



OSPAR Public Statement 2018

PERENCO

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Abbreviations

Abbreviations	
BEIS	Department for Business, Energy & Industrial Strategy
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CHARM	Chemical Hazard and Risk Management
CO ₂	Carbon dioxide
EEMS	Environmental and Emissions Monitoring System
ETS	Emissions Trading Scheme
EU	European Union
HC	Hydrocarbon Gases
HQ	Hazard Quotient
MEG	Mono Ethylene Glycol
MW(th)	Megawatt Thermal
NOV	National Oilwell Varco
NO _x	Nitrogen Oxides
NUI	Normally Unattended Installation
OCNS	Offshore Chemical Notification Scheme
OPPC	Oil Pollution Prevention and Control
OPRED	The Offshore Petroleum Regulator for Decommissioning & Environment
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
P&A	Plug and Abandon
PEC:NEC	Predicted Effect Concentration against No Effect Concentration
PLONOR	Pose Little Or No Risk
PUK	Perenco UK Limited
QSSHE	Quality, Safety, Security, Health and Environment
SEMS	Safety and Environmental Management System
SNS	Southern North Sea
SO ₂	Sulphur Dioxide
UKCS	United Kingdom Continental Shelf

Executive Summary

This statement has been prepared to fulfil the Offshore Petroleum Regulator for Decommissioning & Environment (OPRED) requirement under the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) Recommendation 2003/5 to produce an annual public environmental statement.

The statement is an open and transparent representation of Perenco UK Limited's environmental performances across the offshore assets for the 2018 calendar year. It provides performance information and describes the extent at which we are meeting our environmental targets as well as setting out future objectives.

The offshore data reported within this statement relates to five manned installations, 41 normally unattended installations (NUIs) and 15 subsea installations producing gas and liquids that are tied back through pipelines to the onshore gas terminals at Dimlington and Bacton.

Environmental Performance

The total carbon dioxide emissions resulting from offshore combustion equalled 185,624 tonnes during 2018. In addition, a total of 1,408 tonnes of hydrocarbon gases were emitted into the atmosphere from our southern North Sea (SNS) assets.

During 2018, ten of our assets discharged, after treatment, oil in produced water to sea. The monthly flow-weighted average concentration of oil in produced water for the majority of our SNS assets was below the consented limit (30 mg/l). However, this limit was exceeded at three of our assets - Ravenspurn North (Johnston Hydrocyclone Package and Produced Water Treatment Vessel), Excalibur and Trent. Both Excalibur and Trent were isolated cases.

During 2018, the majority (89 percent) of the chemicals used in production operations were rated as 'Pose Little Or No Risk' (PLONOR) and the majority of discharged chemicals were classified as "other". Only two chemicals identified as candidates for substitution were used in our production operations, with a total use of 5,431 kg and discharge of 3,395 kg. In addition, during 2018 chemicals were also used during well intervention operations at Wollaston, well remediation work at Davy, heavy duty well work at Ravenspurn North ST3 and P&A operations at Thames and Guinevere. The majority of the chemicals used and discharged during non-production operations were PLONOR.

The total waste generated from offshore production operations equalled 1,583 tonnes during 2018. Approximately 83 percent was recycled or otherwise managed, rather than being consigned to landfill. The total waste generated from offshore decommissioning operations equalled 122 tonnes during 2018, with approximately 100 percent recycled or otherwise managed. In addition, a total of 1,273 tonnes of waste was generated from other operations during 2018, with approximately 100 percent recycled or otherwise managed, rather than consigned to landfill.

There were 18 hydrocarbon and chemical spills to the marine environment during 2018, of which 65 percent (5 spills) were spilt chemicals.

1 Introduction

OPRED requires all operators of offshore installations to produce a Public Statement to report their environmental performance under the OSPAR Recommendation 2003/5 to Promote the Use and Implementation of Environmental Management Systems by the Offshore Industry. These statements must be prepared on an annual basis (covering offshore installation activities carried out during the previous calendar year), made available to the public and copied to OPRED by 1st June of each year.

This report outlines Perenco UK Limited's (referred to hereafter as 'PUK') environmental performance for its UK Continental Shelf (UKCS) operations during 2018. The report is structured as follows:

- **Section 2:** describes PUK's activities in the UKCS during 2018;
- **Section 3:** provides a summary of PUK's ISO 14001-certified Safety and Environmental Management System (SEMS) that provides the framework for the control of the environmental impacts from production activities and lists the environmental objectives and targets set by PUK in 2018 and their current status;
- **Section 4:** summarises PUK's performance during 2018 in relation to the Environmental Policy, objectives and targets, and relevant legislative requirements; and
- **Section 5:** sets new environmental objectives and targets for 2019.

2 2018 UKCS Operations

2.1 Production Assets

PUK has been an operator in the SNS since September 2003. Offshore, PUK is responsible for five installations that are classified as "manned" (Indefatigable 23A, Leman 27A, Cleeton, Ravenspurn North CPP, West Sole Alpha), 41 NUIs and 15 subsea installations producing gas and liquids that are tied-back through pipelines to the onshore gas terminals Dimlington and Bacton.

Table 2.1 lists PUK's SNS installations and Figure 2.1 shows their locations. Of the 62 installations listed, 44 were producing during 2018, with 20 installations not producing. Of the installations not producing, nine are in the process of being decommissioned.

Table 2.1: PUK's SNS Installations

Installation	UKCS Block	Type	Status in 2018
Amethyst A1D	47/14	NUI	Produced
Amethyst A2D	47/14	NUI	Produced
Amethyst B1D	47/15	NUI	Produced
Amethyst C1D	47/14	NUI	Produced
Arthur	53/2	Subsea	No production *
Bessemer	49/23	NUI	No production *
Bure O	49/28	Subsea	No production *
Bure West	49/28	Subsea	No production *
Cleeton	42/29	Manned	Produced
Davy	49/30	NUI	No production
Davy East	53/5	Subsea	No production
Davy North	49/30	Subsea	No production
Durango	48/21	Subsea	No production *
Excalibur	48/17	NUI	Produced
Galahad	48/12	NUI	No production
Gawain	49/29	Subsea	No production *
Guinevere	48/17	NUI	No production
Hoton	48/07	NUI	Produced
Hyde	48/06	NUI	Produced
Indefatigable 18A	49/18	NUI	Produced
Indefatigable 18B	49/18	NUI	Produced
Indefatigable 23A	49/23	Manned	Produced
Indefatigable 23C	49/23	NUI	Produced
Indefatigable 23D	49/23	NUI	Produced
Lancelot	48/7	NUI	Produced
Leman 27A	49/27	Manned	Produced
Leman 27B	49/27	NUI	Produced
Leman 27C	49/27	NUI	Produced
Leman 27D	49/27	NUI	Produced
Leman 27E	49/27	NUI	Produced
Leman 27F	49/27	NUI	Produced
Leman 27G	49/27	NUI	Produced

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Installation	UKCS Block	Type	Status in 2018
Leman 27H	49/27	NUI	Produced
Leman 27J	49/27	NUI	Produced
Leman South	53/02	Subsea	Produced
M1	47/04	Subsea	No production
Malory	48/12	NUI	Produced
Mercury	47/09	Subsea	Produced
Minerva	47/03	NUI	Produced
N.W. Bell	49/23	Subsea	Produced
Neptune	47/04	NUI	Produced
Newsham	48/07	Subsea	Production
Pickerill A	48/11	NUI	No Production
Pickerill B	48/11	NUI	No Production
Ravenspurn North CPP	43/26	Manned	Produced
Ravenspurn North ST2	43/26	NUI	Produced
Ravenspurn North ST3	42/30	NUI	Produced
Ravenspurn South A	42/30	NUI	Produced
Ravenspurn South B	42/30	NUI	Produced
Ravenspurn South C	42/30	NUI	Produced
Trent	43/24	NUI	Produced
Tyne	44/18	NUI	No Production*
Waveney	48/17	NUI	Produced
Wenlock	49/12	NUI	No production
West Sole Alpha	48/06	Manned	Produced
West Sole Bravo	48/06	NUI	Produced
West Sole Charlie	48/06	NUI	Produced
Whittle	42/28	Subsea	Produced
Wollaston	42/28	Subsea	No production *
Yare 'C'	49/28	Subsea	No production *
Kilmar	43/22	NUI	No production
Garrow	43/21	NUI	No production

*Undergoing decommissioning.

2.2 Other Offshore Operations

In addition to production operations, PUK undertook the following offshore projects in the SNS during 2018:

- **Thames Phase III Decommissioning:** Severing and removal of well conductor stubs using explosives on the Thames platform wells (March 2018).
- **Thames Phase III Decommissioning:** Deployment of the Paragon C20051 (jack-up barge) to plug and abandon (P&A) the Thames subsea wells (May – July 2018).
- **Guinevere Decommissioning:** Deployment of the Seafox 1 (jack-up barge) to plug and abandon (P&A) the Guinevere wells (September 2017 – 17th February 2018).
- **Ravenspurn North ST3 Heavy Duty Well Work:** Deployment of the Seafox 2 (jack-up barge) to conduct well remediation work on several platform wells (May – July 2018).
- **Davy Well Production Reinstatement:** Deployment of the Seafox 2 (jack-up barge) to conduct well remediation work at Davy (July – August 2018).
- **Wollaston Well Intervention:** Deployment of the Paragon C20051 (jack-up barge) to conduct well intervention work at the Wollaston subsea infrastructure (July – August 2018).
- **Pickerill A & B Pipeline Flushing:** Flushing and cleaning of four Pickerill A & B import / export pipelines (PL818, PL819, PL816 and PL817) with pigs driven by seawater (October – ongoing).
- **Pickerill B Decommissioning:** Deployment of the Energy Endeavour (jack-up barge) to P&A the Pickerill B platform wells (48/11a-B1; 48/11a-B3z; 48/11a-B4; 48/11a-B5; 48/11a-B6; 48/11a-B7 and 48/11a-B8) (October – ongoing).

3 PUK Safety and Environmental Management System

PUK operate under a Safety and Environmental Management System (SEMS), certified to ISO 14001. The PUK SNS (SNS) SEMS provides a uniform approach to every element of operations across our SNS assets. With regards to health, safety, security and environmental management the purpose of the SEMS is to ensure that, as far as reasonably practicable, all of the installation’s activities are undertaken in accordance with PUK commitment to its Quality, Safety, Security, Health and Environment (QSSHE) Policies and are in compliance with all relevant statutory provisions applicable to offshore operations within the SNS.

SEMS includes PUK, SNS and site specific processes and procedures through which the local business is delivered. The SEMS framework comprises 15 key components which together provide a roadmap to safe, environmentally responsible and reliable operations.

Each of the 15 Perenco standards sets out high level targets which shall be complied with, a set of actions to be implemented, along with supporting information to provide guidance on implementation.

SEMS is accessible through the PUK intranet and is a web based application which provides a single point of access to all SEMS information including business processes, procedures and information portals. Refer to Figure 3.1 below.

Figure 3.1: PUK’s SEMS




It is these business processes, procedures and information that describes in more detail how PUK achieves conformance with the Perenco Standards.

3.1 The Environmental Policy

PUK’s Environmental Policy is presented in Figure 3.2 below. It informs the definition of our significant environmental impacts that are the focus of our environmental management activities.

Figure 3.2: PUK’s Environmental Policy



Perenco UK Environmental Policy

Perenco UK is committed to applying effective environmental management controls across all of its oil and gas exploration, production and processing operations in order to accurately assess, and where required, mitigate environmental impacts upon marine and terrestrial environments, local communities and stakeholders.

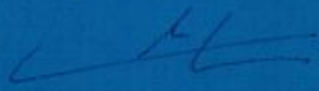
Through the maintenance and operation of an effective environmental management system, that meets the requirements of ISO14001:2015, Perenco UK are committed to ensuring that protection, and where possible enhancement of the environment is embedded in the Company’s ethos and culture. Perenco UK shall endeavour to select and influence suppliers and contractors to ensure that they too operate in a similar responsible manner.

Perenco UK recognises that its operations impact upon the environment, therefore our offshore and onshore aspects are routinely identified and the significance of these environmental impacts are documented, assessed and where required mitigations applied.

In order to minimise such impacts resulting from operational activities, Perenco UK shall:

- Comply with all applicable environmental legislation and other requirements.
- Set annual performance targets with support plans to facilitate achievement.
- Ensure that all employees and contractors are competent to carry out tasks in an environmentally responsible manner and ensure that a continuous professional development strategy remains core to our business goals.
- Maintain the integrity of our assets and facilities to prevent accidental discharges of polluting substances.
- Adopt industry best practice and economically viable technologies to minimise our impacts and improve our energy efficiency.
- Perform regular inspections and audits of all our activities utilising those results to drive environmental improvements.
- Maintain emergency response plans and undertake regular emergency drills and exercises to test our capability to respond quickly and effectively to any environmental incident.
- Report and investigate incidents, and where required, take appropriate measures to prevent their reoccurrence.
- Maintain and where possible enhance the ecological environment through effective management and monitoring programmes.

Perenco UK are committed to the continual improvement of its environmental management system to enhance its environmental performance. This Environmental Policy will be communicated to all employees, contractors and suppliers and will be made available to interested parties.

Endorsed by: 

Date: February 2019

PUK-SMS-COM-019

3.2 Progress against 2018 Environmental Objectives and Targets

PUK's significant routine environmental aspects and associated objectives and targets for their offshore operations during 2018 are presented in Table 3.1, along with their current status.

Table 3.1: Environmental Objectives and Targets for 2018

Aspect	Objective	Performance/Status
Emissions of Carbon Dioxide (CO ₂)	Retain CO ₂ emissions within allocations set for permitted installations	Achieved on all of the five permitted installations
Emissions of Hydrocarbon (HC) Gases	Identify opportunities for the reduction in HC venting	This process is ongoing
Emissions of Other Combustion Products	Monitor and where reasonably practicable reduce oxides of nitrogen (NO _x) emissions from relevant combustion equipment	This process is ongoing
Discharge of Oil in Produced Water	Ensure the monthly average concentration of oil discharged in produced water does not exceed the platform allowance	Partially achieved – achieved on seven of the eleven permitted installations
Discharge of Production Chemicals	Reduce the use and/or discharge of production chemicals that carry substitution warnings	Not achieved – Chemicals carrying substitution warnings were used and discharged during operations in 2018
Hydrocarbon and Chemical Spills to Sea	<10 reportable spills (N.B. Any spill to sea, irrespective of size, is reported to the regulator, BEIS)	Not achieved – a total of 18 reportable spill events occurred during 2018

4 Environmental Performance Summary

PUK monitor and report on atmospheric emissions, the discharge of oil in produced water, the use and discharge of chemicals, the disposal of waste and hydrocarbon and chemicals spill incidents. This section presents the information that was reported via the online Environmental and Emissions Monitoring System (EEMS) for operations during 2018.

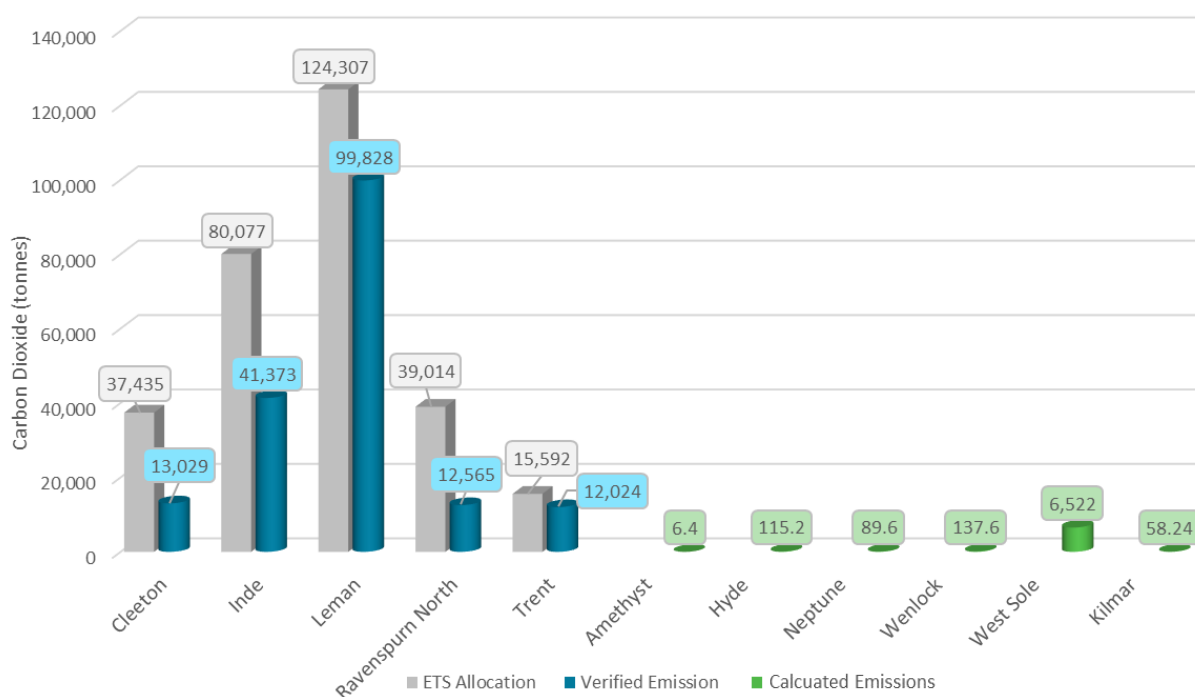
4.1 Atmospheric Emissions

4.1.1 Production Operations

Carbon dioxide (CO₂) emissions from five of our manned offshore installations are subject to control under the Greenhouse Gases Emissions Trading Scheme (ETS) Regulations 2012 (as amended). The assets that have an allocation for CO₂ emissions are Cleeton, Indefatigable, Leman, Ravenspurn North and Trent and we seek to ensure that our emissions are within the allocated limits.

Figure 4.1 shows PUK's verified and calculated CO₂ emissions from fuel combustion associated with production operations for 2018, together with the corresponding EU ETS allowance (where relevant).

Figure 4.1: Carbon Dioxide Emissions from Fuel Combustion Associated with Production Operations



During 2018 a total of 185,748 tonnes of CO₂ were emitted to the atmosphere from all of our SNS assets. All of our offshore installations subject to control under the Greenhouse Gases ETS, had emissions of CO₂ lower than their allocated EU ETS allowance.

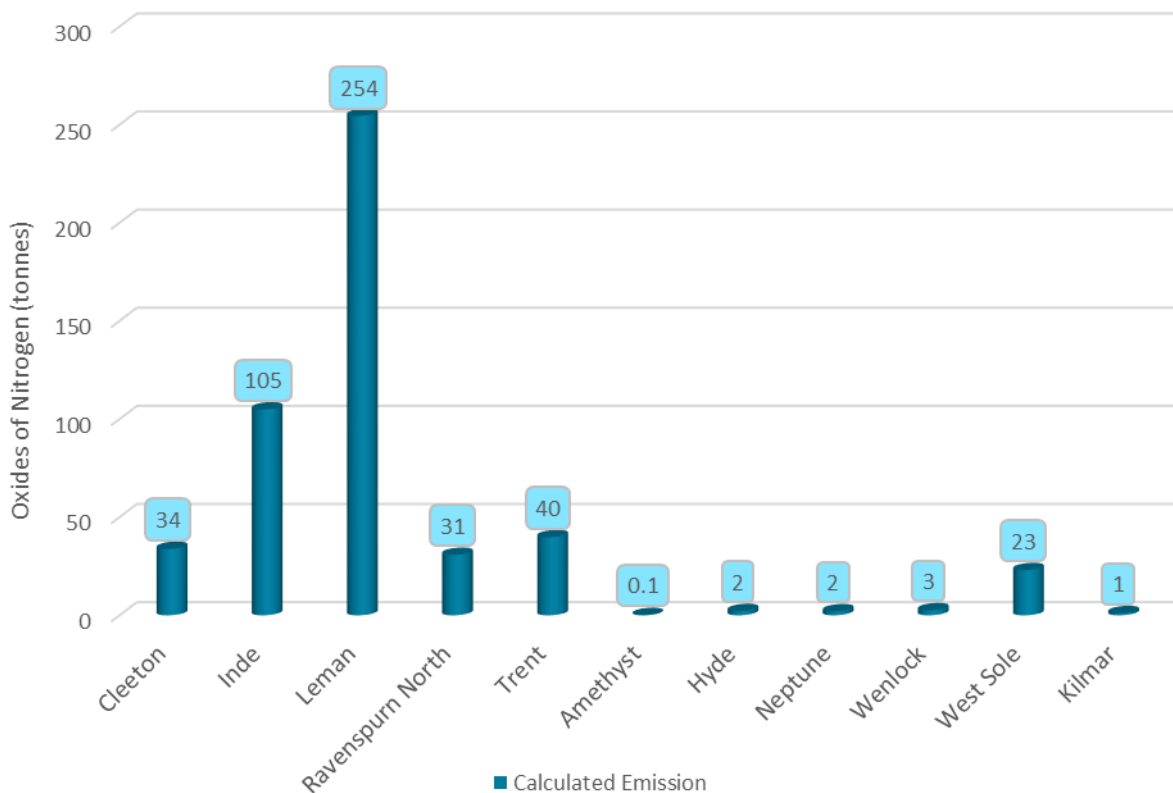
The environmental impacts of concern attributable to combustion processes also include the emissions to atmosphere of Nitrogen Oxides (NO_x). These have the potential to cause health impacts, and also contribute to acid rain. Offshore receptors are broadly insensitive to the amounts of NO_x that are emitted from the combustion of gas. The SNS assets; Cleeton, Indefatigable, Leman, Ravenspurn North and Trent have an installed capacity exceeding 50 MW (th) and are subject to regulatory controls under the Offshore Combustion Installations (Pollution Prevention and Control) Regulations 2013.

During 2018 the NO_x emissions from these five installations was 495 tonnes, which is approximately 0.8 percent of the total NO_x released from the offshore Oil & Gas industry during 2018. The small proportion of total loading from the offshore oil and gas industry means that the environmental effects of the NO_x

emissions from PUK’s SNS assets are minimal and the cost of retrofitting NOx emission combustion equipment is prohibitive in the circumstances of declining oil fields and ageing assets.

Figure 4.2 presents the calculated NO_x emissions from fuel combustion associated with our production operations during 2018.

Figure 4.2: Nitrogen Oxide Emissions from Fuel Combustion Associated with Production Operations

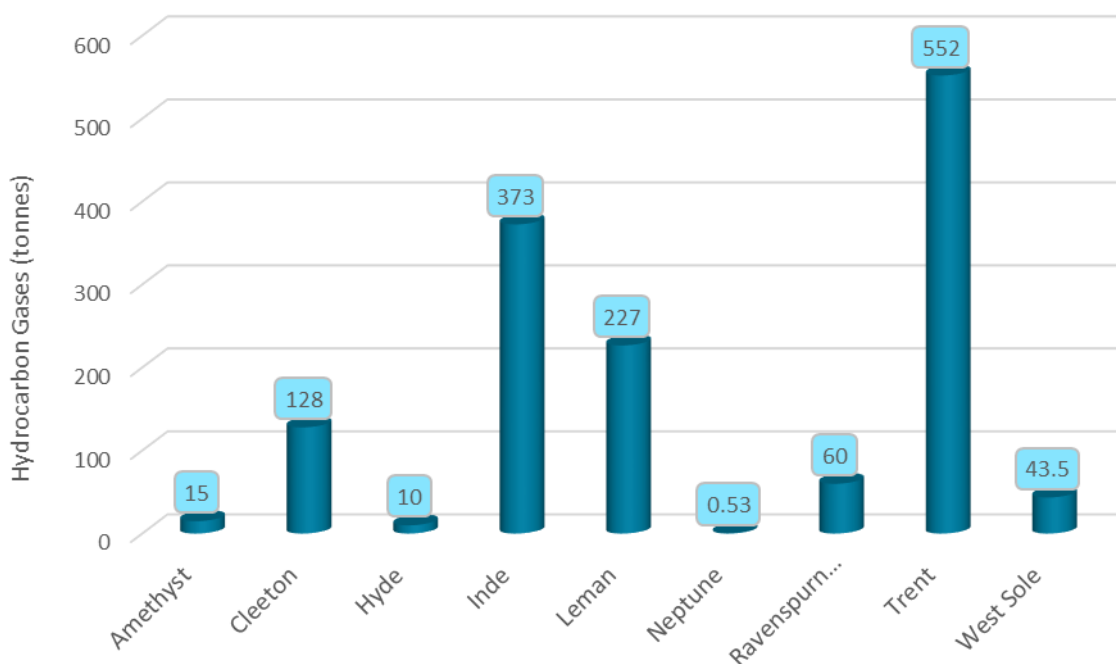


4.1.2 Emissions of Hydrocarbon Gases

The venting of hydrocarbon gases is subject to regulatory control as part of our production licences and Vent Consents issued under the Energy Act of 1976.

The loss of gas to the atmosphere results from both routine and upset conditions. PUK monitors and report the amount released and this is summarised in Figure 4.3.

Figure 4.3: Hydrocarbon Gas Emissions Associated with Production Operations



During 2018 a total of 1,408 tonnes of hydrocarbon gases were emitted into the atmosphere from our SNS assets. PUK will continue to investigate potential opportunities to reduce CO₂ and other gaseous emissions from all of our installations.

4.1.3 Other Operations

There were no atmospheric emissions reported via EEMS for the offshore projects undertaken in 2018, as listed in Section 2.2.

4.2 Discharge of Oil Regulated under OPPC Regulations

The discharge of oil is subject to control under the Oil Pollution Prevention and Control (OPPC) Regulations 2005 (as amended).

4.2.1 Production Operations

After treatment, oil in produced water was discharged from 10 of our operated assets in the SNS. The volume of produced water discharged from each asset during 2018 is presented in Figure 4.4 and the monthly flow-weighted average concentration of oil in produced water for each asset, along with the consented limit, are presented in Figure 4.5. Please note, there are produced water re-injection systems at Cleeton, Leman and Amethyst.

Figure 4.4: Discharged Produced Water

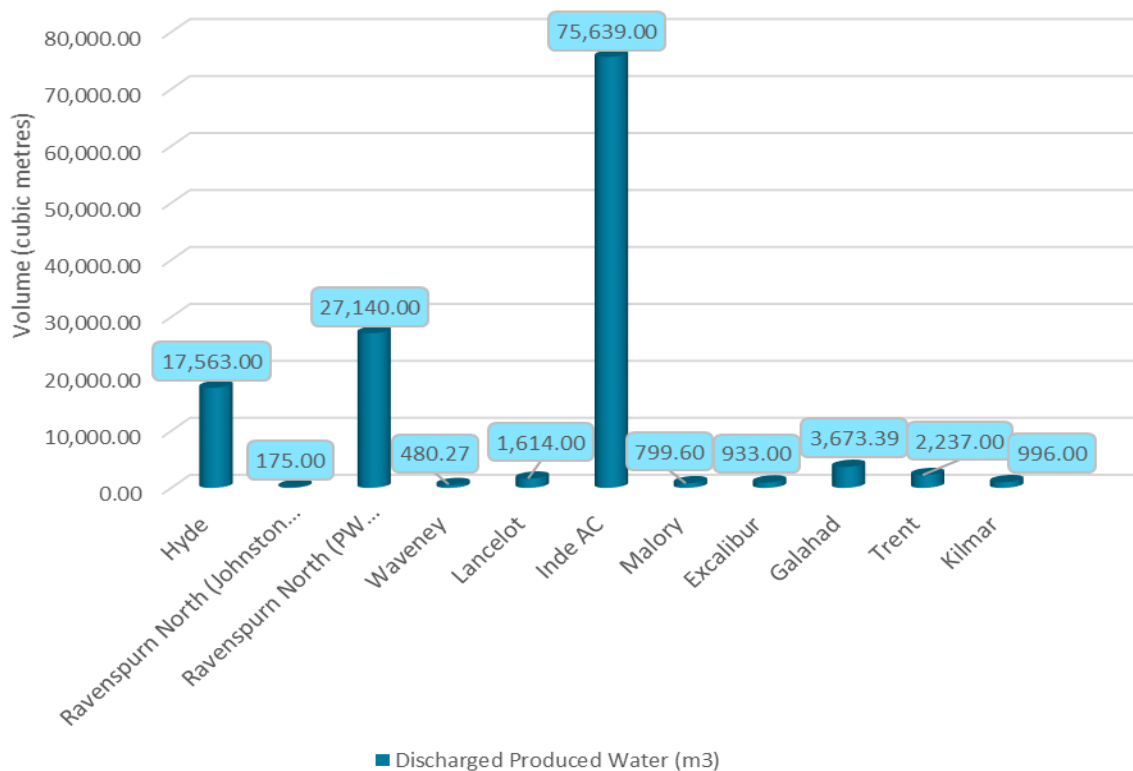
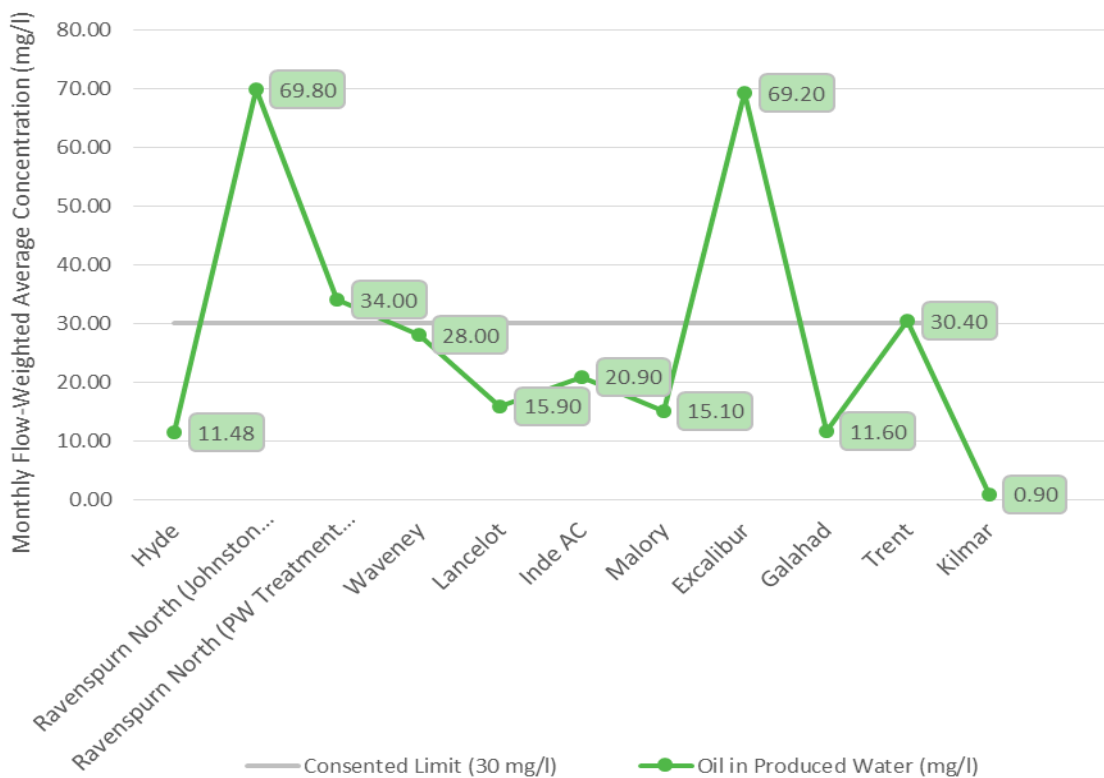


Figure 4.5: Monthly Flow-Weighted Average Concentration of oil in Produced Water



During 2018, the monthly flow-weighted average concentration of oil in produced water for the majority of our SNS assets was below the consented limit (30 mg/l). However, this limit was exceeded at three of our assets (Ravenspurn North (Johnston Hydrocyclone Package and Produced Water Treatment Vessel), Excalibur and Trent). The reasons for these exceedances are provided below.

Excalibur

There have been multiple issues around level control on Excalibur in 2018 resulting in a high concentration of oil in produced water. The condensate Level Control Valve has since been replaced and the oil in produced water readings have returned to <30 mg/l.

Trent

After coming back online after two years, there was a high concentration of oil in produced water at the Trent platform due to issues with the produced water system. These issues have since been rectified.

Ravenspurn North (Produced Water Treatment Vessel and Johnston Hydrocyclone Package)

The produced water quality from Ravenspurn North is generally poor. There are plans in place to improve the systems which will reduce the oil in water content. This is an ongoing project due to commence during the annual shutdown in 2019.

In addition to oil in produced water, oil on sand / scale was also discharged from the Ravenspurn North installation during 2018, as presented in Table 4.1. This was lower than the amount discharged in 2017 and well within the permitted amount.

Table 4.1: Discharge of Oil from Sand and Scale

Operation	Quantity of Sand/Scale Discharged (tonnes)	Quantity of Oil on Sand / Scale Discharged (tonnes)	Average Concentration (mg / kg)
Schedule 6a Online Sand / Scale at the Ravenspurn North Platform	1.927	0.003	1,556.82

4.2.2 Other Operations

None of the offshore projects undertaken in 2018, as listed in Section 2.2, resulted in the discharge of oil regulated under the OPPC Regulations.

4.3 Discharge of Chemicals

The use and discharge of chemicals is subject to control under the Offshore Chemicals Regulations 2002 (as amended). This requires regulatory approval following an assessment of the predicted environmental impacts of any proposed discharges. In addition, only chemicals that have been registered by the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) may be used.

All chemical products used offshore undergo a hazard assessment, using the Chemical Hazard and Risk Management (CHARM) model, to calculate the ratio of Predicted Effect Concentration against No Effect Concentration (PEC:NEC). This is expressed as a Hazard Quotient (HQ), which is converted to a colour banding (Purple, Orange, Blue, White, Silver and Gold, in order of environmental hazard level (highest to lowest)) and used to rank the product.

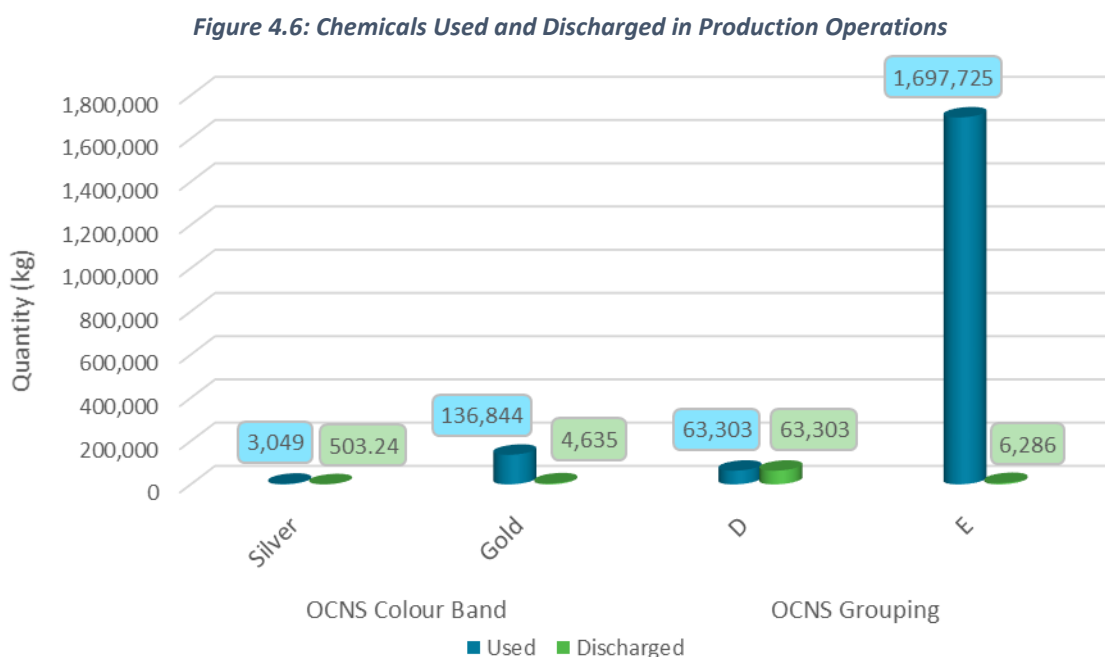
Products that are not subject to CHARM modelling (i.e. inorganic substances, hydraulic fluids or chemicals used only in pipelines) are assigned an Offshore Chemical Notification Scheme (OCNS) grouping, A - E. Group A includes products considered to have the greatest potential environmental hazard and Group E the least.

In addition to the OCNS colour bands and groupings, OSPAR identifies chemicals considered to Pose Little Or No Risk to the environment as ‘PLONOR’ and those considered harmful to the environment as ‘candidates for substitution’. We actively seek to select chemicals without a substitution warning, however there are instances where there is a lack of a suitable alternative due to technical or safety reasons.

4.3.1 Production Operations

Gas production required only a limited range of production chemicals, mainly for the purposes of hydrate inhibition, corrosion control and separation of liquid hydrocarbons. The use of production chemicals is permitted at the Amethyst, Cleeton, Hyde, Kilmar, Inde, Leman, Lancelot, Neptune, Pickerill, Ravenspurn North, Thames, Trent, Wenlock, West Sole installations. The Tyne and Guinevere platforms are undergoing decommissioning, but still require chemical allowances for utility chemicals.

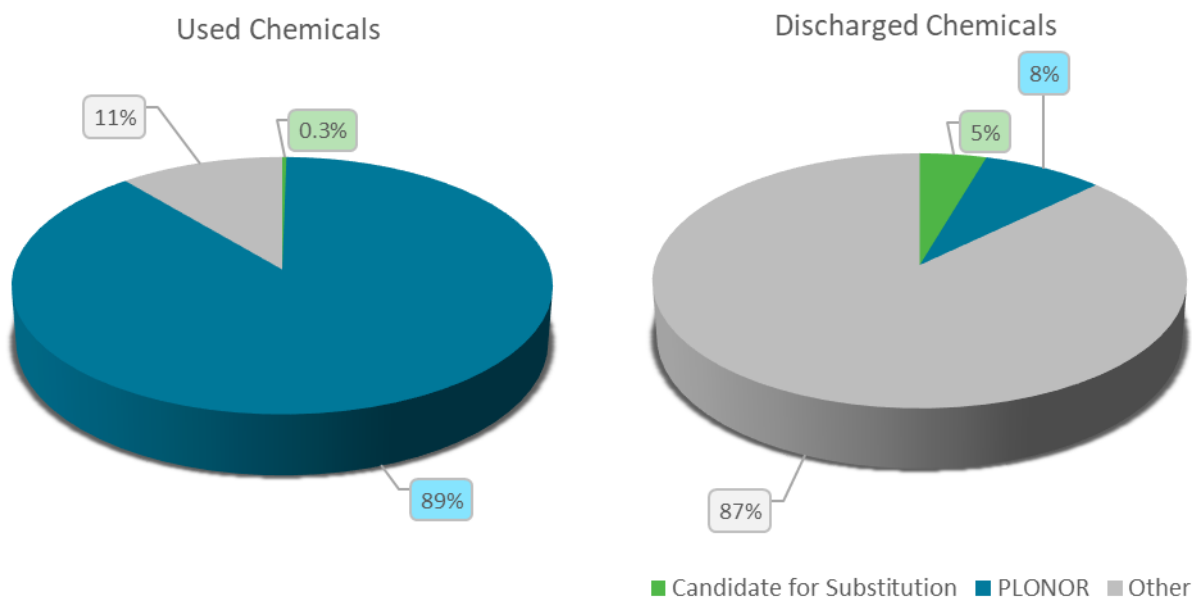
Figure 4.6 presents a breakdown of the total chemicals used and discharged for all of our production operations in the SNS by OCNS colour band / grouping.



Chemical use for gas production is dominated by the need for hydrate inhibition. Mono Ethylene Glycol (MEG) is routinely used for this purpose. It is a PLONOR chemical and it is usually recovered, recycled or reused unless its salinity precludes this in which case it is discharged offshore with the associated corrosion inhibitor with which it is dosed. Modelling indicates that the discharge presents a negligible risk to the environment. MEG accounted for approximately 40 percent of all chemicals used and < 1 percent of all chemical discharged during production in 2018.

Figure 4.7 presents the percentage of the total chemicals used and discharged that were identified as candidates for substitution or as PLONOR.

Figure 4.7: Percentage of Chemicals Used and Discharged in Production Operations Identified as PLONOR and Candidates for Substitution



During 2018, the majority of the chemicals used in production operations were PLONOR, although a large proportion of these chemical were not discharged. The majority of discharged chemicals were classified as “other”. Only two chemicals identified as candidates for substitution were used in production operations, with a total use of 5,431 kg and discharge of 3,395 kg.

PUK is committed to where possible reducing chemical use at our SNS production assets, focusing on phasing out the use and discharge of chemicals with substitutional warnings.

4.3.2 Other Operations

During 2018, the Seafox 2 undertook heavy duty well work at Ravenspurn North ST3 between May and July and production reinstatement work at Davy from July - August. The Seafox 1 was commissioned to support the Guinevere decommissioning works, in the period September 2017 – February 2018. In addition, the Paragon C20051 was contracted for the Thames P&A work between May and July, and well intervention work at Wollaston from July to August.

Figure 4.8 presents a breakdown of the total chemicals used and discharged for all our Well Intervention operations in the SNS by OCNS colour band / grouping.

Figure 4.8: Chemicals Used and Discharged in Well Intervention Operations

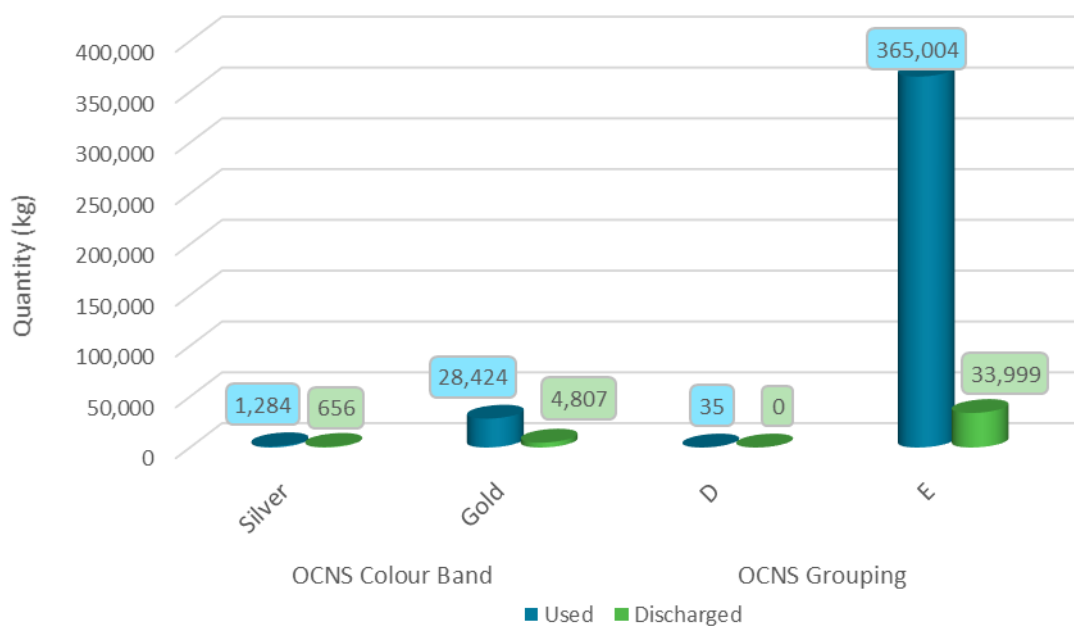
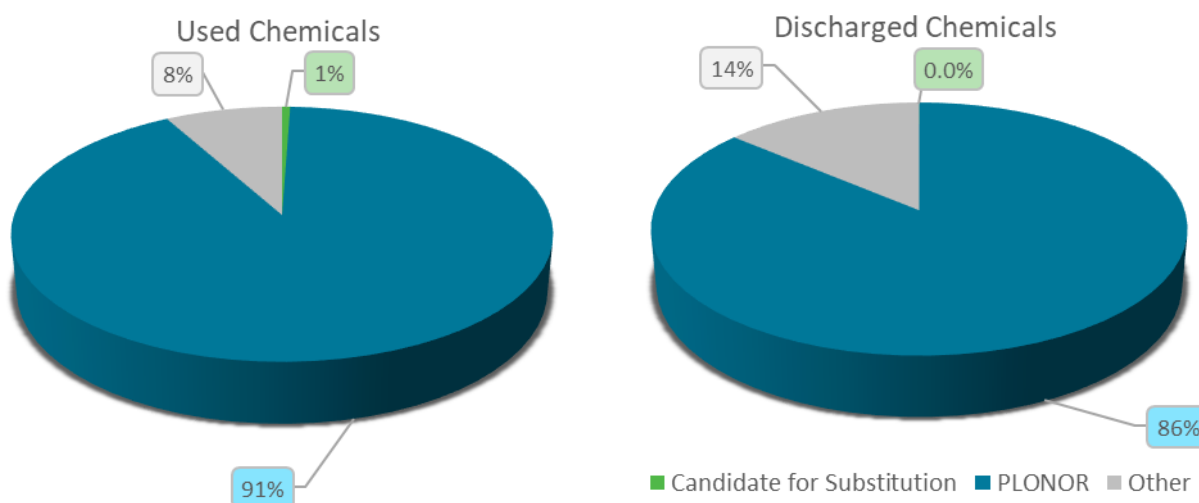


Figure 4.9 presents the percentage of chemicals used and discharged during Well Intervention operations that were identified as PLONOR or candidates for substitution.

Figure 4.9: Percentage of Chemicals Used and Discharged in Well Intervention Operations Identified as PLONOR and Candidates for Substitution



The majority of the chemicals used and discharged on Seafox 1, Seafox 2 and Paragon C20051 were PLONOR. Three chemicals identified as candidates for substitution were used and one was discharged. In total, 394,747 kg of chemicals were used and 39,462 kg of these chemicals were discharged during Well Intervention operations.

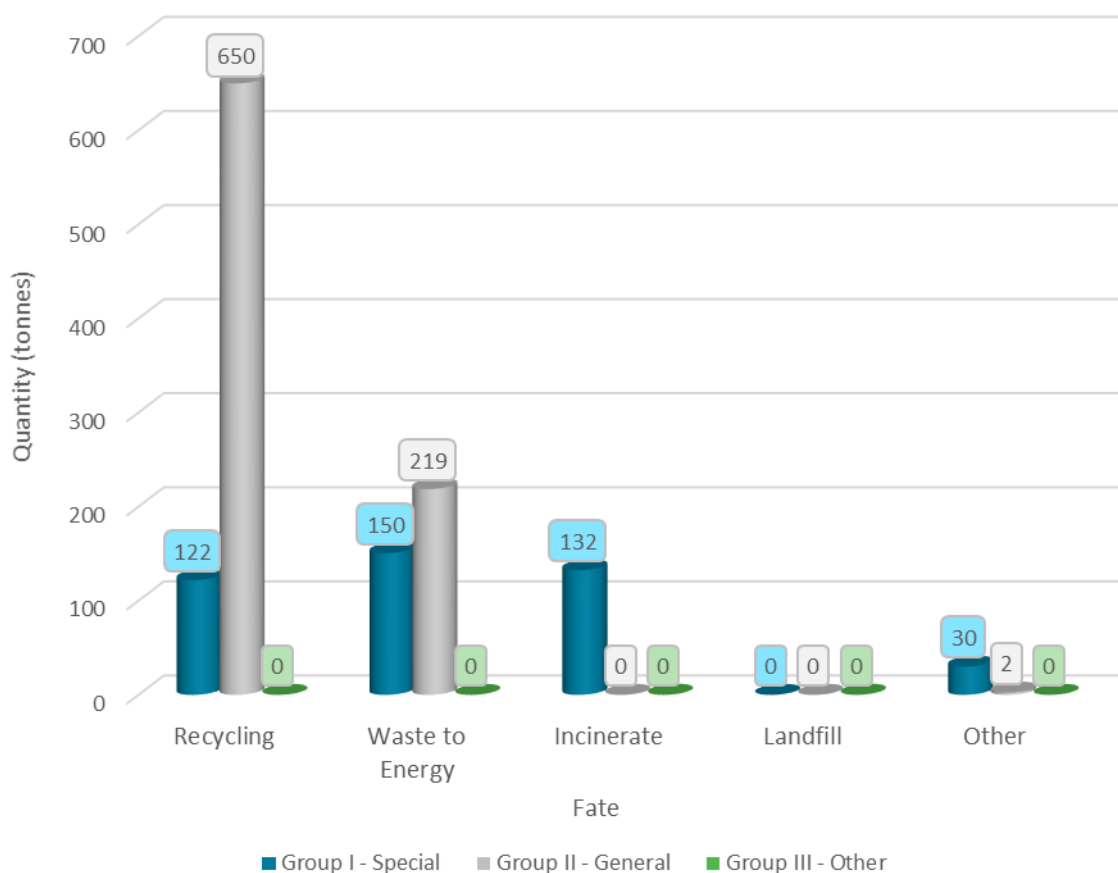
4.4 Waste

4.4.1 Production Operations

During 2018, waste was generated during production operations at 24 of our offshore SNS assets. Figure 4.10 presents the fate of each waste category for offshore production operations. None of the waste

generated from the production operations was reused, however we reuse items such as pallets and IBCs before they enter the waste stream.

Figure 4.10: Fate of Each Waste Group for Production Operations

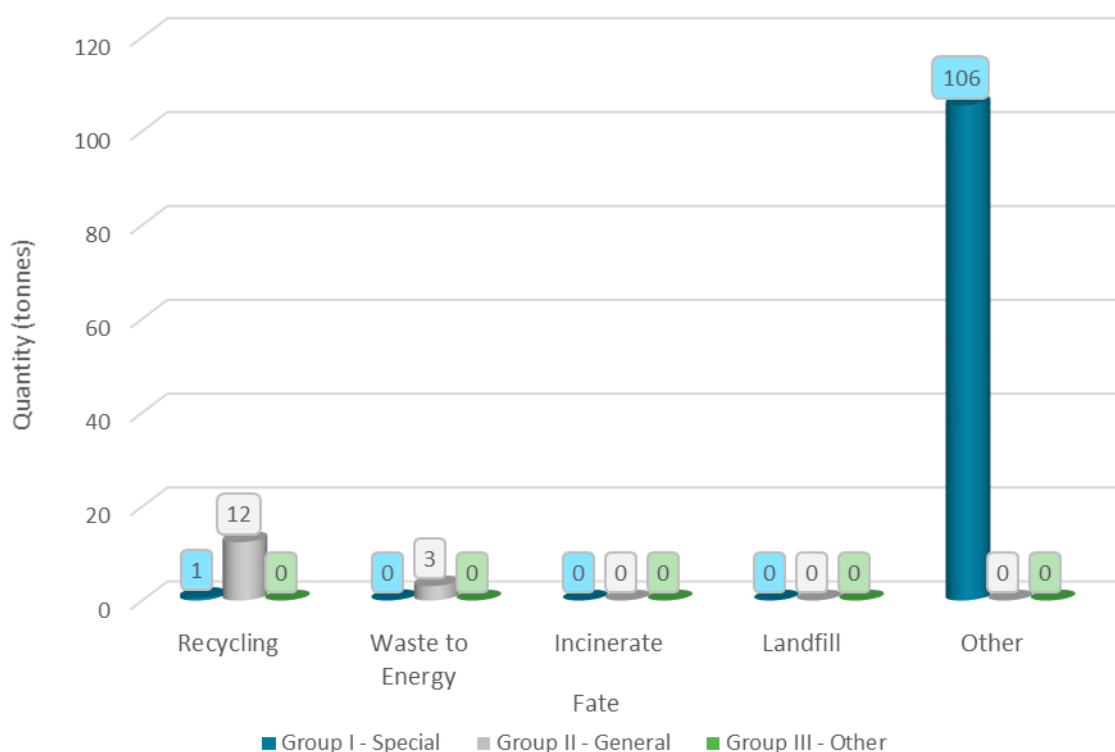


PUK assets generated a total of 1,583 tonnes of waste from offshore production operations in 2018. Approximately 83 percent was recycled or otherwise managed, rather than being consigned to landfill. None of the 434 tonnes of special waste was sent to landfill. Other' in the graph above represents waste which was sent for treatment.

4.4.2 Decommissioning Operations

During 2018, waste was generated during decommissioning operations at one of our offshore SNS assets (Guinevere). Figure 4.10 presents the fate of each waste category for offshore production operations.

Figure 4.11: Fate of Each Waste Group for Decommissioning Operations



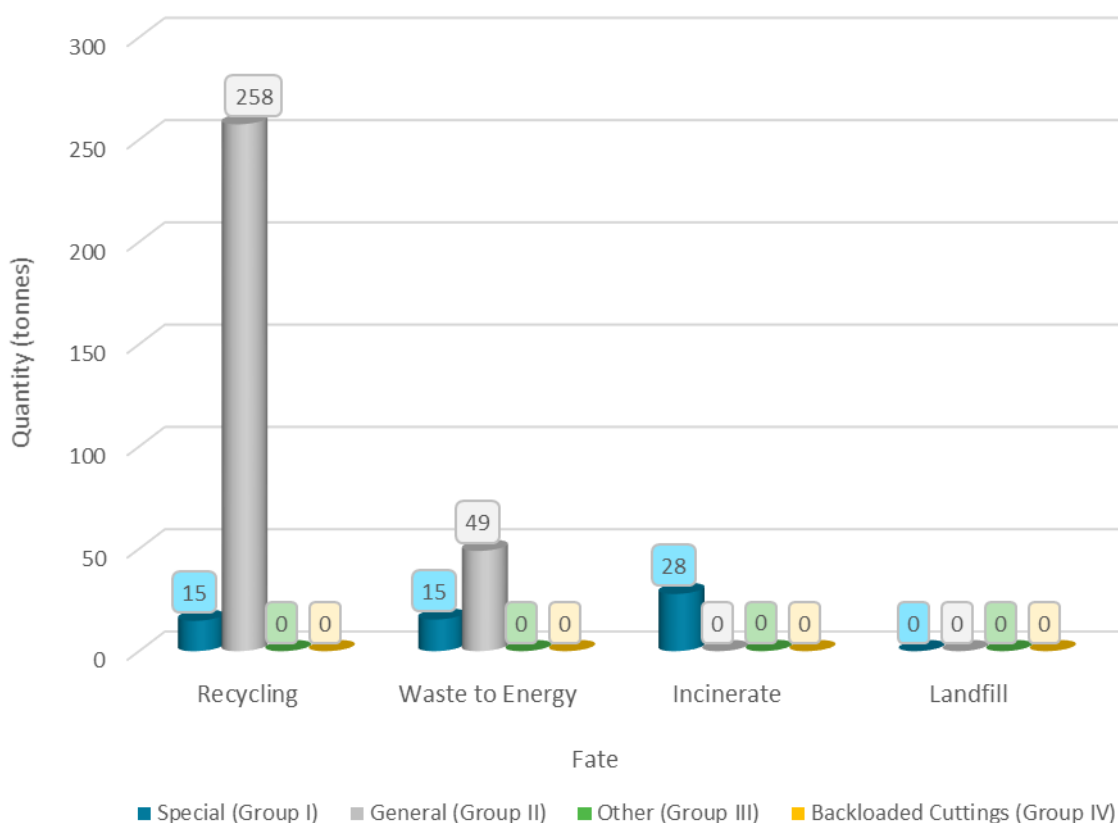
PUK assets generated a total of 122 tonnes of waste from offshore decommissioning operations in 2018. The majority of this waste was sent for treatment. Minimal amounts were sent to Landfill or incineration. The rest was sent for Recycling or Waste to Energy which is in line with the waste hierarchy.

4.4.3 Other Operations

During 2018, the Seafox 1 was commissioned to support the Guinevere decommissioning works, in the period September 2017 – February 2018. In addition, the Paragon C20051 was contracted for the Thames P&A work between May and July, and well intervention work at Wollaston from July to August.

Figure 4.11 presents the fate of each waste group for the other operations undertaken during 2018. None of the waste generated were reused.

Figure 4.12: Fate of Each Waste Group for Other Operations



A total of 1,273 tonnes of waste was generated from other operations during 2018. This waste was recycled, incinerated or sent for waste to energy, rather than consigned to landfill.

4.5 Hydrocarbon and Chemical Spills to Sea

The Oil Pollution and Control Regulations apply to hydrocarbon and chemical spills to sea and these have to be reported and are subject to investigation to ascertain the cause and prevent recurrence. A total of 18 spills were reported during 2018. Brief details of the hydrocarbon and chemical spills are provided in Table 4.2.

Figure 4.12 shows the majority of substances spilt were chemical (65 percent), primarily from a subsea component failure and subsequent leak of the chemical CORRTREAT 7368 at West Sole Alpha.

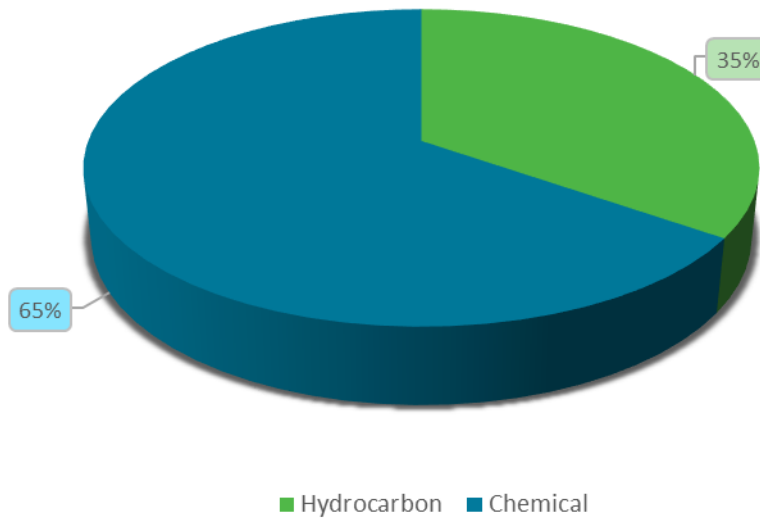
Table 4.2: Hydrocarbon and Chemical Spills to Sea

Location	Date	Description	Loss	
			Hydrocarbon (kg)	Chemical (kg)
Cleeton CPQ	19/04/18	Diesel Systems – Pressure relief	940	-
Excalibur A	07/08/18	Produced Water System – Faulty level control valve	220	-
Inde AC	09/03/18	Diesel Systems – Pinhole leak	0.006	-
Inde CD	15/10/18	Cranes – Hydraulic system	0.0203	-
Inde D	23/12/18	Diesel Systems – Over filled	3	-

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Location	Date	Description	Loss	
			Hydrocarbon (kg)	Chemical (kg)
Leman AP	20/06/18	Pipework – Total rupture	40	-
	16/09/18	Hydraulics – Open system failure	-	300
Leman AQ	29/10/18	Under Investigation – Suspected umbilical / fitting damage	-	170
Leman AX	28/02/18	Diesel Systems – Over filled	24	-
	25/08/18	Under investigation – Suspected corrosion under insulation of AX to AC pipeline	100	-
Leman ED	06/07/18	Storage (Hydraulic Oils, Lube Oils) – Failure of equipment	2	-
	14/09/18	Crane Engine Fuel Tank – Over filled	90	-
Leman G	01/07/18	Wellheads – Hydraulic system	5	-
Pickerill B	09/08/18	Diesel Systems – Supply line strainer “popped out”.	120	-
Ravenspurn North ST3	27/06/18	Hydraulics – Closed system – Fittings / Connections	21.25	-
West Sole WA	03/04/18	Under Investigation - Subsea Component Failure – Out of sequence valve operation lead to failure in umbilical core 8	-	1,721
	14/10/18	Hydraulic Manifold/Control Panel – Hydraulic hose	-	8
	30/12/18	Under investigation – Suspected subsea link in the umbilical line	-	750
Total			1,565.28	2,949.00

Table 4.12: Overview of Substances Spilt (as a Percentage of the Total Amount Spilt)



5 Environmental Objectives and Targets for 2019

Based on PUK’s planned UKCS operations for 2018, PUK has developed environmental objectives and targets for 2019, as shown in Table 5.1.

Table 5.1: Environmental Objectives and Targets for 2019

Overall Objective	Action	Aspect
Improving Compliance through visibility and transparency of data and non-compliances	Formalise the reporting of F-Gases into an online system 'Tracker'	Air Emissions
	Complete the feasibility study for moving all atmospheric 'Tracker' system.	Air Emissions
	Formalise the reporting of waste into an online system 'Tracker'	Waste
	Trends waste volumes from Tracker quarterly and feedback loop to operations.	Waste
	Develop and implement a system for tracking regulatory non-compliance (OPPC/ OCR/ waste)	All
	Review the training offer and develop an offshore awareness training package with HR. Start roll out by Q4.	All
Improve the water quality at Bacton to move towards discharge within the regulatory limits	Complete the small projects at Bacton (washdown pit; maintenance of interceptor; flushing of infrastructure) to enable the site to 'not exceed' water emissions limits.	Water
To make sustainable improvements within the supply chain.	Review the current procurement strategy and integrate sustainable considerations into the existing company procurement strategy.	All
	Undertake 4 supply chain audits with high risk E or regulatory compliance in line with QA Supplier Procedure.	All