

Annual Environmental Performance Statement



ORANJE-NASSAU
ENERGIE

2016





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Introduction

The Annual Environmental Performance Statement for ONE UK aims to provide stakeholders and the public with an overview of the ONE UK operated installation facilities, offshore operations and environmental performance for 2016.

For ONE UK as an operator of seaward licenses the Annual Environmental Statement and Environmental Management System (EMS) must meet the requirements of OSPAR recommendation 2003/5.

This report aims to:

- Describe our main UK assets and activities.
- Provide an overview of ONE UK's environmental management.
- Provide details on key environmental aspects.
- Summarise the ONE UK environmental performance in relation to relevant legislative requirements and environmental objectives and targets.

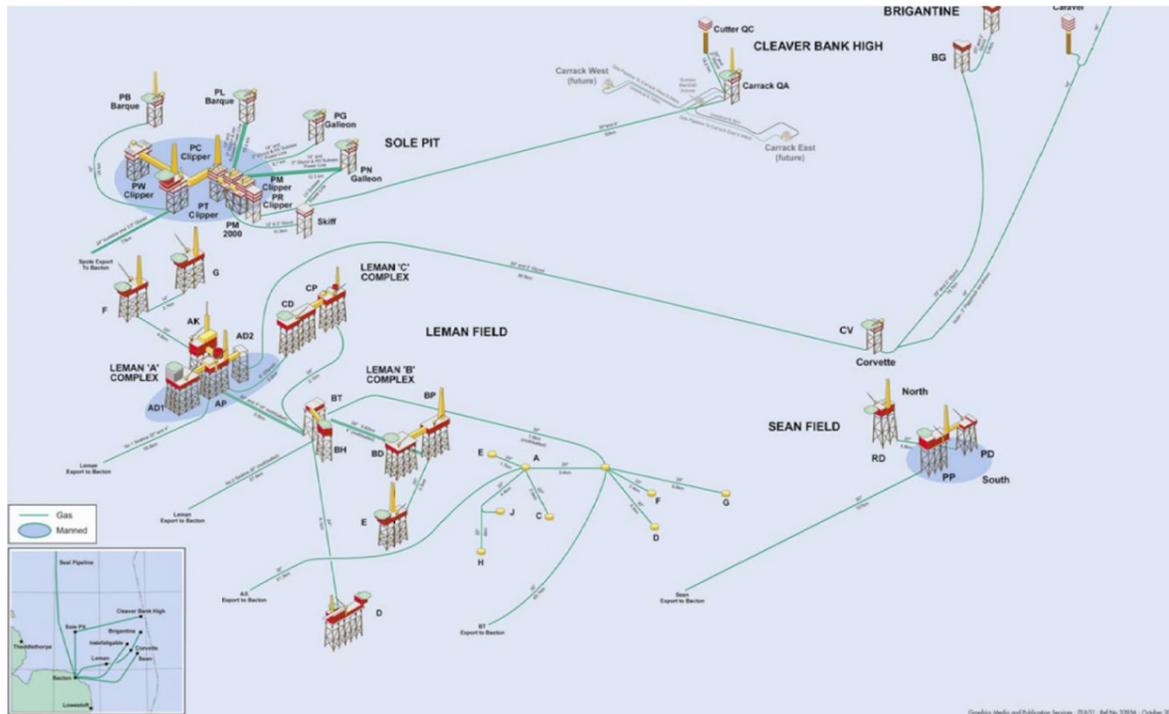


Figure 1:
Location of fields

Scope of Activities

Oranje-Nassau Energie has a balanced portfolio in terms of oil and gas production, geographic spread through assets in the UK and Dutch North Sea and Gabon and a spread of operated and non-operated stakes, operated by a variety of established operators.

ONE UK's operation has a non-operated share of the Buzzard and Gead assets (operated by Nexen) and an operated share of the Seán Papa and Romeo assets of 50% in partnership with SSE.

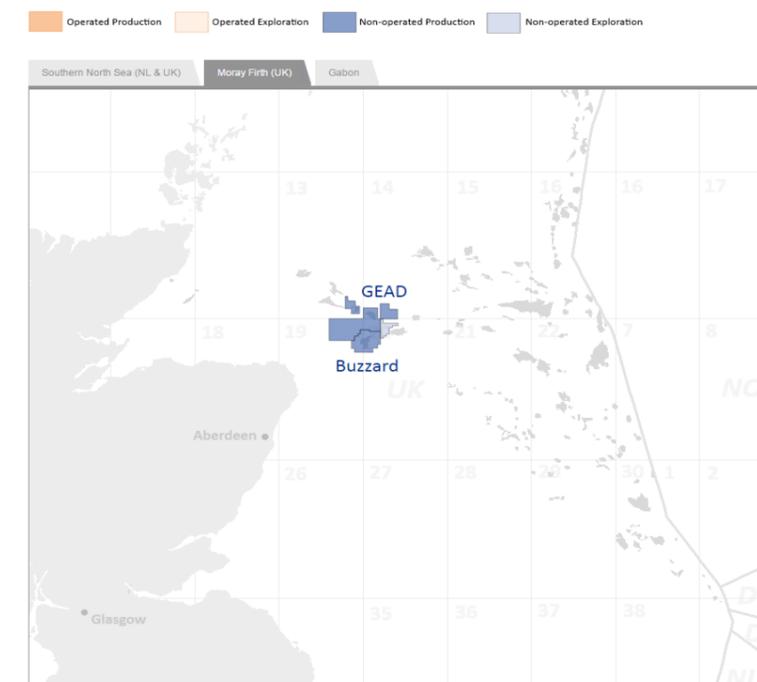
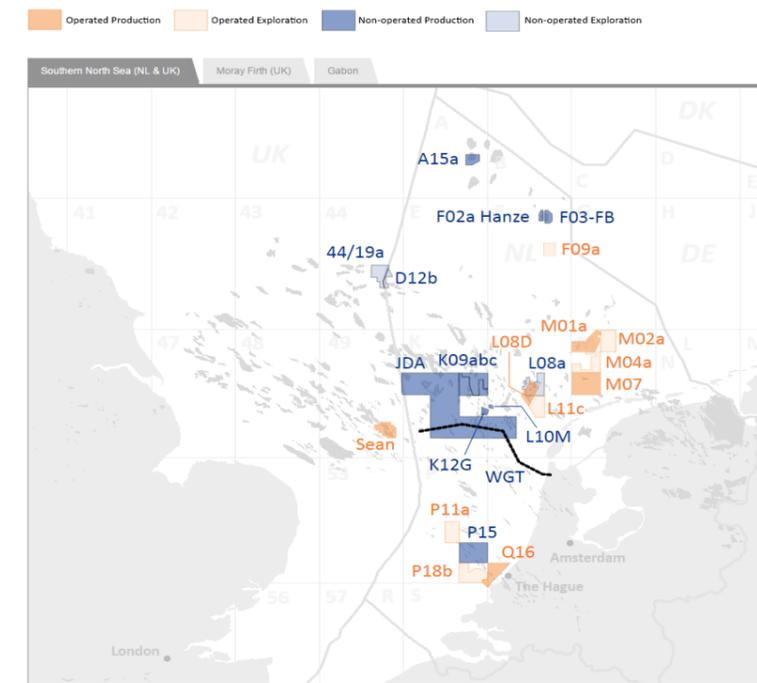


Figure 2:
Overview of ONE UK's assets in the Dutch and UK North Sea and Gabon.
Distinction is made between operated and non-operated productions and exploration.

The Sean Papa (PP & PD) installation is located in the southern part of the UK sector of the North Sea in block 49/25a, approximately 94km from the nearest point on the Norfolk coast.

It is a Normally Manned Installation (NMI) comprising two fixed bridge linked platforms; a wellhead platform (PD) and a production and accommodation platform (PP).

Gas from Sean Papa is exported to the Bacton terminal in Norfolk via a dedicated pipeline.

The Sean Romeo (RD) is a Normally Unmanned Installation (NUI) and is approximately located at 4.5km off the Sean PP & PD in block 49/25a.

The Sean Romeo is connected through a 20" duplex pipeline with the Sean PP & PD. The Sean Romeo installation stands in approximately 30 metres of water and is situated 94km from the Norfolk coast.

During the 2016 reporting period there were no decommissioning or drilling activities in the UK.



The Sean Papa installation, 94km off the Norfolk Coast.

ONE Environmental Management

The ONE UK Environmental Management System (EMS) comprises strategic corporate documents originating from ONE B.V. cascading down to ONE UK and Sean-specific documents and procedures.

The purpose of the EMS is to provide ONE UK with a framework to protect the environment and respond to changing environmental conditions in balance with socio-economic needs. It specifies the systematic approach that enables ONE UK to operate and develop oil and gas production assets in compliance with all relevant legal and stakeholder requirements.

The corporate ONE HSE policy sets out the company's commitments and forms the basis to develop, implement and monitor our environmental objectives and manage activities that can interact with the environment.

The ONE UK EMS is structured in line with the requirements of the international standard for environmental management and was certified to the ISO 14001:2004 in January 2016. The ONE UK environmental management system has been annually reviewed and audited by the certifying body DNV, covering onshore and offshore activities in order to determine the extent of ONE UK's environmental performance.

The EMS consists of the elements described in figure 2:



Figure 3:
Structure of ONE UK's Environmental Management System.

Health, Safety and Environmental Policy

The Corporate HSE policy covers all ONE activities in the UK and NL and reflects the commitment of the owners and the management team to develop and operate oil and gas production in a sustainable way.

To protect the health and safety of all persons involved and to prevent pollution and minimize impact on the environment, ONE UK believes that responsible and pro-active management is a key factor in ensuring business success.

The HSE policy is shown below:

Health, Safety & Environmental (HSE) Policy

ORANJE-NASSAU ENERGIE

- 1. Commitment**
 - Oranje-Nassau Energie B.V. and Oranje-Nassau Energie UK Limited (hereafter are both companies referred to as "ONE") are committed to conduct their operations in a sustainable way that protects the health, safety and well-being of employees, contractors and the public and will make every effort to prevent pollution and avoid impact to the environment, loss of integrity of assets and damage to the property of the company and third parties. A responsible and pro-active HSE management is considered a key factor in ensuring business success.
 - We will respect: the United Nations Universal Declaration of Human Rights and the United Nations Convention on the Rights of the Child.
- 2. Policies**
 - We will comply with the intent and specific requirements of all applicable laws, regulations and agreements with the government and business partners.
 - It is the responsibility of every individual who works for ONE to comply with the law as well as with ONE policies and practices. This is a condition of employment.
- 3. Objectives and Planning**
 - For the implementation of our policy we will maintain an HSE Management System including energy efficiency improvement, according to applicable national legislation and company standards.
 - We will set measurable targets as part of our annual HSE program.
- 4. Implementation**
 - We will maintain HSE management standards, sound procedures and clear programs.
 - We will carry out risk assessments so that the business will be conducted with due care to safety, health and environment.
 - ONE will ensure that all employees and contractors are aware that the HSE aspects of their tasks and responsibilities are an integral part of the business.
 - If the safe or environmentally responsible completion of a task is not clearly foreseeable, the task shall not be started.
 - Employees and contractors are expected to take action on any substandard condition and to report any incident that resulted in or could have resulted in injury or damage.
 - Incidents will be investigated, the root causes determined and the results shared within the organization in order to prevent recurrence.
 - We will maintain effective emergency response procedures, train employees in their use and conduct emergency exercises.
- 5. Monitoring and Audits**
 - We regularly conduct inspections and audits to monitor the compliance with and effectiveness of our HSE Management System.
 - We will share those results with employees, contractors and stakeholders involved, in order to identify strengths as well as opportunities for improvement.
- 6. Management Review**
 - Management will annually review the HSE policy and the effectiveness of the HSE Management System.
 - The policy and management system will be adjusted as required.
- 7. Continuous Improvement**
 - We seek continuous improvement to our health, safety, environmental and energy performance by yearly setting new (individual and company) targets.
 - We will actively co-operate with industry and authorities to further enhance our HSE standards and performance.

Alexander Berger
CEO
15/10/2015

ONE_COMP-25-1-PO-00001-0, October 2015

Figure 4:
Health & Safety Policy

Environmental Aspects

As part of the process of establishing, implementing and maintaining the EMS, ONE UK has identified the significant environmental aspects of its Onshore and Offshore activities and the environmental performance associated with these has been reported.

Spills to Sea

Non-permitted releases of oil or chemicals to the sea must be reported using a Petroleum Operations Notice 1 (PON 1) which is submitted to The Department of Business, Energy and Industrial Strategy (BEIS) on an electronic Portal. This notice provides details of the spill and actions taken to prevent a recurrence. ONE UK reports and investigates all spills to sea and tracks and manages the actions on the Synergi system.

Oil in water

Produced water from wells associated with gas production is regulated under the Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 (as amended). ONE UK has a permit to re-inject produced water to the A-2002 well on the Sean PD installation. Volumes of water and concentrations of oil are monitored and reported to BEIS on the Environmental and Emissions Monitoring System (EEMS) system.

Offshore Chemical

ONE UK holds a chemical permit for chemicals associated with oil and gas production activities on the Papa and Romeo. This is regulated under the Offshore Chemicals (Amendment) Regulations 2011. The annual use and discharge of these chemical is reported to BEIS on EEMS.

Waste

ONE UK manages waste segregation in the installations to minimize the quantity of waste shipped and disposed of via landfill and to identify reuse and cost saving opportunities.

Atmospheric Emissions

Sean Papa emissions are highly regulated and reported under several pieces of associated legislation. This includes venting, carbon dioxide (under European Union-Emissions Trading Scheme legislation) and other combustion gases including nitrous oxides, sulphur dioxide, carbon monoxide, methane and volatile organic compounds. In addition, refrigeration gases are regulated, monitored and reported annually.

ONE Environmental Objectives and Targets

Extent to which ONE UK's 2016 Environmental Objectives and targets have been met.

2016 Environmental Objectives	Achievement
Continue compliance with EU ETS regulation	2016 is the first full year of data collection, audit and verification. The permit and data collection methods were improved and simplified during the 2016 period.
Monitor venting emissions of Sean PP and PD with the aim of reduction	A study was completed and technical note produced to more accurately calculate the levels of continuous venting for reporting purposes.
Continue certification of ONE UK operations for ISO 14001	ONE had successful surveillance audits both in the UK and a corporate level in 2016. There were no non-conformances raised.
50% reduction in the number of chemicals and hydrocarbon spills to sea on ONE UK operated assets	Pro rata from 2015 spills, less than two spills were allowed in 2016. This was not achieved as ONE submitted two PON 1's in the reporting period.
Continue the phasing out of chemicals listed or registered substances with a substitution warning	During 2016 all chemicals with a substitution warning were phased out of use on the platform.

Spills to Sea

Two spills to sea occurred during 2016 from the Sean platforms for which a PON 1 was issued to BEIS. Both incidents were investigated and Root Cause Analysis performed to identify the immediate and systemic causes. Actions have been investigated and tracked on the Synergi system.

The incidents are described in the table below.

Date	Type	Quantity	Description
13/10/2016	Hydraulic Oil	3.6 Tonnes	The spill originated from oil leaking from the turbine skid into the hazardous open drains system on PD platform. As the drains system caisson had sheared and detached before ONE UK's purchase of the installation there was no secondary containment to prevent loss to sea. Poor valve design and inadequate securing mechanism had led to the inadvertent opening of a valve. Similar valves have been identified and changed on a risk basis. The hazardous drains treatment project will be completed Q2 2017.
09/12/2016	Hydraulic Oil	250 Litres	The leak source was oil leaking from the piston seals from the hydraulic actuator on the upper master valve. The oil was lost to sea through the grating in the well bay floor. A seal change-out program is in progress and improvements are being made to the rolling replacement program.

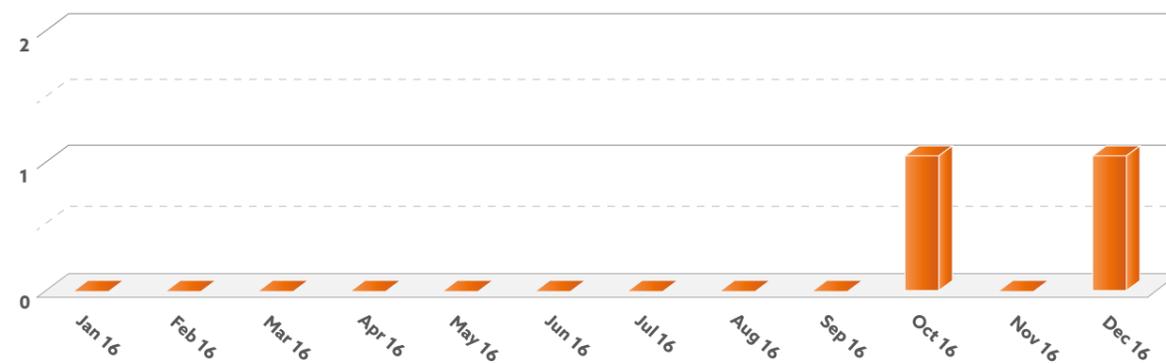
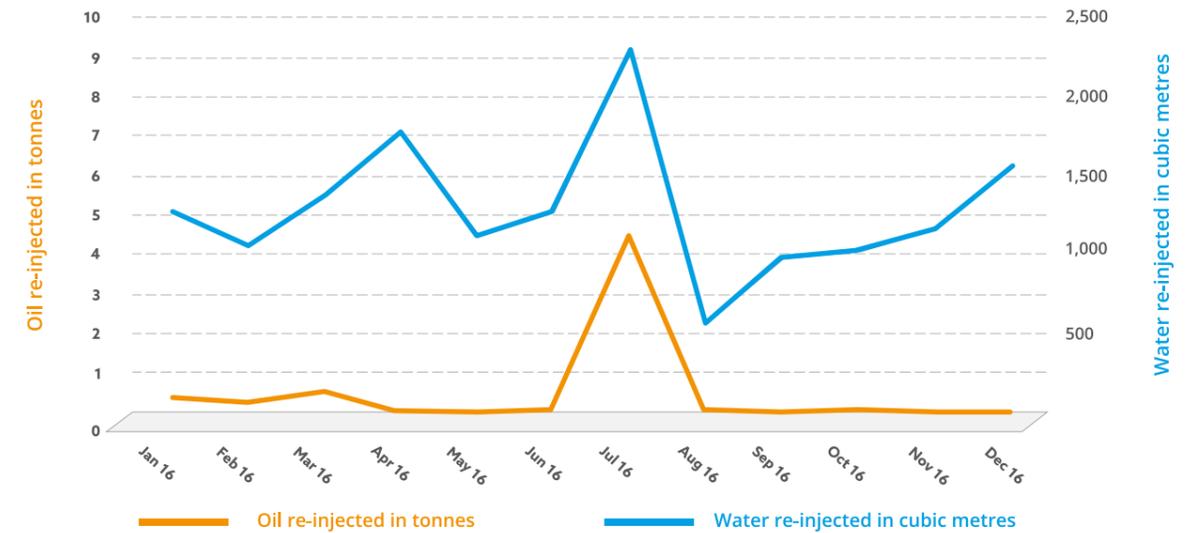


Figure 5: Number of spills per month 2016

Oil in Water

All produced water originating from the Sean Papa and Romeo wells is treated and re-injected; there are no re-injection limits applied to the oil in water content for re-injection. No water was discharged during 2016. Volumes of water and oil re-injected during 2016 as reported monthly on EEMS are shown in the chart.



	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
Water Re-Injected (m3)	1,268	1,060	1,376	1,780	1,121	1,267	2,303	562	979	1,030	1,173	1,565
Oil Re-Injected (t)	0.368	0.276	0.51	0.017	0.006	0.085	4.5	0.09	0.02	0.073	0.007	0.006

Figure 6: Produced Water re-injected 2016

Offshore Chemicals

Total use and discharge of chemicals as reported in EEMS for 2016 is reported according to the label and ranking categories in the chart below. The largest use of chemicals was for triethylene glycol (TEG), which is used as a gas hydrate inhibitor. This is not discharged however, but is collected and shipped to shore for recycling. The remaining chemical use was for offshore cleaning.

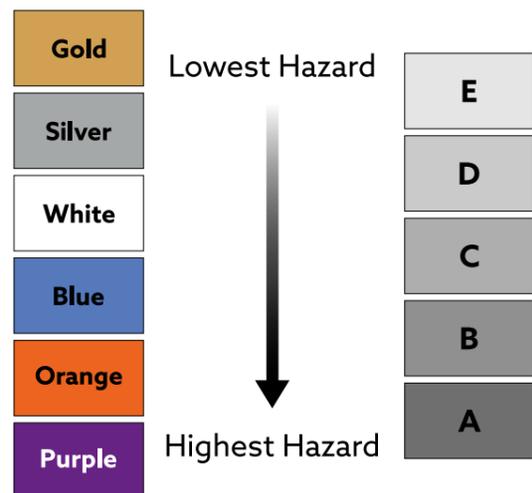


Figure 7:
Ranking of offshore chemicals according to hazard

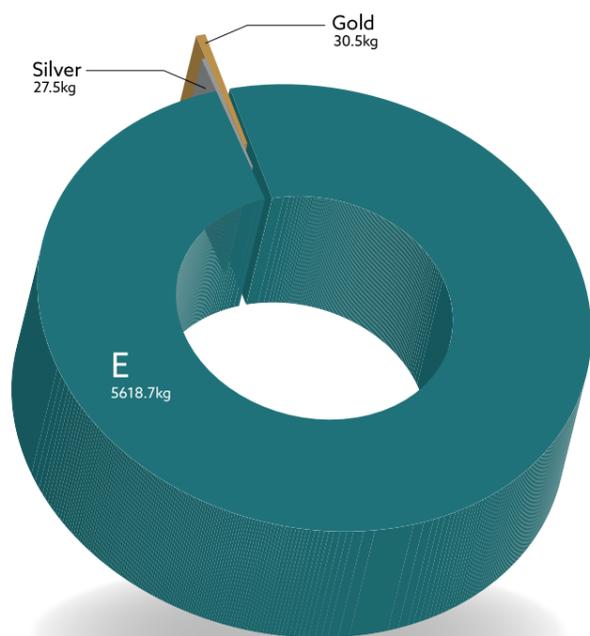


Figure 8:
2016 Chemical use in kg
(Permit CP/646/3)

Waste

ONE UK shipped a total 149.9 tonnes of waste in 2016 from the Sean Papa and Sean Romeo platforms. Waste was shipped to Den Helder in the Netherlands for treatment. Tonnes of waste has been charted according to waste types and disposal routes.

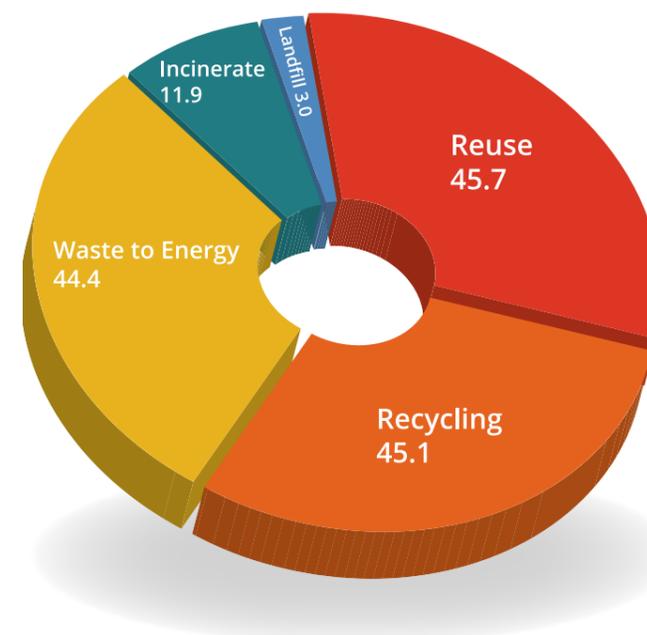


Figure 9:
Waste arising from the platform in tonnes by waste disposal route for 2016

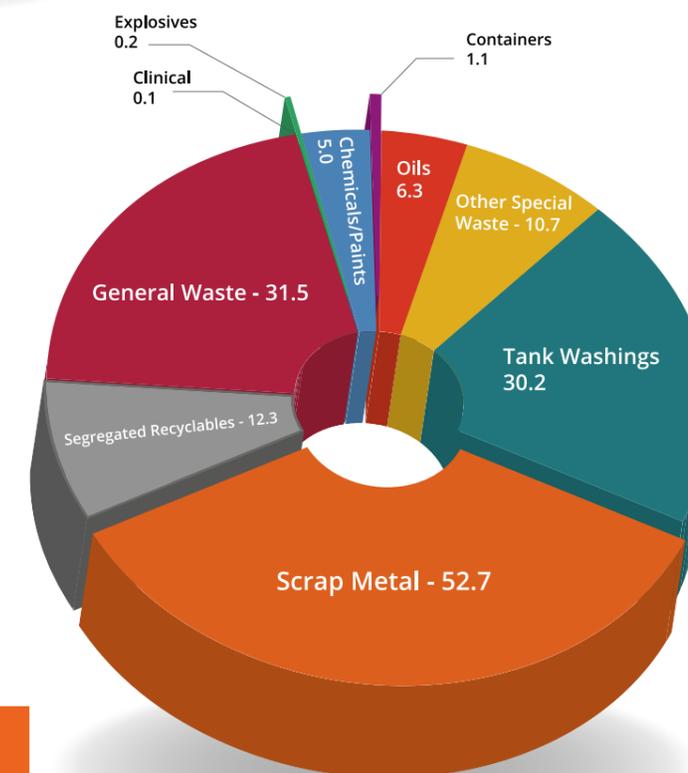
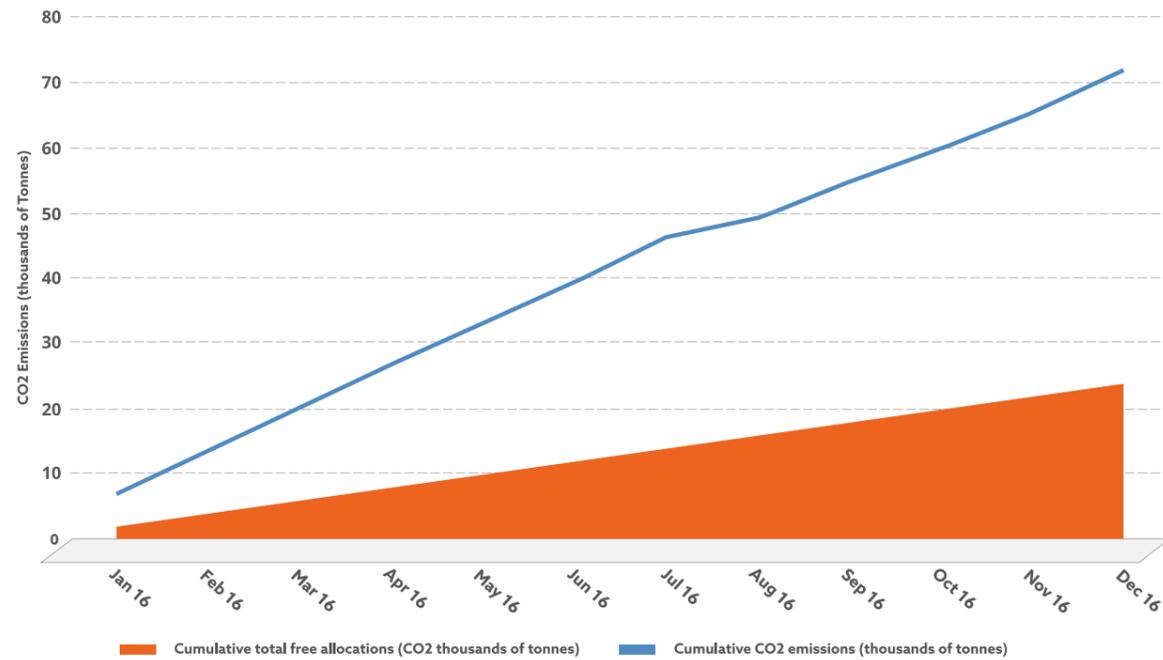


Figure 10:
Waste arising from the platform in tonnes by waste type for 2016

Atmospheric Emissions

Carbon dioxide

Carbon dioxide emissions are highly monitored and reported for EU-ETS purposes. On the Sean Papa, 71.8 thousand tonnes of carbon dioxide were emitted from fuel gas and diesel use in 2016. The monthly accumulated carbon dioxide emissions from all combustion equipment on the platform are presented in the chart. The emissions monitored are compared against the free allocations received for the platforms.

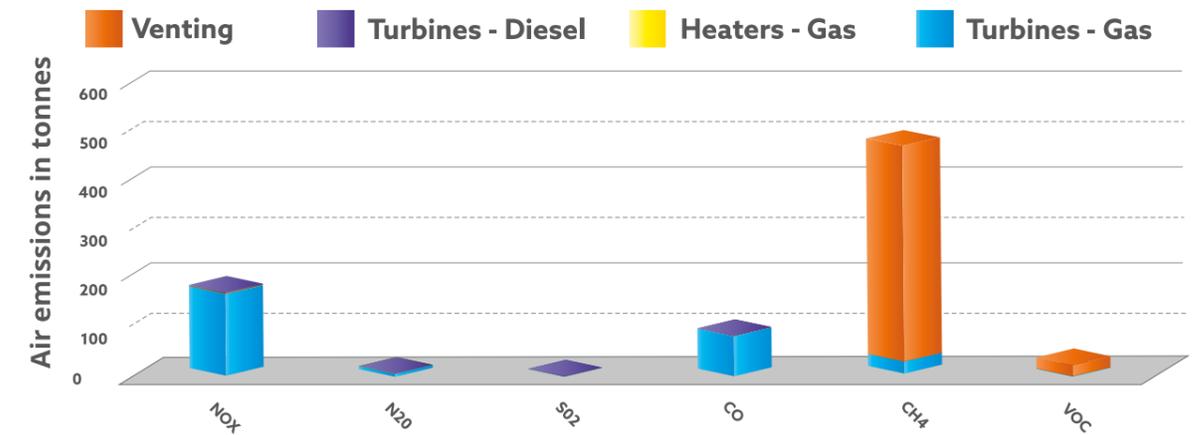


	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
Cumulative CO2 Emissions (Thousands of Tonnes)	6.8	13.1	20.1	26.7	33.0	39.4	46.2	49.2	54.7	59.8	65.4	71.8
Cumulative Total Free Allocations (CO2 Thousands of Tonnes)	2.0	4.0	5.9	7.9	9.9	11.9	13.9	15.8	17.8	19.8	21.8	23.8

Figure 11: Sean cumulative carbon dioxide emissions 2016

Other emissions from combustion and venting

Emissions reported on EEMS under the Offshore Combustion Installations (Pollution Prevention and Control) Regulations 2013 (Permit number PPC/4/0) are displayed in the chart, broken down into emissions from turbines and heaters fuelled on gas, and turbines fuelled by diesel. The largest proportion of emissions are for nitrous oxides (NOx) emitted from the combustion of fuel gas. Emissions vented under the Energy Act 1976 (Petroleum Production Licence No(s). P7 and P54) are displayed in yellow, which show the highest contribution to methane (CH4) emissions.



	Turbines - Gas	Heaters - Gas	Turbines - Diesel	Venting
NOx	168.51	0.73	2.39	0
N2O	6.08	0.07	0.04	0
SO2	0.35	0	0.35	0
CO	82.87	0.18	0.16	0
CH4	25.41	0.03	0.01	477.7
VOC	0.99	0	0.05	22.65

Figure 12: Emissions from combustion and venting 2016

Refrigeration gases

A number of refrigeration gases are used in equipment on the Sean Papa platform (displayed in orange). The only emissions of fluorinated gas in 2016 were 6.5 kg of HFC-134a.



Compound	On Facility	Emitted
HFC-134a	228.07	6.5
HFC-404a	11.25	0
HFC-410a	2.28	0
HFC-413a	3	0
HFC-417a	97	0
HFC-422a	24.5	0
HC-600a (Isobutane)	51.02	0

Planned environmental targets for 2017

2017 Environmental Objectives

- Reduce quantity of oil spilled to sea
- Ensure staff have appropriate environmental training and awareness
- Increase combustion fuel efficiency
- Reduce emissions from transport
- Improve communications in HSE
- Transition to new ISO14001:2015 standard

Figure 13:
Halogen gases present on the installation and emitted during 2016

ONE mooring buoy installation. The aim is to reduce diesel use by the standby vessel, therefore reducing emissions and engine wear and tear when in the field.





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