

one dyas

2018 Annual Environmental Report





Document Control

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1 Welcome from the COO



Peter Nieuwenhuijze

Chief Operating Officer - ONE-Dyas BV.

“We are excited about the growth potential of the combined ONE and Dyas asset base”

2018 has been both an exciting and challenging year for Oranje-Nassau Energie in the United Kingdom (UK) and The Netherlands (NL). In the first months of 2018 a second exploration well was drilled in the area offshore of the Gateway to the Ems (GEmS), in the Dutch sector, which reconfirmed the presence of natural gas. Subsequently in March the operatorship of the GEMs area was acquired by ONE. Since then we have spent time investigating all the potential development concepts. We know the environmental sensitivity of the area is of paramount importance in the design selection, and the initiation study for the platform design is planned for 2019. In addition, we successfully drilled development wells from the L11b-A platform and from the onshore Q16-Maas location. Besides the exploration, production and development we successfully abandoned two wells on the L11b-A facility.

Last year ONE restructured the company in both the NL and UK and brought together recent acquisitions under one umbrella.

The UK company changed legal entity and its name to Oranje-Nassau Energie Resources (ONER) Limited, with accompanying transfer of permits and consents. Alongside this the Organisation's Environmental Management System (EMS) has continually been improved and was successfully re-certified to the environmental management system ISO14001:2015 in December 2018.

Over the year 2018, we have faced challenges with high levels of water production together with the gas production, both at the onshore Q16-Maas location and on the offshore P11-E production platform. In order to manage this, we have performed several

drilling activities and well services interventions. In the UK we also overcame significant challenges when a sphere became lodged in the export pipeline to Bacton. The ONE operations team, effectively co-ordinated and managed the remedial actions to retrieve the lodged sphere. ONE, together with external organisations managed to minimise impact on assets and the environment. A root cause analysis was executed to determine why the sphere become lodged. The findings from the analysis have prompted technical improvements to mitigate the possibility of re-occurrence.

This past year ONE has implemented several technical projects, to improve our environmental performance. The L11b-A platform has installed three-way catalysts on the gas engines and successfully reduced NOx air emissions from the exhaust gases. At the same time, we have improved our quantification methods for methane emissions measurements. This was achieved primarily by installing two flowmeters in the L11b-A platform vent stacks, but also in estimating our fugitive methane emissions. For 2019 we remain focused on developing a better understanding of our emissions in order, to reduce them. For the new GEmS concept selection an investigation and study are progressing, to supply the planned production platform with electrical power from a nearby wind farm.

At the end of 2018 ONE announced the significant news of a merger between Oranje-Nassau Energie and Dyas. With this merger there is high potential for company growth of our combined asset base and we believe that with the mutual expertise and dedication of our employees, we can contribute to the local energy needs as part of the energy transition.

Peter Nieuwenhuijze

2 Introduction

In April 2019, Oranje-Nassau Energie UK became ONE-Dyas UK. This Annual Environmental Performance Statement aims to provide stakeholders and the public with an overview of the 2018 ONER operated installation facilities, offshore operations and environmental performance for 2018. For ONE-Dyas as an operator of seaward licenses, the Annual Environmental Report (AER) 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-Dyas environmental management
- Give an overview of the main 2018 activities
- Provide details on key environmental aspects
- Summarise the ONE 2018 environmental performance in relation to relevant legislative requirements and environmental objectives and targets

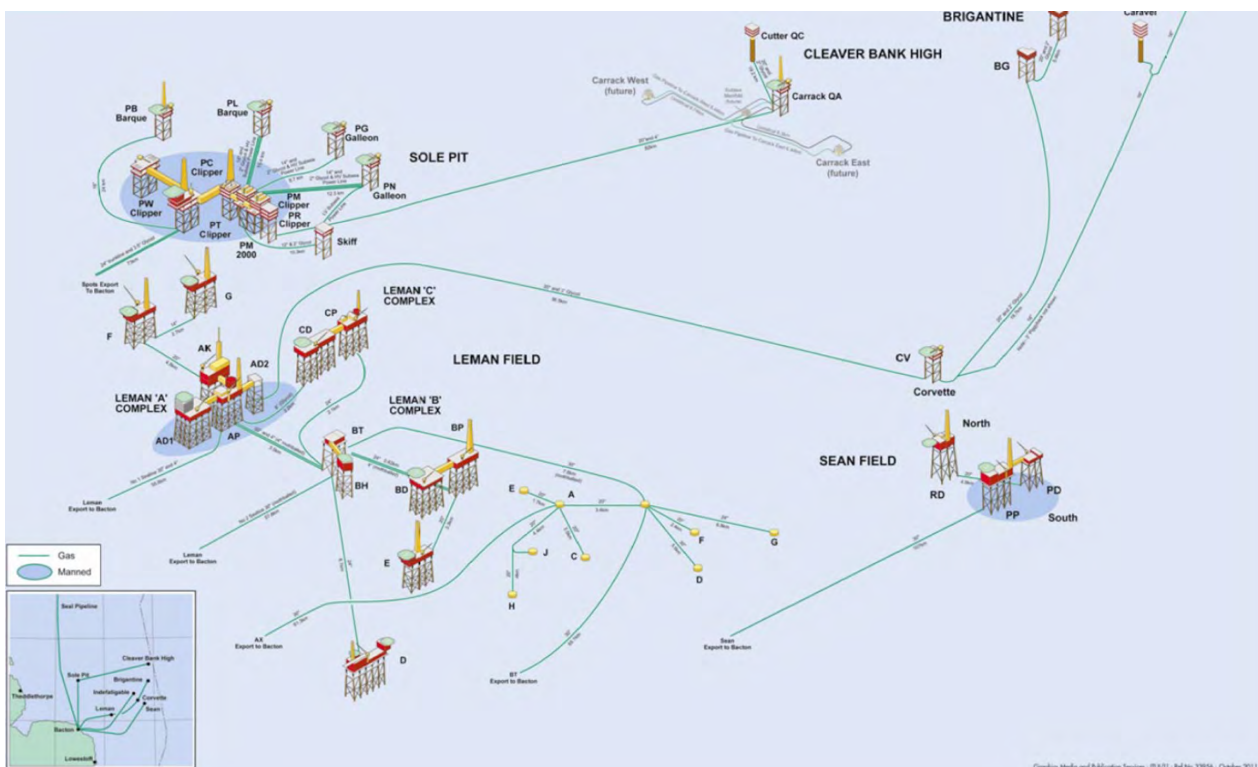
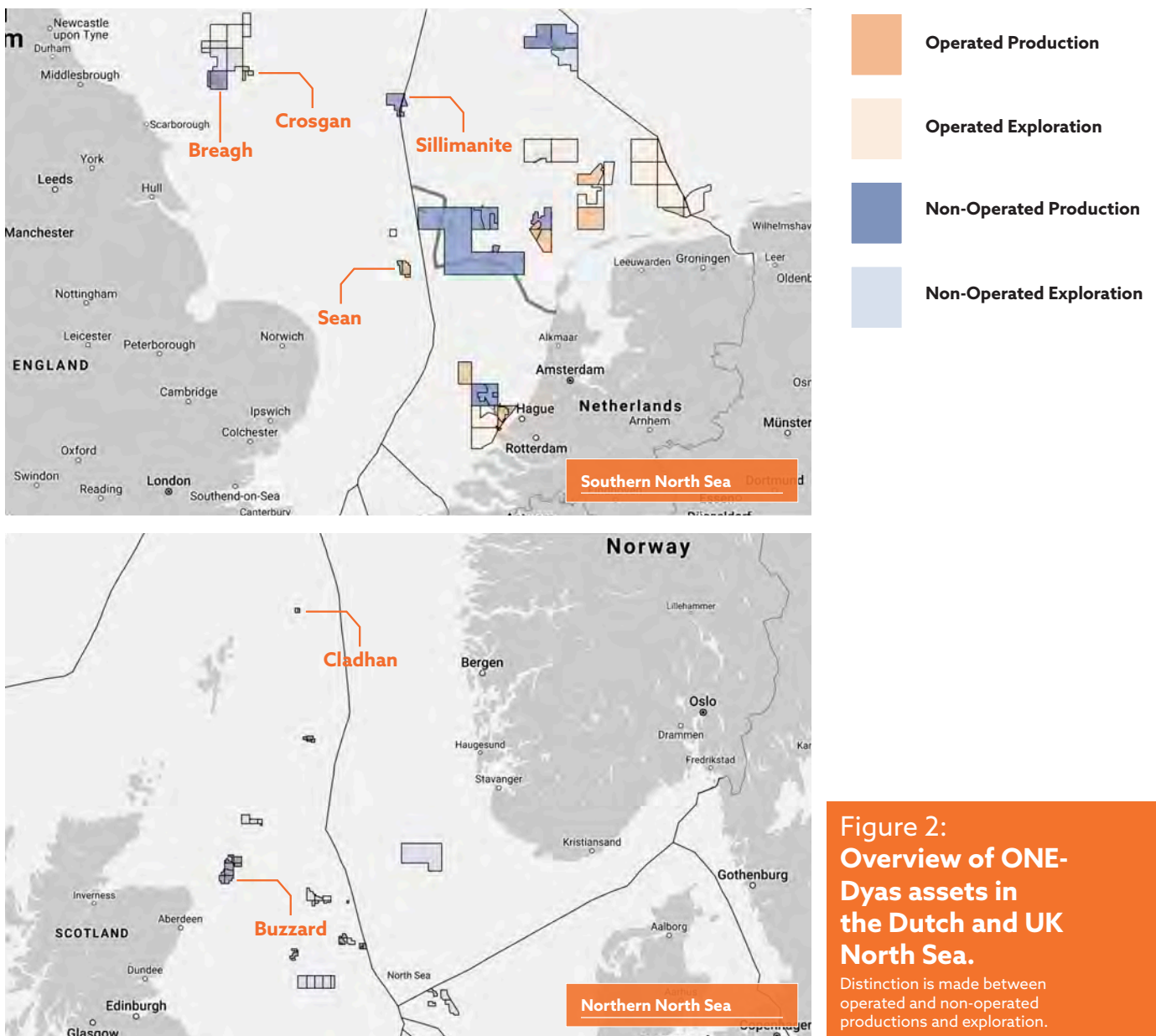


Figure 1:
Location of Seán assets

3 Scope of ONE-Dyas Activities

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

In the UK, ONE-Dyas has a non-operated share of the Buzzard and Gead assets (operated by Nexen). In 2017, a 30% working interest in the Breagh gas acquired through Sterling Resources (UK) Limited which included field (with INEOS) and a 2% share in the Cladhan production (with Taqa). ONE-Dyas continues to hold the operated share of the Sean Papa and Romeo assets of 50% in partnership with SSE. This AER provides an overview of the emissions from operational production activities.



3 Scope of ONE-Dyas Activities (continued)

The **Sean Papa (PP & PD)** installation is located in the Southern part of the UK sector of the North Sea in block 49/25a at approximately 94km from the nearest point on the Norfolk coast. It is a Normally Manned Installation (NMI) comprising of 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 30" pipeline.



The **Sean Romeo (RD)** is approximately located 4.5km off the Sean PP & PD in block 49/25a and is connected with the Sean PP & PD through a 20" duplex pipeline. The installation stands in approximately 30m of water and is situated 94km from the Norfolk coast. Following a successful barge campaign in 2017, the Sean Romeo was converted from a Normally Unmanned Installation (NUI) to a Not Normally Manned Installation (NNMI).



During 2018 reporting period there were relatively few engineering activities completed in the UK. There were no drilling activities in 2018 in the UK.

3.1 Engineering Projects

Drain Skimmer

During 2018, the Sean Papa PD jacket hazardous drain skimmer tank was installed. This is a treatment process to replace the caisson that was lost prior to the transition from the previous operator to ONE. The installation of a sampling point on the process allows these drains now to be sampled and reported.



Rustons

Fuel gas metering to the Ruston turbines was also installed during the 2018 shutdown. The aim is to improve the uncertainty associated with the calculation of Carbon Dioxide emissions for EU-ETS reporting and turbine exhaust emissions from the combustion process.



4 ONE-Dyas Environmental Management

The ONE-Dyas Environmental Management System (EMS) is structured in line with the requirements of the international standard for environmental management and was first certified to the ISO 14001 in January 2016. The ONE-Dyas EMS has been annually reviewed and in December 2018, it was again successfully re-certified to the new ISO14001:2015 standard. The EMS consists of the elements described in figure 3. The EMS comprises of strategic corporate documents originating from ONE-Dyas cascading down to Sean specific documents and procedures.

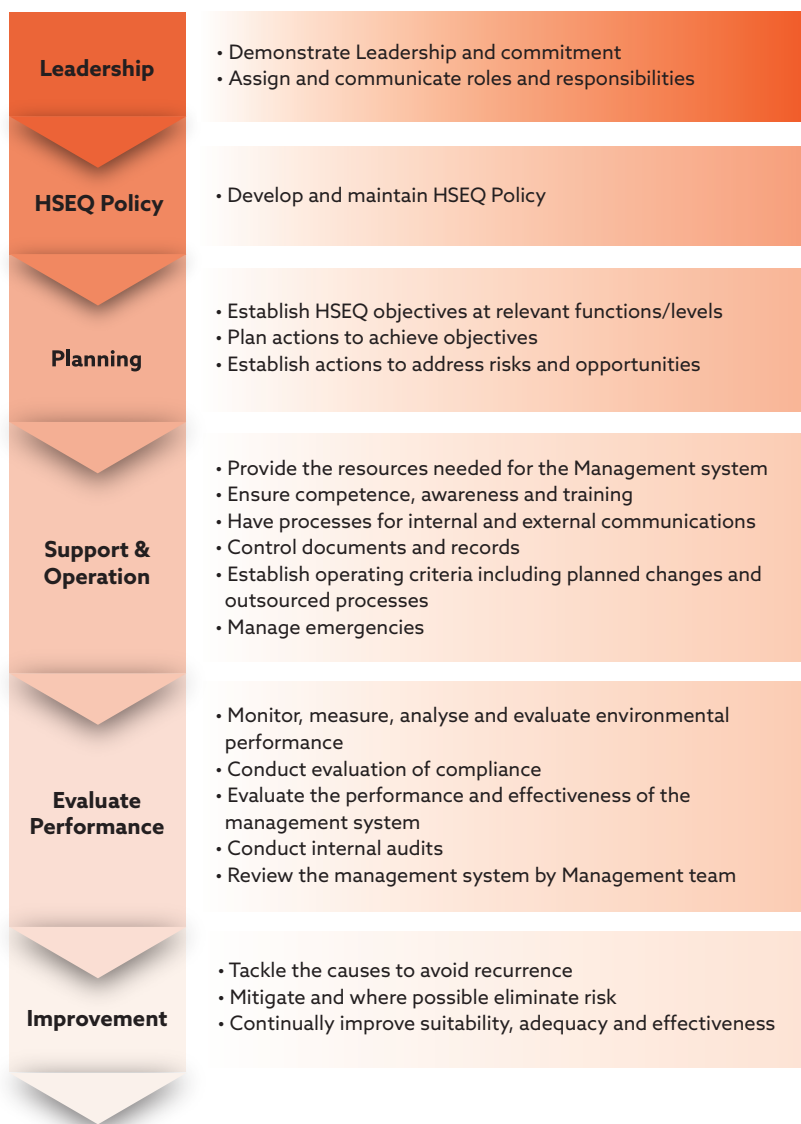



Figure 3:
Structure of ONE-Dyas Environmental Management System.

The purpose of the EMS is to provide ONE-Dyas 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-Dyas to operate and develop oil and gas production assets in compliance with all relevant legal and stakeholder requirements. The new ONE-Dyas corporate HSE Policy sets out the company's commitments and forms the basis to develop, implement and monitor our environmental objectives and manage activities that interact with the environment.

5 Health, Safety and Environmental Policy

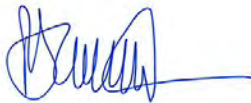
The new corporate ONE-Dyas HSE policy covers all company activities in the UK and The Netherlands and reflects the commitment of the owners and the management team to develop and operate oil and gas production in a sustainable way. Protecting the health and safety of all persons involved, preventing pollution and minimising impact on the environment are the primary objectives of the policy.

The HSE policy is shown below:



Health, Safety & Environmental (HSE) Policy

- 1. Commitment**
 - ONE-Dyas is committed to conduct its' operations in a sustainable way that protects the health, safety and well-being of employees, contractors and the public. ONE-Dyas will make every effort to prevent pollution to protect the environment, prevent loss of integrity of assets and prevent damage to the property of ONE-Dyas and third parties. A responsible and pro-active HSE management is considered a key factor in ensuring business success.
- 2. Policies**
 - We will comply with the intent and specific requirements of ONE-Dyas compliance obligations covering all applicable laws, regulations and agreements with the government and business partners.
 - It is the responsibility of every individual who works for ONE-Dyas to comply with these obligations, as well as ONE-Dyas 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, 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-Dyas 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. Continual Improvement**
 - We seek continual improvement to our health, safety, environmental and energy performance.
 - We will actively co-operate with the E&P industry and authorities to further enhance our HSE standards and performance.



Robert Baurdoux
CEO

ONE_COMP-25-1-PO-00001 0, May 2019

Figure 4:
**ONE-Dyas
Health,
Safety and
Environmental
Policy**

6 Environmental Aspects

As part of the process of establishing, implementing and maintaining the EMS, ONE-Dyas has identified the significant environmental aspects of its onshore and offshore production and drilling activities and the environmental performance associated with these has been reported.

6.1 Spills to Sea

Non-permitted releases of oil or chemicals to the sea must be reported using a Petroleum Operations Notice 1 (PON1) 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-Dyas reports and investigates all spills to sea and tracks and manages the actions on the Synergi system.

6.2 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-Dyas 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).

6.3 Offshore Chemical

ONE-Dyas 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 chemicals for production operations and drilling activities is reported to BEIS via EEMS.

6.4 Waste

ONE-Dyas manages waste in line with the waste management plan and waste hierarchy. Waste is segregated on the installations to help minimize the quantity of waste shipped and disposed of to landfill, and to identify reuse and cost saving opportunities. During 2018 a number of schemes were implemented to reduce the plastic waste on and offshore.

6.5 Atmospheric Emissions

Sean Papa atmospheric 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.

7 Environmental Objectives and Targets

Extent to which ONE-Dyas 2018 Environmental Objectives and targets have been met.

2018 Environmental Objectives	Achievement
Identify energy savings opportunities for the Sean Field	<ul style="list-style-type: none">✓ Additional monitoring of energy use including transport- Full energy use audit to be completed in 2019✓ Metering uncertainty improved by 1 order of magnitude
Reduce onshore and offshore use of plastics	<ul style="list-style-type: none">✓ Onshore plastic and single use plastics reduced through bottles and consumables saving 1021 bottles in 5 months✓ Offshore use of vegware✓ Awareness raising through HSE life article
Identify methane emissions reduction opportunities	<ul style="list-style-type: none">✓ Meters installed to enable calculation for continuous venting- Additional meters identified and fugitive emissions to be investigated further in 2019

8 Spills to Sea

Two spills to sea occurred during 2018 from the Sean platforms for which a PON 1 was issued to BEIS. The number of incidents decreased from three in 2017 and one of these was an ongoing incident from 2017 where the quantity of fluid lost is updated on a monthly basis to BEIS. Actions have been instigated and tracked on the Synergi system.

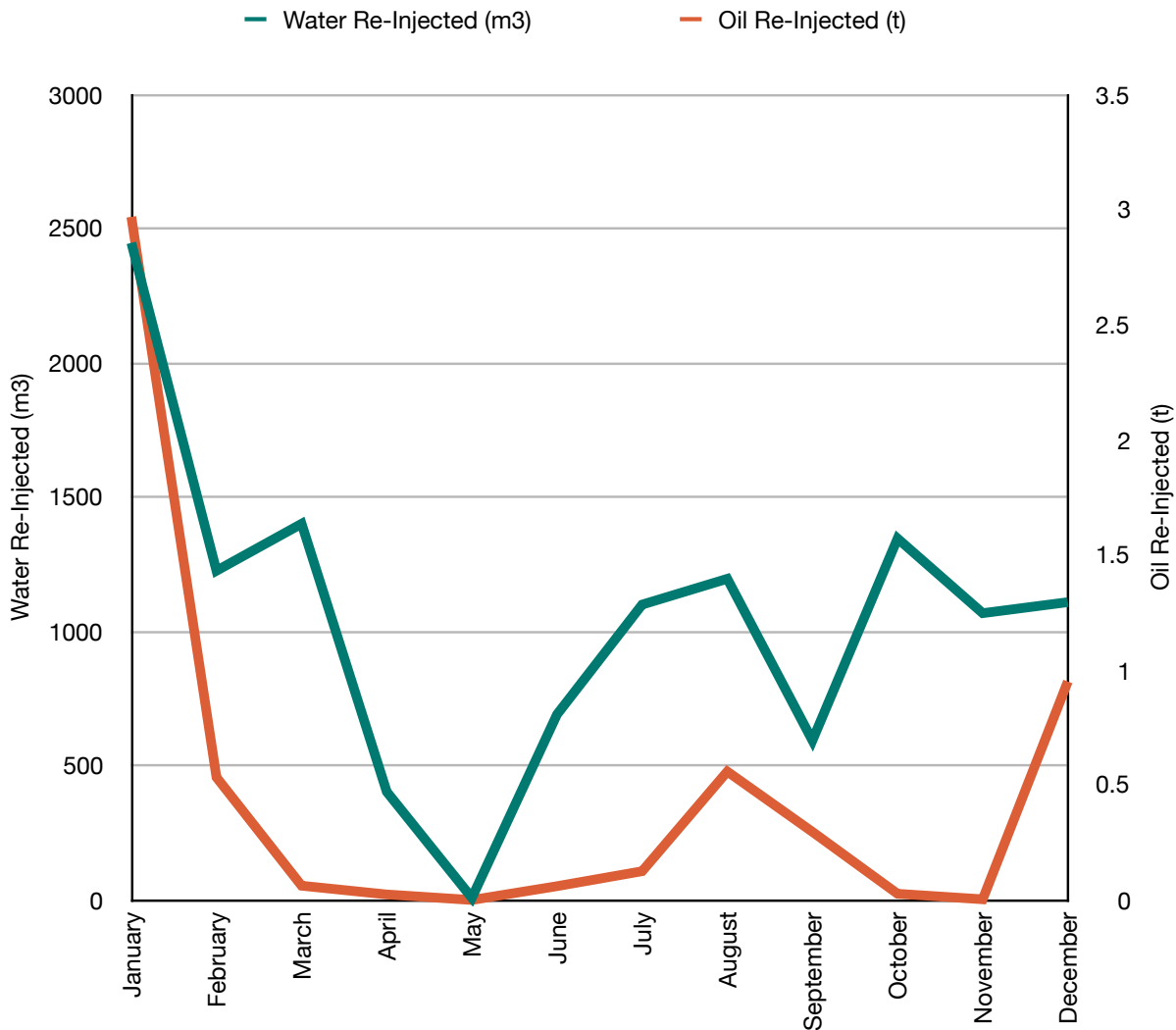
The incidents are described in the table below.

Date	Type	Quantity	Description
Ongoing from 17/02/2017	Oceanic subsea hydraulic fluid	593kg during 2018	This release is ongoing from 2017 from a subsea hydraulic connection to the Bacton export pipeline SSIV. With agreement from the regulator this low toxicity chemical is being monitored and the PON1 updated on a monthly basis. There has been ongoing investigation using ROV and installing of monitors to provide clearer loss information.
03/06/2018	Hydraulic oil	18kg	This release was caused through the loss of residual Hydraulic oil during crane hose replacement activities. A hose that was disconnected was not sufficiently capped and drained and the residual oil in the hose leaked and was lost to sea.



9 Oil in Water

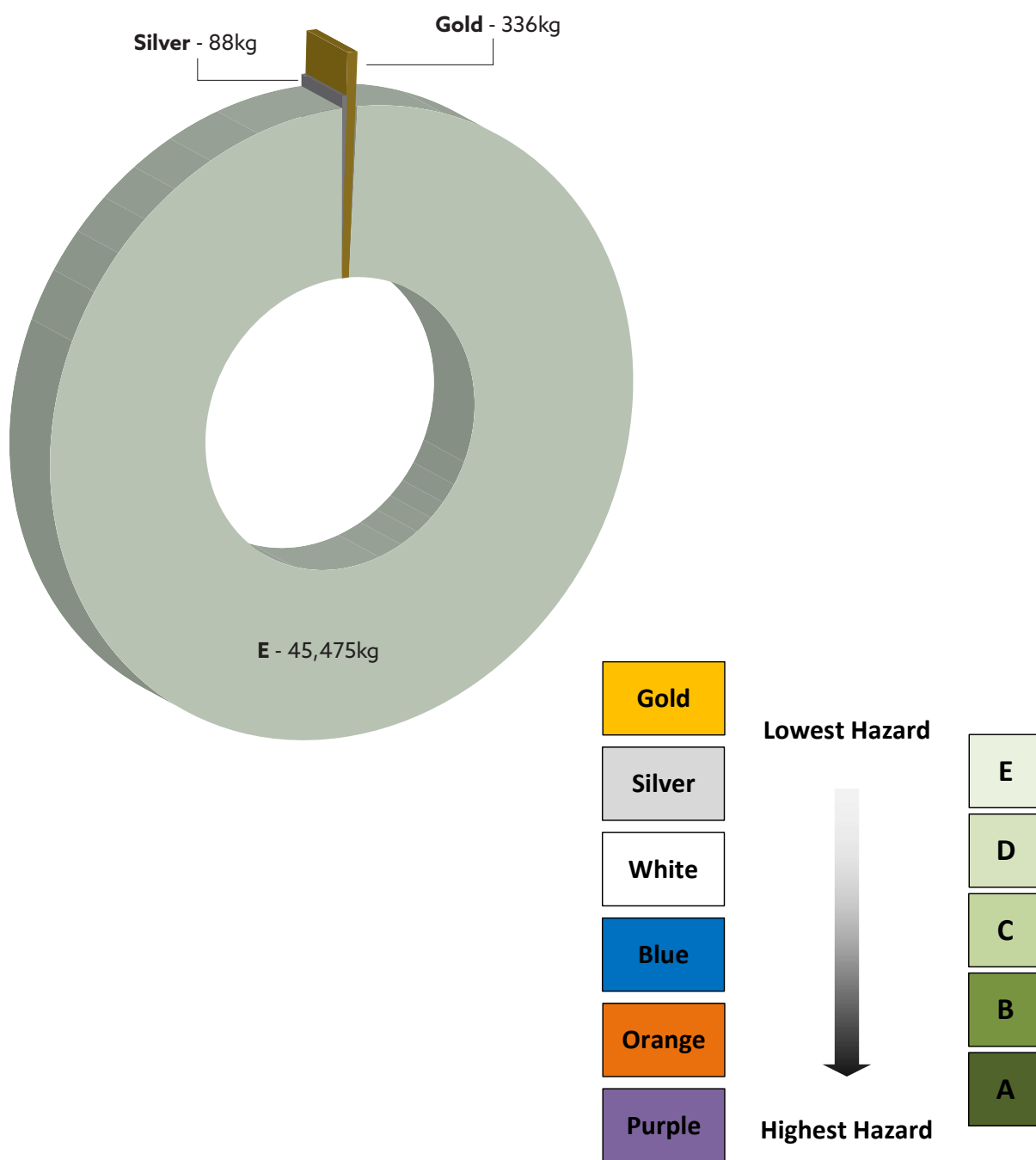
All produced water originating from the Sean Papa and Romeo wells is treated and re-injected. There are no re-injection limits applied to the oil in water content. No produced water was discharged during 2018, volumes of water and oil re-injected during 2018 (as reported monthly on EEMS) are shown in the chart below. Produced water re-injected was less in April to June and in September due to production being shut down.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Water Re-Injected (m3)	2447	1226	1401	403	8	691	1100	1196	594	1346	1068	1109
Oil Re-Injected (t)	2.968	0.533	0.062	0.024	0	0.06	0.125	0.558	0.296	0.027	0.003	0.949

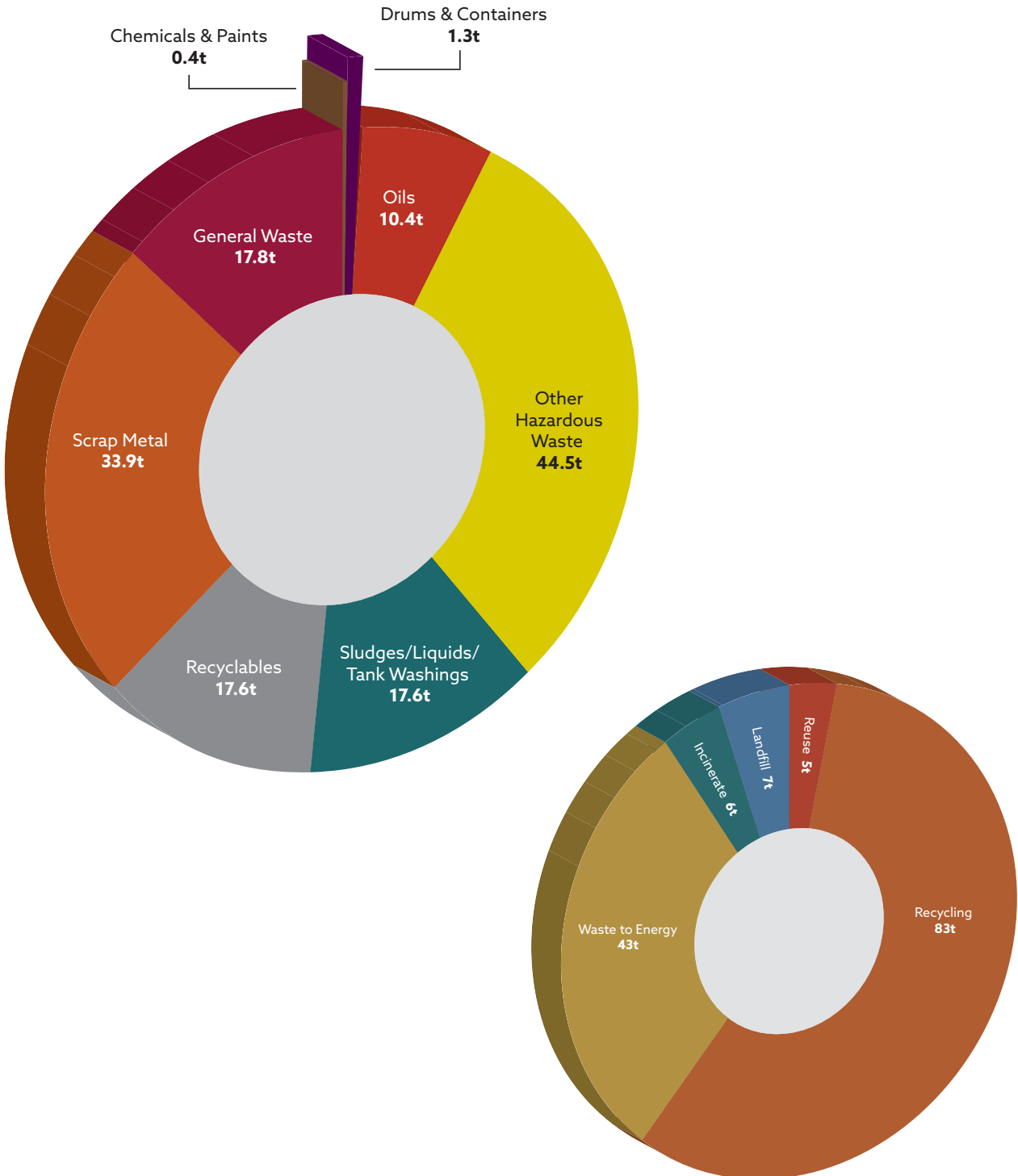
10 Production Chemicals

Total use and discharge of chemicals (as reported in EEMS for 2018) is reported according to the label and ranking categories in the chart below. Overall chemical use increased from 2017. The increase and largest use of chemicals was due to the use of Monoethylene Glycol (MEG), used as a gas hydrate inhibitor. This was used during pigging of the export pipeline to prevent the re-occurrence of hydrate formation. This is not discharged and is sent to Bacton in the export pipeline. The remaining chemical use was for offshore cleaning and for topping up hydraulic systems.



11 Production Waste

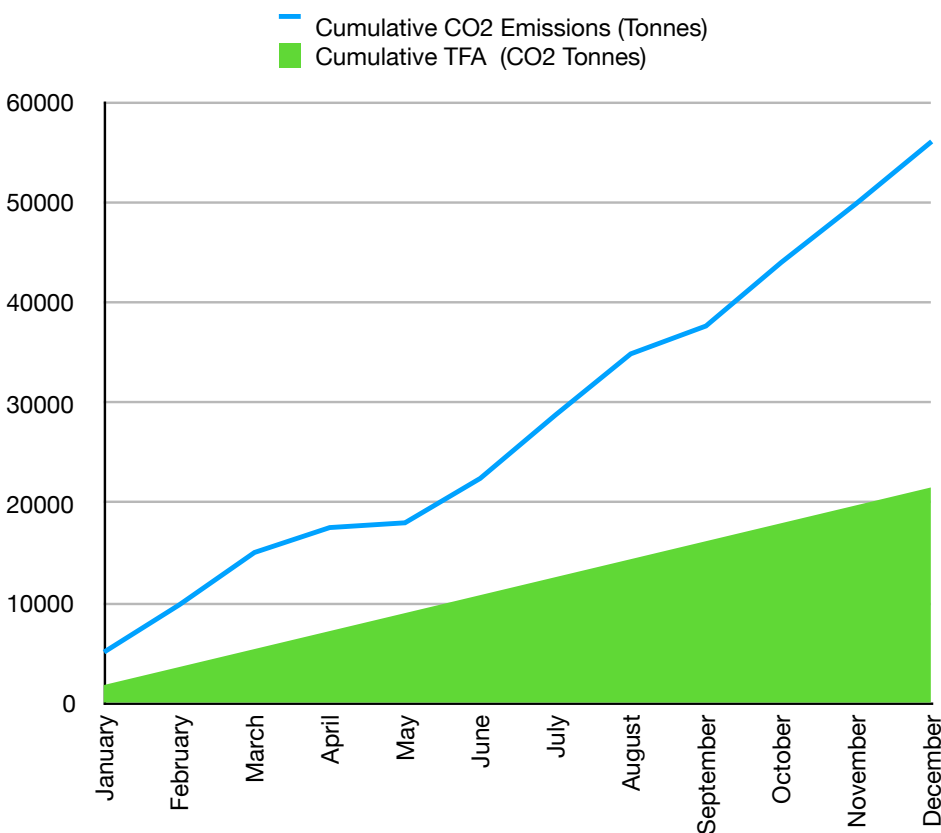
The Sean Papa and Romeo platforms shipped a total 143 tonnes of waste in 2018, which has decreased from 251 in 2017. This was shipped to Den Helder in the Netherlands for treatment. Tonnes of waste has been charted according to type and disposal route. The largest types recorded were scrap metals and wastes from vessel entry associated with shutdown activities. These were predominantly recycled.



12 Production Atmospheric Emissions

12.1 Carbon Dioxide

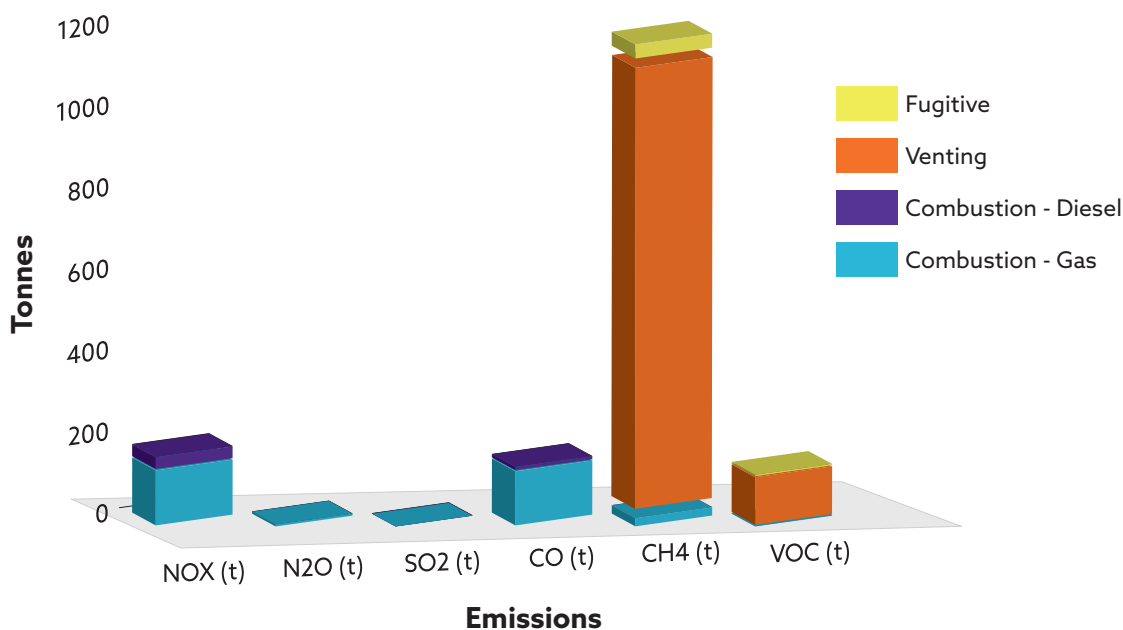
Carbon Dioxide emissions are highly monitored and reported for EU-ETS purposes. On the Sean Papa, 56 thousand tonnes of Carbon Dioxide was emitted from fuel gas and diesel use in 2018. This was less than 2017 due to the period of shutdown from April to June. The monthly accumulated Carbon Dioxide emissions from all combustion equipment on the platform are presented in the chart below. The emissions monitored are compared against the free allocations received for the platforms.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cumulative CO2 Emissions (Tonnes)	5086	9808	15042	17530	18005	22442	28776	34883	37667	44015	49916	56104
Cumulative TFA (CO2 Tonnes)	1795	3589	5384	7179	8973	10768	12563	14357	16152	17947	19741	21536

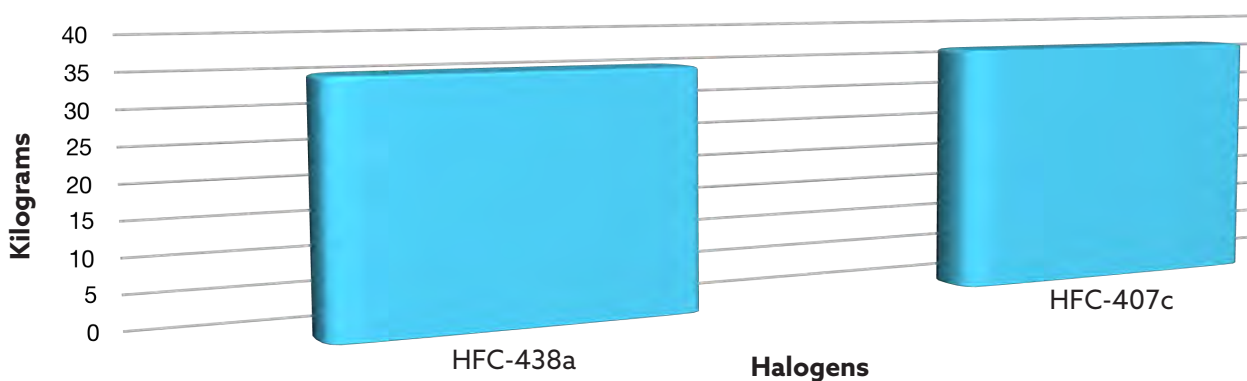
12.2 Other Emissions from Combustion and Venting

Emissions reported on EEMS under permit issued under the Offshore Combustion Installations (Pollution Prevention and Control) Regulations 2013 are displayed in the chart below. These are 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 (NO_x) emitted from the combustion of fuel gas. Emissions vented under the Energy Act 1976 are displayed, which show the highest contribution from Methane (CH₄) emissions. Methane emissions increased from 2017 levels due to venting associated with the pipeline hydrate removal and sphere incident.



12.3 Refrigeration Gases

A number of refrigeration gases are used in equipment on the Sean Papa platform. In 2018, 144 kg of refrigeration gases were emitted, the majority of this was associated with HVAC systems.



13 Environmental Objectives for 2019

ONE-Dyas UK has developed the following environmental objectives for 2019:

- Identify methane emissions reduction opportunities
- Implement Environmentally Important Elements (EIE) into the Maintenance Management System
- Assess and implement cost effective energy savings opportunities for the Sean Field
- Zero environmental incidents and NCRs for UK drilling activities





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