready for subsea hook-up. A further production well was completed and suspended.

Decommissioning Operations

Dana did not conduct any decommissioning operations during 2014.



Health, Safety, Security and Environment (HSSE) Management System

Dana is committed to managing any potential environmental impacts associated with its operational activities. Dana meets this commitment within the UK via the implementation and maintenance of an Environmental Management System (EMS) within its One Dana Management System (ODMS).

The ODMS delivers the arrangements to reduce and manage risk and to implement the company's HSSE Policy. The management system provides an essential framework and rules to ensure Dana's operations, anywhere in the world, are safe and secure and minimise environmental impact at all times. The Dana HSSE Policy and Standards provide the framework to help deliver safe and reliable operations that are resilient over the long term and enable continual improvement.

The Dana UK EMS is structured to meet the requirements of Dana's HSSE Standards and was developed in line with elements of the Standard ISO 14001: 2004 and OSPAR Recommendation (2003/5). In line with the ODMS, Dana's UK EMS follows the basic structure of "Plan, Do, Check, Act" (Figure 4.)

Figure 4: Dana UK EMS



Key Elements of Dana UK's EMS

Environmental Aspects and Impacts Register

The key to Dana managing its impacts is a detailed understanding of the potential environmental risks posed by its activities. By systematically identifying the environmental aspects relevant to its UK operations, Dana has identified the appropriate levels of control required to minimise environmental impact. Identification of Dana's environmental aspects informs the remainder of the EMS.

Legislation Compliance and Permits Register

In order to operate wholly within the law, it is necessary to understand all applicable legislation and its implications. This is achieved through development of a Legal Compliance Register that is regularly reviewed.

Objectives and Targets

Continual improvement in environmental performance is achieved through setting of challenging objectives and targets. These are identified and HSSE Improvement Plans agreed annually at formal review meetings with senior management and operations teams.

Competence, Training and Awareness

Dana is committed to ensuring all personnel understand the value of the EMS to Dana, and how this is used to minimise impacts to the environment from the company's operations. All Dana staff and contractors are provided with relevant training to enable them to conduct their work wholly within the legislation and company's environmental commitments.

Environmental Communication

Within Dana, communication of environmental issues is achieved using email, company noticeboards, Dana's Intranet, meetings, environmental bulletins and environmental support packs for specific operations. A programme of environmental awareness is prepared and circulated offshore each quarter that highlights current themes or areas for improvement.

Emergency Preparedness and Response

Dana has procedures to identify potential events and to ensure the required control measures are in place for the prevention of emergencies and for the management of events should they occur. Regular exercises are undertaken to assess the efficacy of these plans, with results captured to identify 'lessons learned'.

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Audit

Monitoring of legislative compliance, environmental performance and progress towards achievement of goals and targets is achieved through regular auditing. Dana develops an annual audit schedule that identifies a range of internal and external audits. All actions and their progress until completion are managed using incident tracking software.

Management Review

An annual management review is conducted to review and assess environmental performance over the preceding year. This helps to formulate the objectives and set targets for the next year.



Environmental Performance

Atmospheric Emissions

Fuel combustion and flaring operations are the principle source of atmospheric emissions from the oil and gas industry. Carbon dioxide (CO₂) is the main exhaust gas but combustion also results in emissions of CO, CH₄, NO_x, SO_x and VOC's. The largest proportion of CO₂ emissions is generated by the combustion of fuel for power generation.

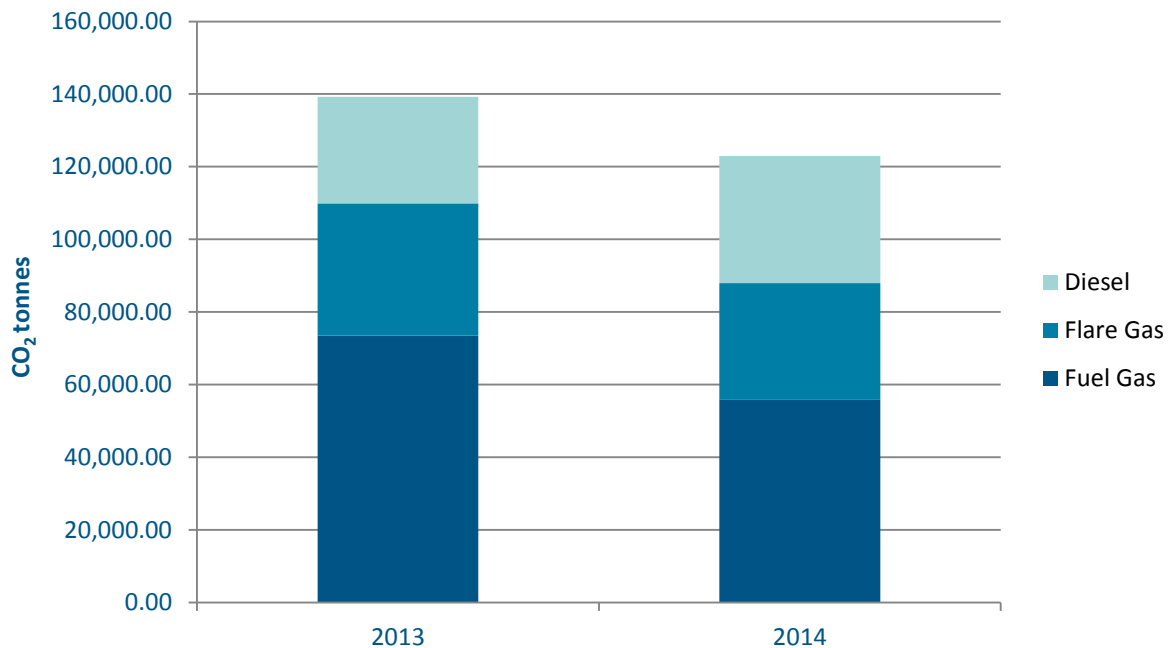


Figure 5: Production Operations: CO₂ (tonnes) from combustion of Flare Gas, Fuel Gas and Diesel 2013 – 2014

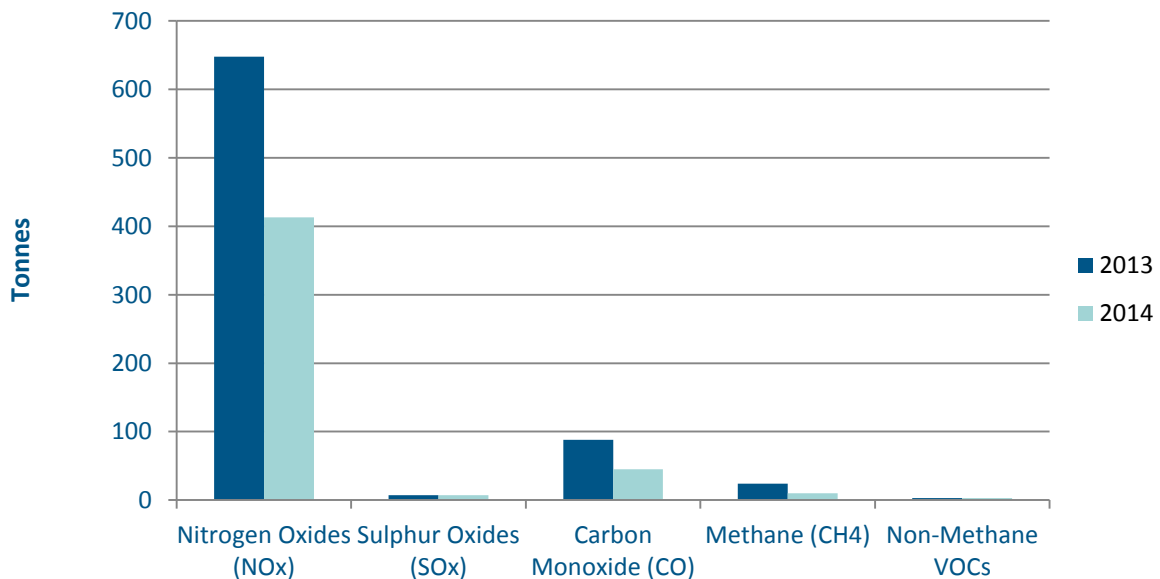


Figure 6: Production Operations: NO_x, SO_x, CO, CH₄ and VOC's (tonnes) from combustion of Fuel Gas and Diesel 2013 – 2014

Atmospheric Emissions

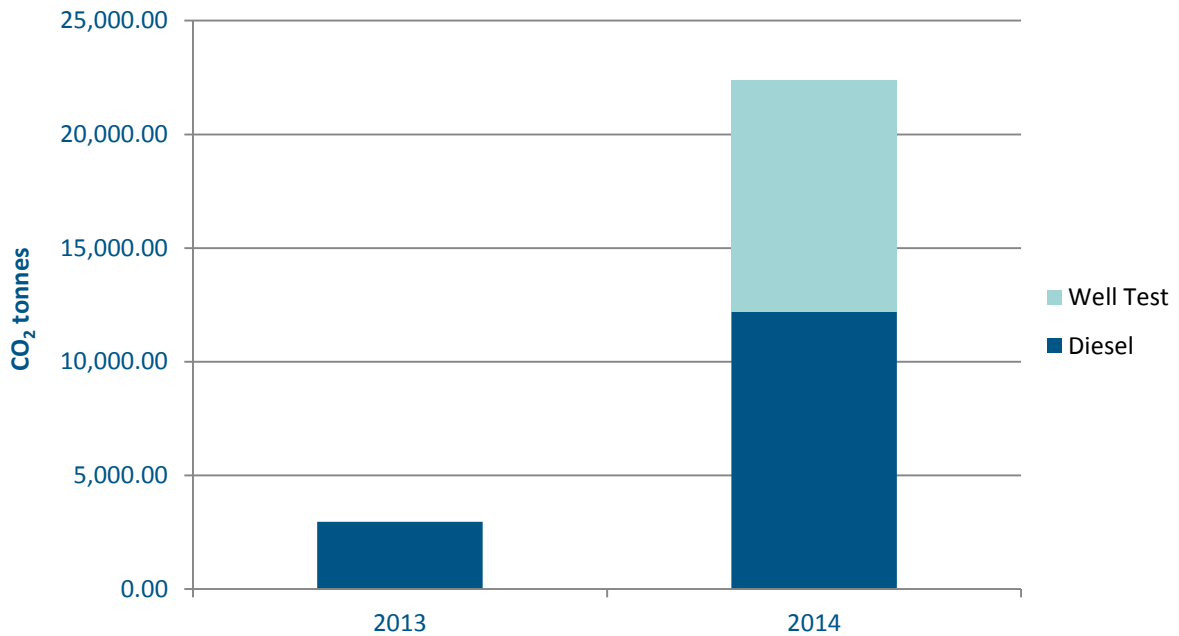


Figure 7: Drilling Operations: CO₂ (tonnes) from combustion of from Flare Gas, Fuel Gas and Diesel 2013 – 2014

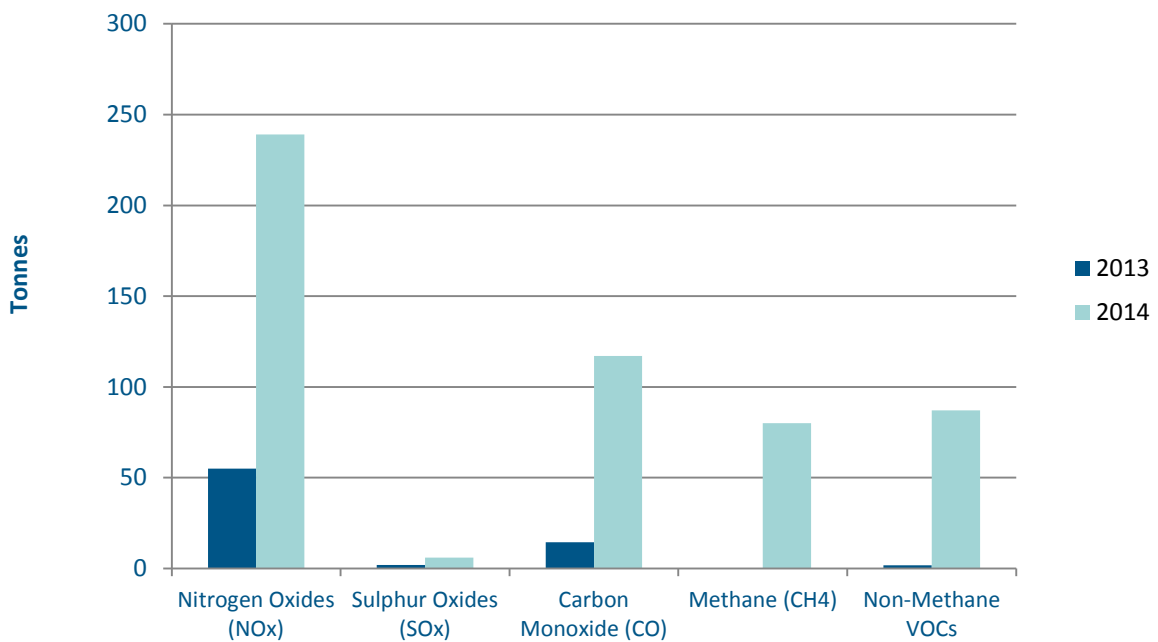


Figure 8: Drilling Operations: NO_x, SO_x, CO, CH₄ and VOC's (tonnes) from combustion of Fuel Gas and Diesel 2013 – 2014

Oil in Water

Dana's Oil Discharge Life Permit allows for the discharge of produced water from the Triton FPSO, provided the concentration of dispersed oil in produced water does not exceed permitted limits of 30 mg/l (monthly average). Separation of oil and gas from produced water is achieved onboard the Triton via the use of Hydrocyclones, Degassers and Compact Flotation Units.

During 2014, the total volume of produced water discharged from Triton's production operations was 1,290,724 m³. The 2014 annual average oil in water concentration for Triton was 19.4 mg/l, with a total of 28.9 tonnes of oil being discharged to sea.

Hudson produced water is managed by the Tern Alpha platform. During 2014, the total volume of produced water discharged from Hudson's production operations was 769,670 m³.

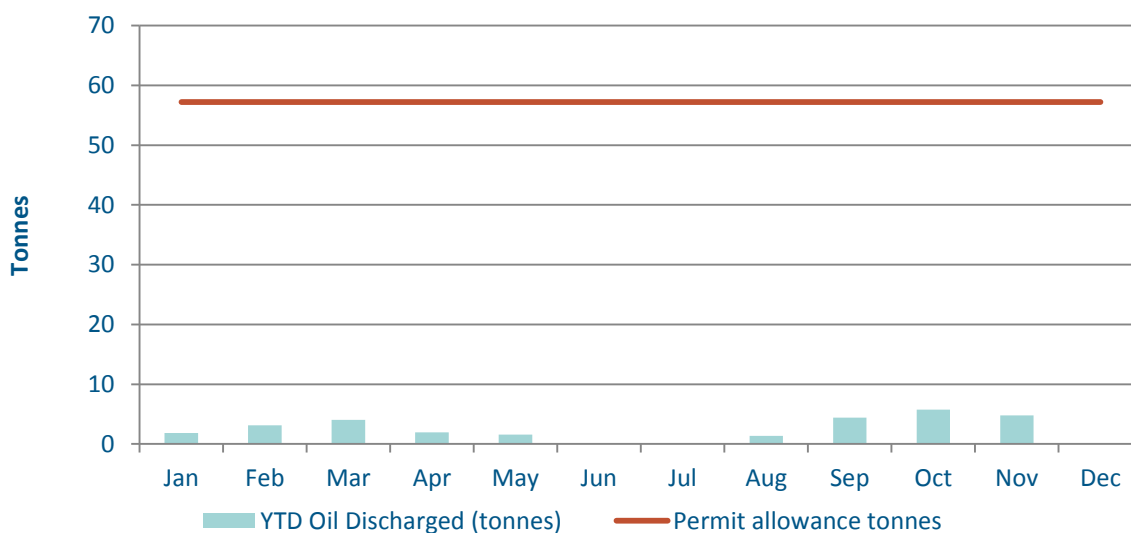


Figure 9: Oil in discharged (tonnes) in Produced Water from Triton in 2014

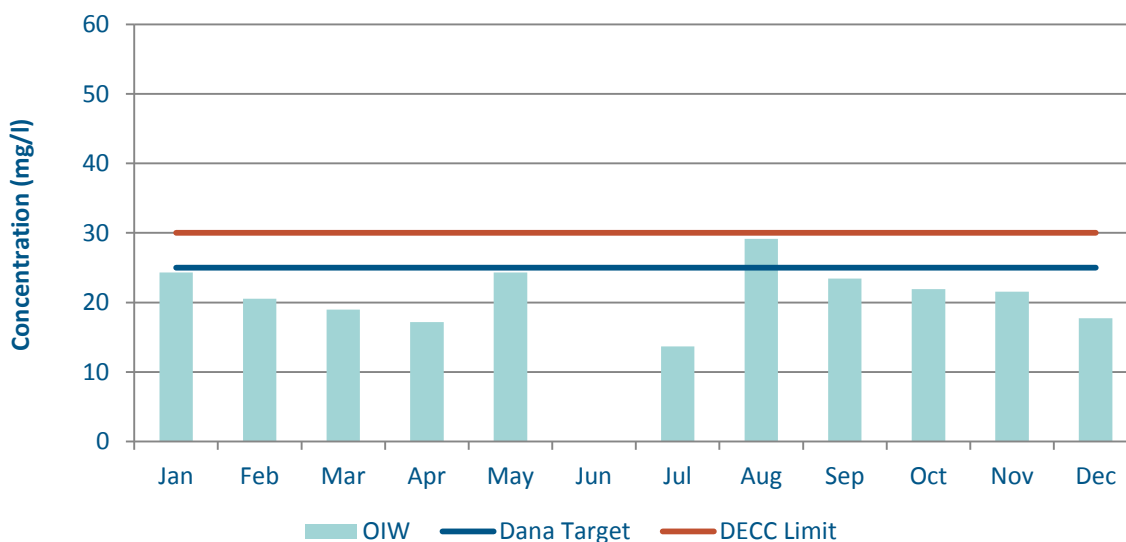


Figure 10: Oil concentration (mg/l) in discharged Produced Water from Triton in 2014

Chemical Use and Discharge

A wide range of chemicals is required during drilling, subsea and production operations, all of which must be risk assessed as part of the permit approval process. The use of chemicals that are deemed to present a greater risk to the environment must be further justified. There are a number of chemicals identified as candidates for substitution, wherever possible these chemicals should be phased out in favour of substitution free alternatives.

In addition to production operations, Dana conducted a number of campaigns including drilling and the maintenance and repair of subsea infrastructure. Most of these operations required the use and discharge of chemicals. Many of the chemicals that Dana used in 2014 are listed as PLONOR and have the lowest OCNS category (E). However, approximately 30% of the chemicals used had a substitution warning.

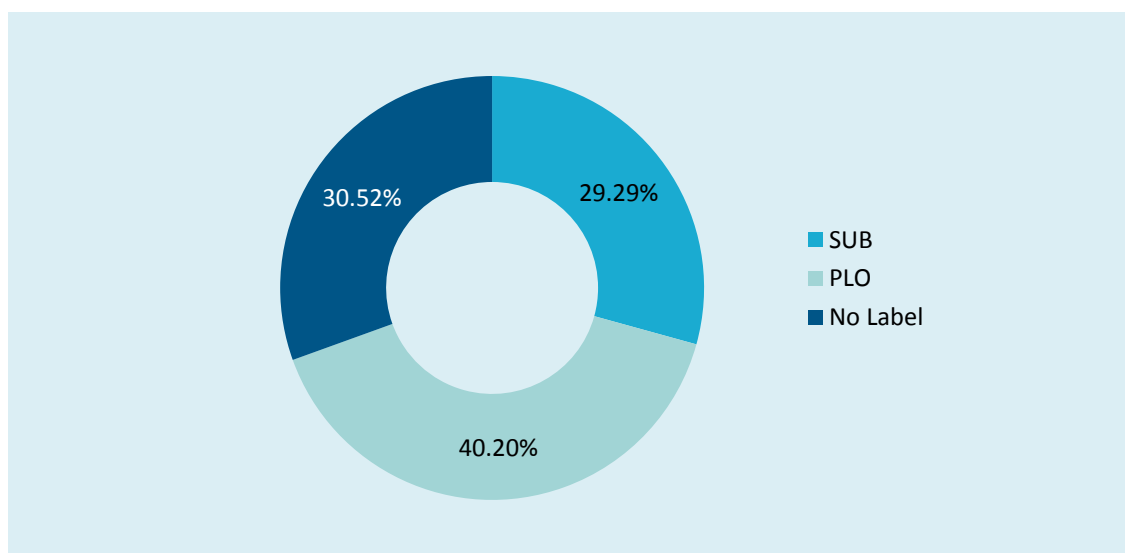


Figure 11: Chemical discharges by chemical label

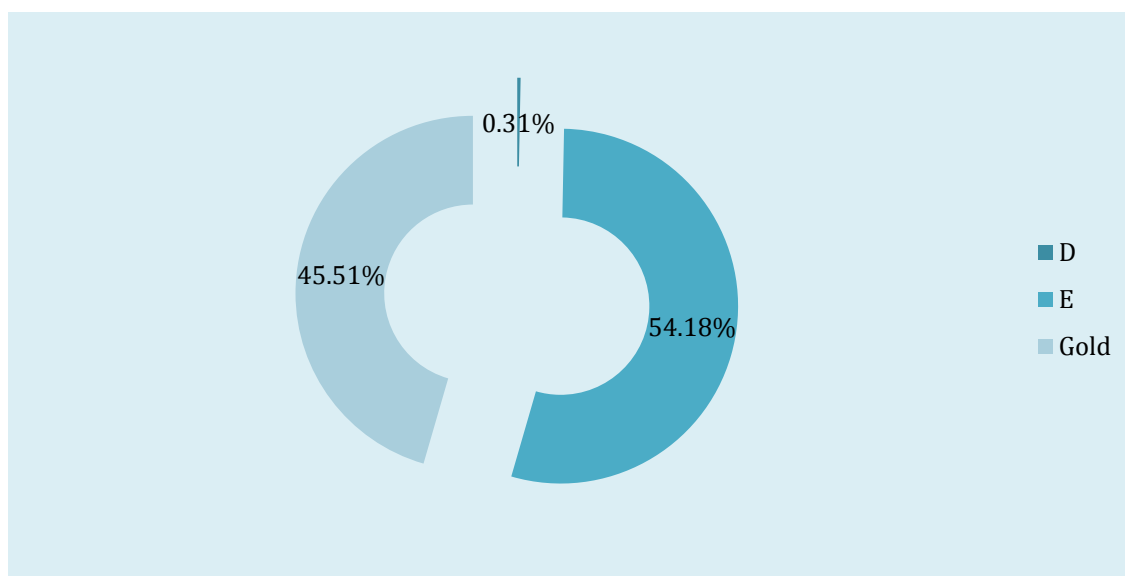


Figure 12: Chemical discharges by OCNS Ranking

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Waste

To ensure its minimisation, offshore waste is managed in accordance with the waste hierarchy. Inevitably, however, waste is generated and this is removed to the shore for appropriate disposal. Waste generated offshore is segregated at source into special, general and recyclable waste.

During 2014, a total of 1522.7 tonnes of waste was generated from Dana's offshore production and drilling operations. The majority of production waste was recycled (48%) or sent to landfill (38%) (Figure 13). For drilling operations the majority of waste was sludges /liquids and tanks washings (59%) (Figure 14).

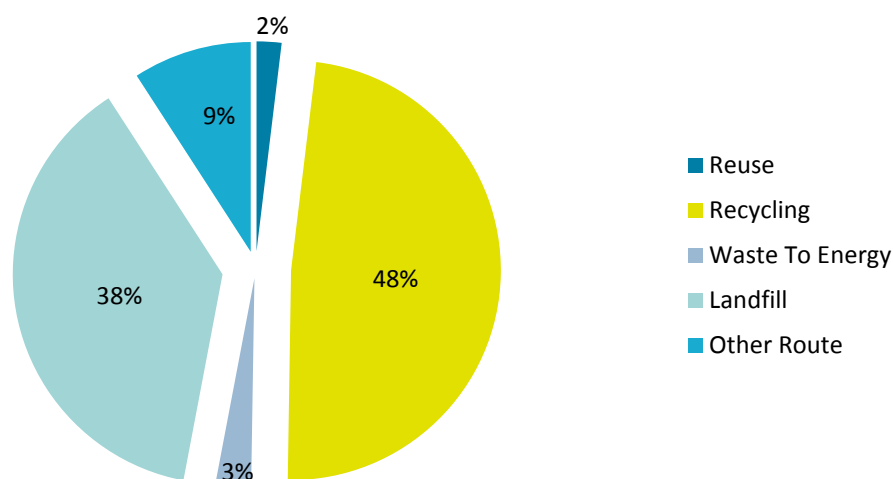


Figure 13: 2014 Triton Production Waste

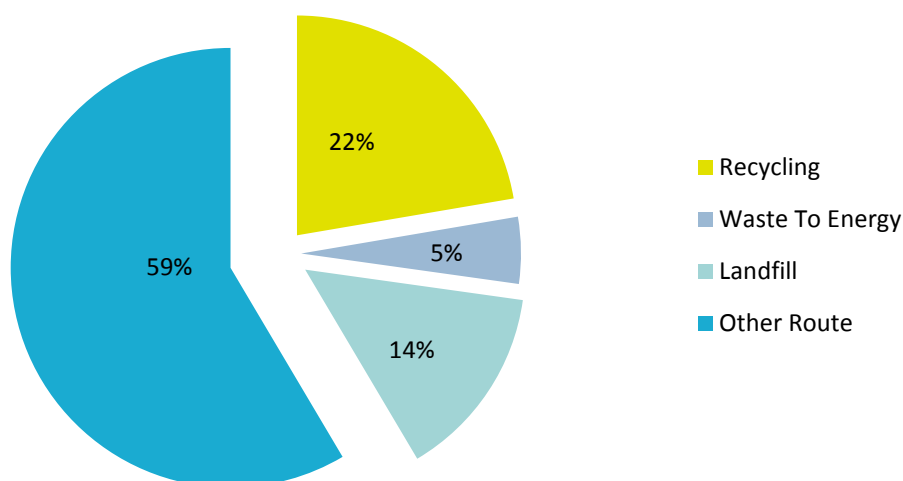


Figure 14: 2014 Offshore Drilling Waste

Spills

Under the Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Conventions) Regulations 1998, all offshore operations must have in place an approved Oil Pollution Emergency Plan. This sets out the procedures to follow in the event of a spill. Dana has a number of mitigation measures in place to prevent the occurrence of a spill to sea, however, all spills that do occur are reported to DECC using a PON1 submission.

During 2014, Dana reported a total of eight spills of chemicals and one of oil.

Location	Chemicals		Oil	
	Number of Spills	Quantity (tonnes)	Number of Spills	Quantity (tonnes)
Triton and the Greater Guillemot Area	5	0.499	1	0.0008
Hudson	1	0.007	0	-
Western Isles Drilling	2	0.008	0	-

Table 2: Number of Dana's 2014 spills and quantities lost

Environmental Accomplishments

During 2014 Dana has achieved a number of environmental successes including:

- Re-certification of its EMS by an independent body
- Successful environmental awareness programme implemented across drilling and production operations
- Development of an active incident review and lessons learned programme
- Improved engagement and communication with E-Reps
- 30% reduction in the number of chemical and oil spills at Dana operated assets
- Completion of environmental seabed survey within Triton and the Greater Guillemot Area



2014 Environmental Performance against Objectives

Dana's key performance indicators (KPIs), Metrics and Measures for 2014 were successfully completed.

2014 Objective	Outcome
Delivery of quarterly environmental themes at offshore drilling HSE meetings	Completed
Two audits of yards receiving waste from Dana offshore drilling and production operations	Completed
Conduct a drill cuttings treatment facility audit	Completed
Successful implementation of a company specific E-Rep/Safety Rep forum	Completed
Continually reviewing drilling, subsea and production chemicals being used offshore and replacing if more environmentally friendly products are compatible	Completed

Environmental Objectives for 2015

Dana has developed the following environmental objectives for 2015

- Development and implementation of environmental awareness packs for offshore that will cover PON1, chemical, oil discharge and waste compliance
- Continued support with training E-Reps offshore in conducting internal environmental audits on the Triton FPSO
- Continual review of all unplanned spills and non-conformances in order to develop recommendations for improvement
- Achieve an average dispersed oil in water concentration of < 25mg/l;
- Promote use of Environmental Tracking system and engage new users

