



**Annual Public
Statement of
Environmental
Performance
2021**

P E R E N C O



CONTENTS

Introduction.....	1
Production Hub Profiles	2
Environmental Management System	4
Operations and Environmental improvements	6
Environmental Performance	8
Atmospheric Emissions	8
Waste.....	10
Chemical Use and Discharge	12
Oil in Produced Water	15
Accidental Releases.....	17
Performance Against Environmental Objectives	19

INTRODUCTION



PERENCO UK SOUTHERN NORTH SEA

Perenco UK Limited's Southern North Sea business unit (PUK SNS) has operated in the SNS basin since 2003 and processes up to 15% of the UK's national gas production.

PUK SNS is the largest infrastructure owner within the United Kingdom Continental Shelf (UKCS), acquiring assets in 2003 and 2012 from BP and from ExxonMobil in 2007. Today PUK SNS comprises 39 offshore platforms, 182 producer wells, and a network of more than 2,400 km of pipelines connected to its 2 onshore gas terminals at Bacton on the Norfolk coast and Dimlington near Humberside, Yorkshire.

This report forms PUK SNS's 2021 Public Statement, as required under OSPAR Recommendation 2003/5 and outlines the offshore environmental performance for UKCS operations during 2021. Bacton and Dimlington onshore gas terminal operations are excluded from this report as they fall outside of the requirement.

PRODUCTION HUB PROFILES



RAVENSPURN NORTH

Location	Located within UKCS blocks 43/26, 43/27 and 42/30.
Discovery Date	1983
Infrastructure	The Ravenspurn North production hub is comprised of the Ravenspurn North manned installation, ST2 and ST3 satellite installations and the Johnston Subsea Development.
Export	Processed gas and condensate from the Ravenspurn North and Johnston fields is exported via PL669 to the Cleeton Development, where it is co-mingled prior to export to Dimlington Gas Terminal.



CLEETON

Location	Located within UKCS blocks 42/29, 47/3, 47/4, 47/5, 47/9, 42/28 and 42/30.
Discovery Date	1976
Infrastructure	The Cleeton Hub is comprised of the manned Cleeton installation, satellite installations Ravenspurn South Alpha, Bravo and Charlie, Neptune, Minerva and subsea developments Whittle, Wollaston, Apollo, Mercury, Eris and Ceres.
Export	Processed gas and condensate produced through Cleeton and associated infrastructure is exported via 36-inch PL447 to the Dimlington Gas Terminal.



INDEFATIGABLE (INDE)

Location	Located within UKCS Blocks 49/18, 49/23 and 49/30.
Discovery Date	1966
Infrastructure	The Inde hub is comprised of the manned Inde 23A installation, satellite installations Inde 18A, 18B, 23C, 23D, 18A, 18B, Davy, Bessemer and subsea developments North West Bell, Davy North and East.
Export	Gas and condensate produced through the Inde hub is received on Inde 23A and exported via PL22 to Leman 27B and onwards to the Bacton Gas Terminal via PL23.



WEST SOLE

Location	Located within UKCS blocks 48/6, 47/5 and 48/7.
Discovery Date	1965
Infrastructure	The West Sole hub is comprised of the part-manned West Sole Alpha installation, satellite installations West Sole Bravo and Charlie, Hyde and Hoton and subsea tie back Newsham and Seven Seas.
Export	Processed gas and condensate produced through the West Sole Hub is exported onshore via PL145 and PL28 to Dimlington Gas Terminal.



LANCELOT AREA PIPELINE SYSTEM (LAPS)

Location	Located within UKCS Blocks 48/17 and 48/12.
Discovery Date	1986
Infrastructure	The LAPS hub is comprised of 4 satellite installations Lancelot, Excalibur, Waveney and Malory.
Export	Comingled gas and condensate are exported from the Lancelot installation to the Bacton Gas Terminal via PL876.



LEMAN

Location	Located within UKCS Block 49/27 and 53/02.
Discovery Date	1966
Infrastructure	The Leman hub is comprised of manned installations Leman 27A and 27B, satellite installations 27C, 27D, 27E, 27F, 27G, 27H, 27J and subsea development Leman South.
Export	Gas and condensate produced through the Leman hub is comingled with Inde production and exported to the Bacton Gas Terminal via PL23.

TRENT AND TORS



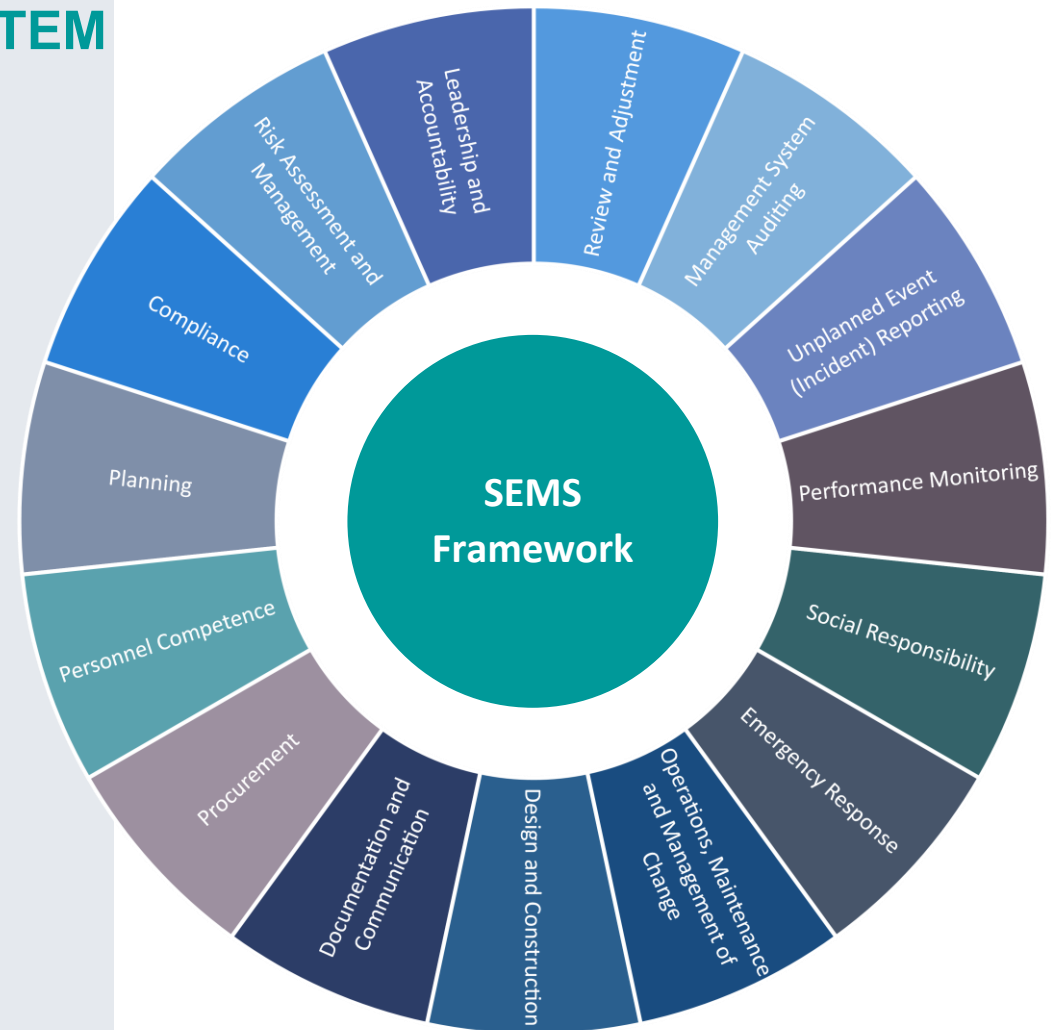
Location	Located within UKCS Blocks 43/22, 43/24 and 43/25.
Discovery Date	1991
Infrastructure	Trent, Kilmar and Garrow.
Export	Gas and condensate is exported to the Bacton Gas Terminal via the PUK operated East Anglian Gas and Liquids Evacuation System (EAGLES) export pipeline (PL253). These fields have been offline since June 2020 and are on the decommissioning pathway.

ENVIRONMENTAL MANAGEMENT SYSTEM

PUK SNS implements an integrated Safety and Environmental Management System (SEMS) certified to ISO 14001:2015. Operating within SEMS ensures that activities are undertaken in accordance with PUK SNS policies and comply with all relevant statutory provisions.

SEMS comprises 15 key components which together provide a framework to safe, environmentally responsible and reliable operations. Each of the components set out standards which must be complied with, a set of actions to be implemented, along with supporting information to provide guidance on implementation.

Following a tri-annual recertification audit in September 2021 the PUK SNS SEMS remains accredited to the ISO 14001:2015 standard.



PERENCO UK SNS ENVIRONMENTAL POLICY

PUK SNS IS COMMITTED TO APPLYING EFFECTIVE ENVIRONMENTAL MANAGEMENT CONTROLS across all onshore and offshore oil and gas activities to monitor, minimise and mitigate our environmental impacts, prevent pollution, and protect marine and terrestrial environments, local communities, and stakeholders.

PUK SNS WILL IMPROVE ENVIRONMENTAL PERFORMANCE THROUGH:

Leadership and commitment from top management to promote environmental protection.

Continual improvement of our ISO14001 accredited environmental management system.

Compliance with all applicable environmental legislation.

Communication of our Environmental Policy and Objectives.

Commitment of our staff, contractors and third parties to environmental procedures.

Innovation to improve performance, extend field life and evaluate opportunities to participate in the future Energy Transition.

Investigation and reporting of incidents thoroughly to prevent re-occurrence.

Achieve annual environmental performance targets.



Jonathan D. White
PUK-SNS General Manager

OPERATIONS AND ENVIRONMENTAL IMPROVEMENTS

In 2021, PUK SNS saw a continued high level of offshore activity, including well interventions, decommissioning and drilling projects.

SUBSEA REPAIRS

Subsea repair work was completed throughout 2021 on the Wollaston, Whittle, Mercury and Apollo fields.

Wherever possible PUK SNS utilise opportunities to reduce waste through re-use. Below shows before and after photos of the ex-Wollaston Subsea Control Module (SCM). This has been refurbished and re-tested and is now a serviceable spare. The refurbished SCM is now ready for rapid deployment anywhere in the SNS. This series of module is now 20 years old and is just one example of PUK SNS employing this repurposing process.



DECOMMISSIONING

The Amethyst A1D, B1D and C1D installations reached hydrocarbon free status during 2021, supported by the Petrodec ERDA and HAEVA Jack-up Barges. Following completion of the hydrocarbon free campaign, Amethyst C1D and B1D topsides were removed using Petrodec's pioneering skidding methodology.

BESSEMER SIMPLIFICATION

The Bessemer simplification project included a well plug and abandonment and fabric maintenance to simplify the installation's operation, reduce emissions and allowed for continued gas production from the North West Bell subsea asset. As part of the simplification works a renewable energy package was installed on the installation to power the navigational aids.

SOUTHERN HUB AREA RATIONALISATION PROJECT (SHARP)

SHARP continues to be a key project for PUK SNS and will result in significant reductions of CO₂e emissions. During 2021, the new Leman 27BC jacket was permanently installed alongside the existing Leman 27B complex. The jacket has been modified to host the new gas compression and processing facilities which will support the Southern Hub fields, with completion currently estimated for Q3/Q4 2022.



ENVIRONMENTAL PERFORMANCE

PUK SNS monitored the atmospheric emissions, discharge of produced water and chemicals, disposal of waste and hydrocarbon and chemical spills to measure the Environmental Performance across PUK SNS assets throughout 2021.

ATMOSPHERIC EMISSIONS

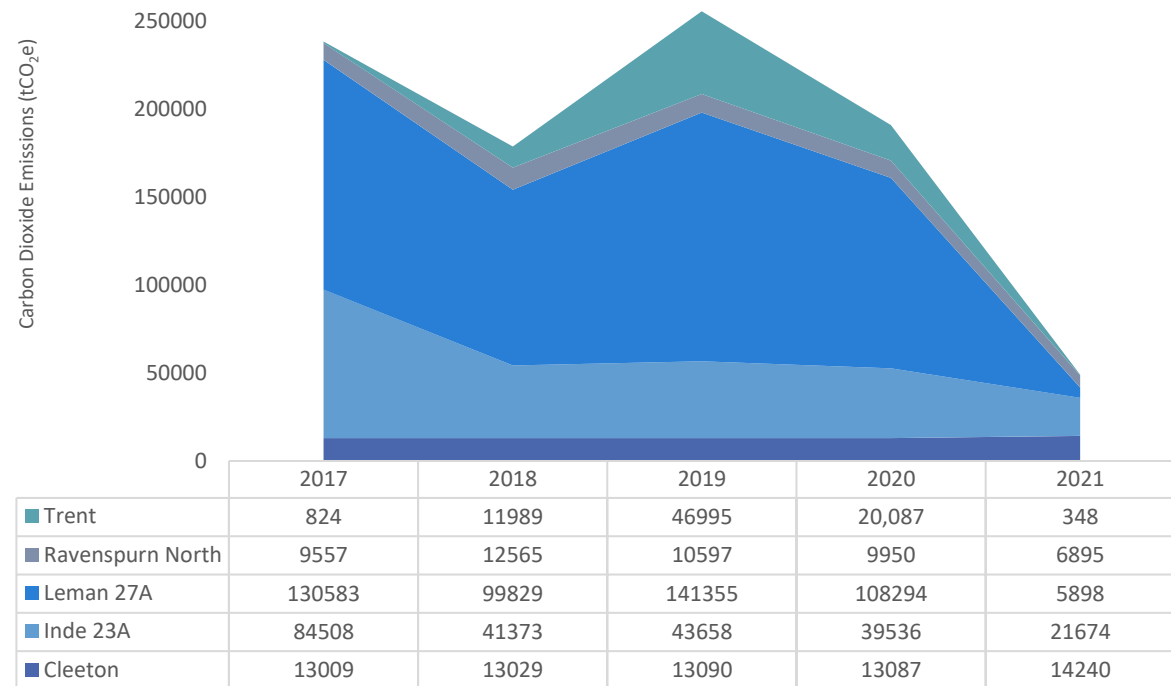
Carbon Dioxide Equivalent (CO₂e) Emissions (Emissions Trading Scheme)

Cleeton, Ravenspurn North, Inde 23A, Lemman 27A and Trent were subject to control under the UK Emissions Trading Scheme (UK ETS) (Amendment) Regulations (2020) during 2021 (formally the EU Emissions Trading Scheme). Each of these installations' combustion equipment exceeded a rated thermal input of 20 MWth, triggering entry into the scheme.

During 2021 34,321 tonnes CO₂e was emitted through overall PUK SNS combustion activities. 64% of this total figure (21,974 tonnes CO₂e) were verifiable under UK ETS, being attributed to Cleeton, Inde, Lemman, Ravenspurn North and Trent.

Figure 1 shows an overall reduction in CO₂e emissions from 2017-2021. Emissions have reduced across PUK SNS assets with an overall reduction of 70% between 2020 and 2021. This significant decrease can primarily be attributed to the Trent platform remaining shut in throughout 2021, and the continued temporary compression free 'free flow' status of the Inde and Lemman hubs, as part of SHARP.

Figure 1. 2017-2021 ETS Emissions by Installation

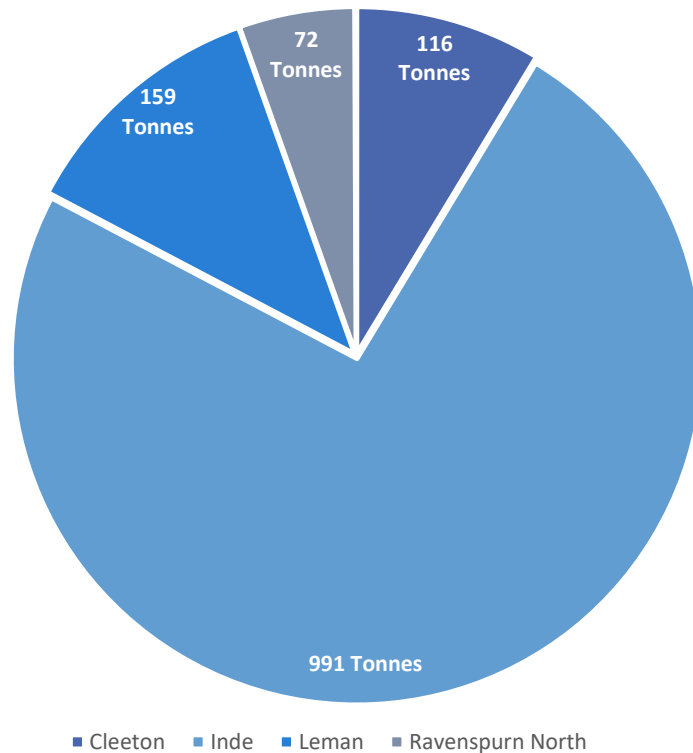


Intensity Ratio

Since 2019, PUK SNS has been required to publish detailed CO₂e emissions data in the Directors' Report submitted to Companies House, as defined by the Streamlined Energy and Carbon Reporting (SECR) guidelines. As part of this report PUK SNS have established an intensity ratio of SECR defined emissions converted to CO₂e / exported gas (expressed as barrels of oil equivalent (BOE)), in line with the industry norm. The PUK SNS 2018 Base Year intensity ratio was 14.43 kg CO₂e / BOE, which has significantly decreased to 11.82 kg CO₂e / BOE in 2020. The intensity ratio will continue to be used as a measure of performance against CO₂e emissions.

Note: Both Onshore and Offshore PUK SNS operations fall within the SECR scope and the intensity ratio reflects the performance of the whole of PUK SNS.

Figure 2. Tonnes of Gas Cold Vented by Hub in 2021



Venting

Emissions through cold venting increased from 35,381 tonnes of CO₂e in 2020 to 52,549 tonnes of CO₂e during 2021. Venting figures have been impacted by several factors, including the PL24 pipeline rupture (which released 24,340 tonnes of CO₂e), increased accuracy in monitoring and recording of venting operations and the recalculation of the Inde 23A purge rates.

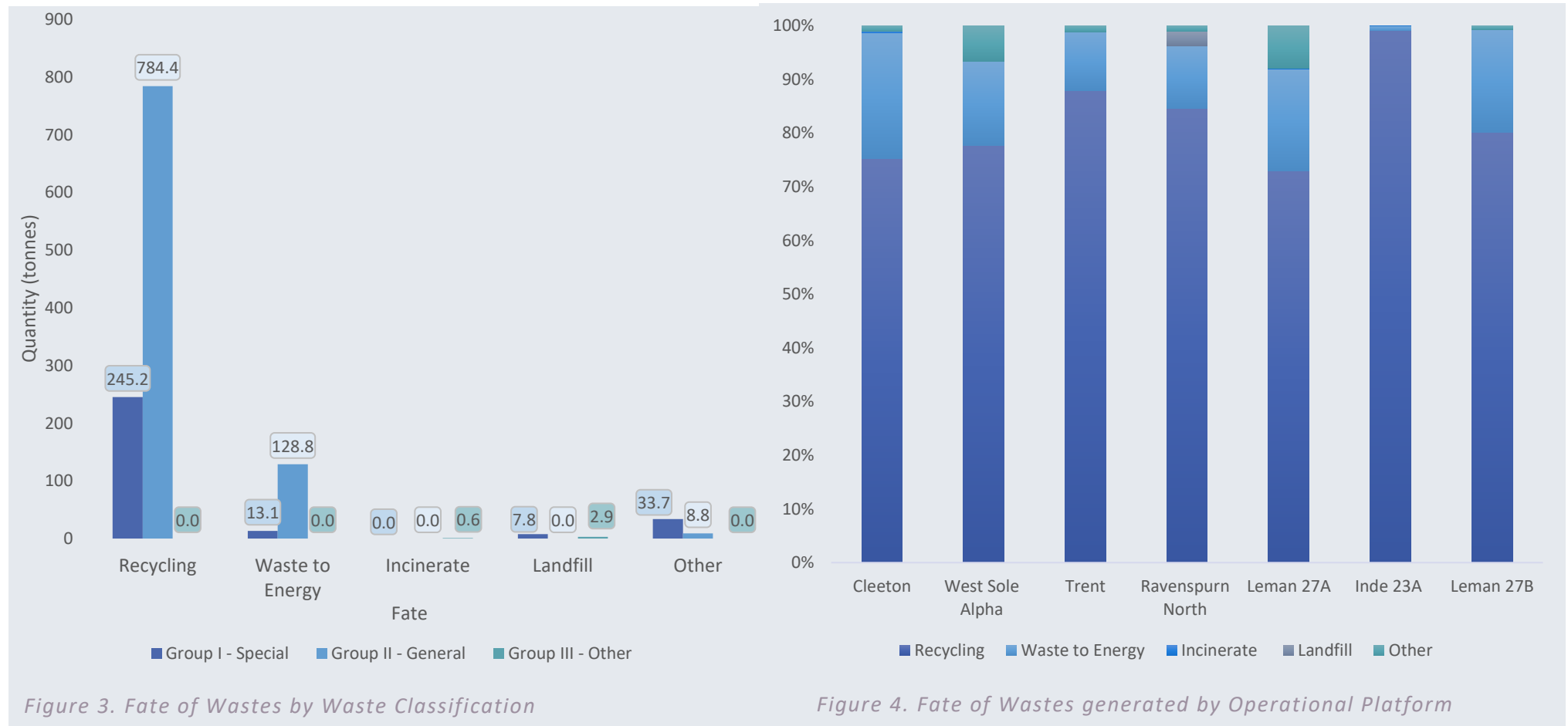
WASTE

Operational Waste

PUK SNS successfully diverted all wastes from entering landfill in 2021*.

This was achieved by working closely with our principle waste management contractor and proactively managing the waste generated as a result of operational activities, by application of the waste hierarchy.

***Note: The only exception was asbestos and asbestos contaminated waste, of which 10.78 tonnes were disposed of via licenced landfills.**



Decommissioning Waste

A number of decommissioning projects were completed during 2021. This included the hydrocarbon free campaigns on the Amethyst A1D, B1D and C1D installations, followed by the removal of the Amethyst C1D and B1D topsides utilising the skidding methodology. C1D and B1D topsides were subsequently transported to the Netherlands for recycling and recovery under an International Waste Shipment permit.

2021 decommissioning projects were completed by the Petrodec ERDA and HAEVA Jack-up Barges.

PUK SNS successfully diverted all general decommissioning wastes from entering landfill. The exception to this is that some hazardous wastes were disposed of via licenced landfills by the dismantlement yard (0.05%).

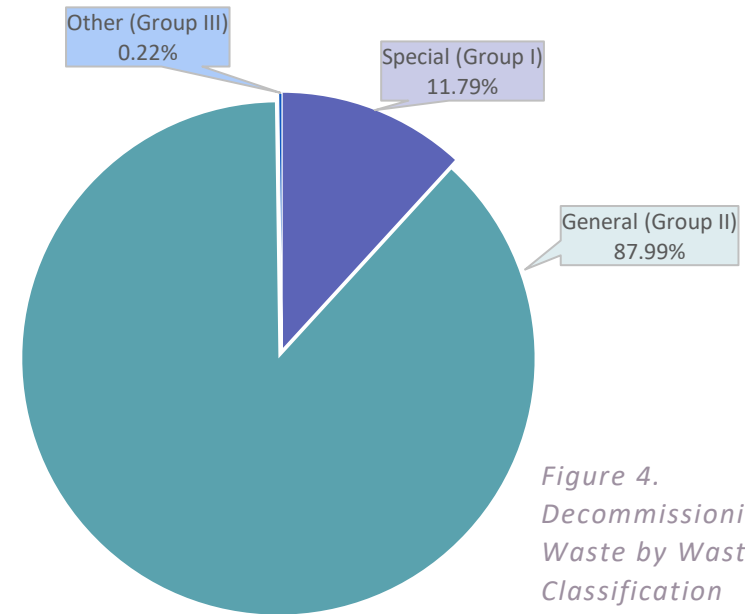


Figure 4.
Decommissioning
Waste by Waste
Classification

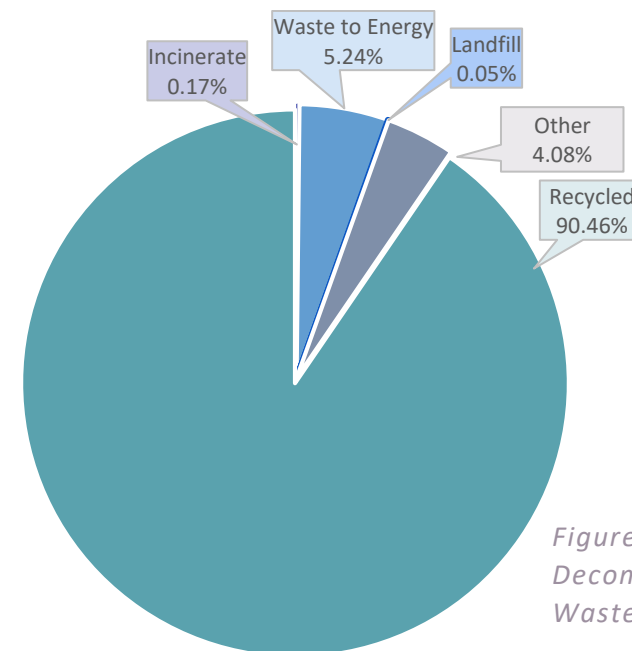


Figure 5. Fate of
Decommissioning
Waste

CHEMICAL USE AND DISCHARGE



			TOTAL USAGE (kg)	TOTAL DISCHARGE (kg)
NON-CHARM MODEL CHEMICAL CATEGORISATION	A	HIGH HAZARD	0	0
	B		420	0
	C		0	0
	D		58,724	58,384
	E	POSES LITTLE OR NO RISK	936,801	9,493
CHARM MODEL CHEMICAL CATEGORISATION	PURPLE	HIGH RISK	0	0
	ORANGE		0	0
	BLUE		168	18
	WHITE		0	0
	SILVER		46,837	1,626
	GOLD		LOW RISK	49,576

Table 1. 2021 Chemical Use and Discharge Quantities According to Offshore Chemical Notification Scheme (OCNS) Categories

The use and discharge of certain 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. As seen from Table 1, PUK SNS strive to use chemicals which are as friendly to the environmental as possible.

Operational Chemicals

PUK SNS used a total of 1092 tonnes of chemicals in 2021, of which 71 tonnes were discharged to sea in line with permit conditions. The usage of chemicals over the last 5 years has seen an overall downward trend. This is due to a combination of factors:

- Decommissioning of platforms leading to subsequent reductions in chemical use.
- A reduction of continuous dosing of chemicals and a movement towards batch dosing methodology for chemicals used for hydrate control and corrosion inhibition.

As shown in figures 6 and 7, PUK SNS strives to use chemicals that are as environmentally friendly as possible, with 99% of the chemicals used and discharged during 2021 classed as Gold, Silver, E or D which are the two classifications of least environmental risk under CHARM and OCNS.

Figure 6. Chemicals Used by OCNS Categories

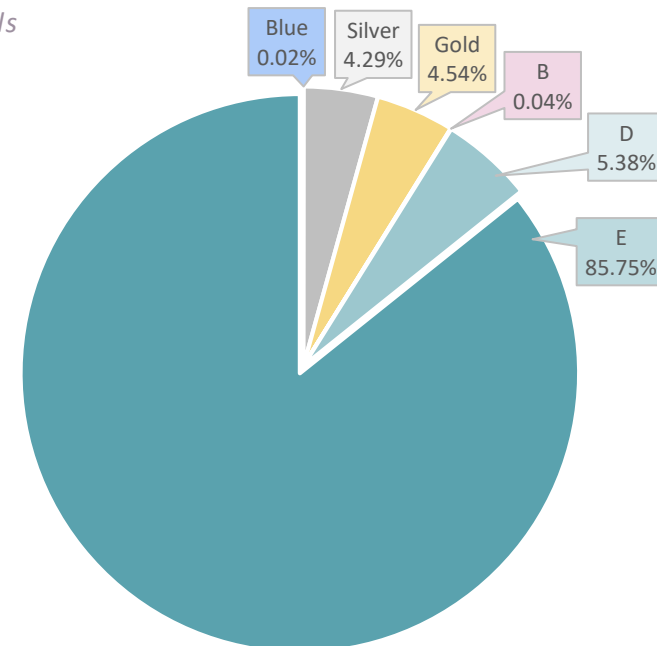
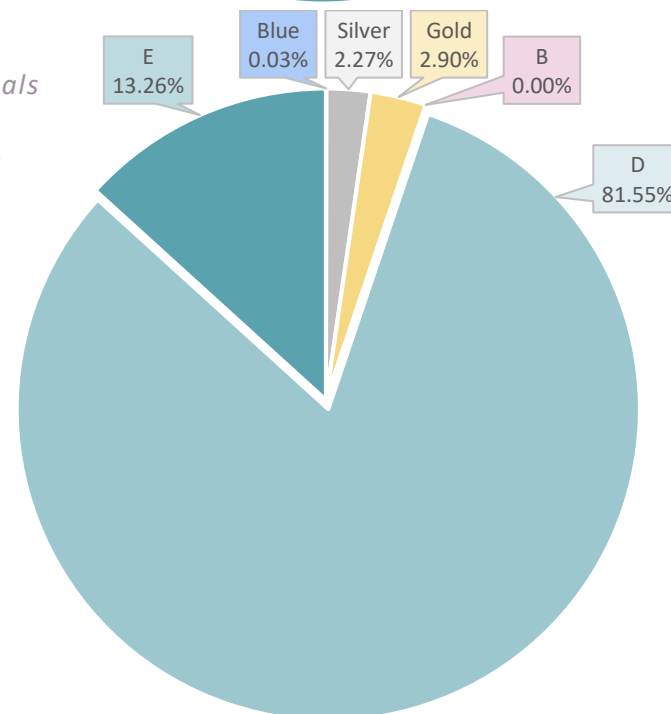


Figure 7. Chemicals Discharged by OCNS Categories



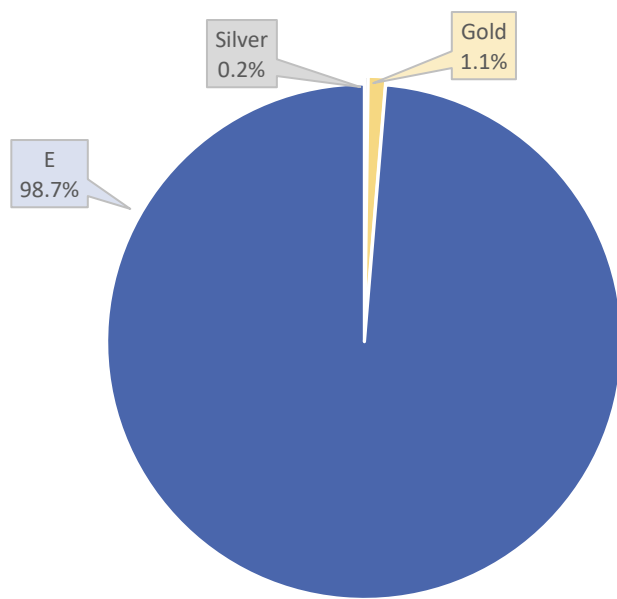


Figure 8. Chemicals Discharged by OCNS Categories

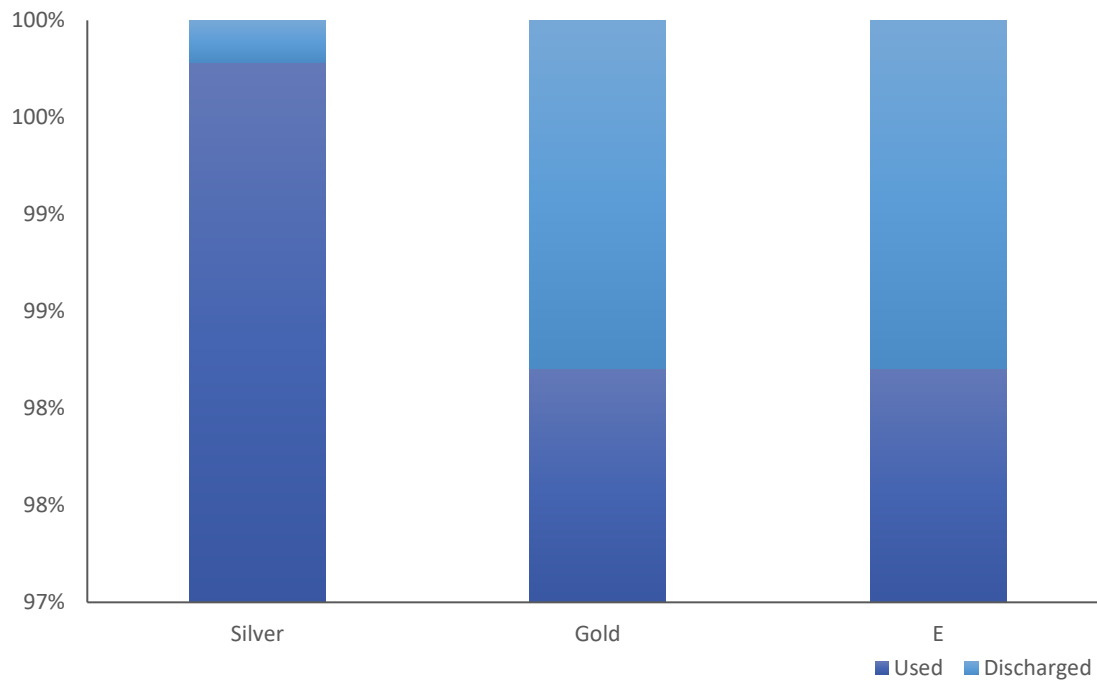


Figure 9. Percentage of Chemicals Used vs Discharged by OCNS Categories

Decommissioning and Project Chemicals

A total of 834 tonnes of chemicals were used for decommissioning and project operations during 2021, of which, 15 tonnes were discharged to sea (1.8%) in line with permit conditions.

During 2021 Amethyst (A1D, B1D and C1D) and Galahad hydrocarbon free campaigns were completed.

The Bessemer platform wells were plugged and abandoned and simplification works undertaken to reduce operational requirements and overall emissions to the environment.

Despite the high level of well intervention work undertaken during 2021 the chemicals used were designated as either OCNS Gold (1.1%) or silver (0.2%) band or group E (98.7%).

OIL IN PRODUCED WATER

The discharge of oil is subject to control under the Oil Pollution Prevention and Control (OPPC) Regulations 2005 (as amended). After treatment, oil in produced water was discharged from 5 of our operational assets in the SNS during 2021.

Figure 10 shows that the oil discharged in 2021 has significantly decreased and is at the lowest levels since 2016. In previous years produced water has been discharged from the Galahad, Trent, Waveney, Lancelot and Kilmar installations, however Galahad is now hydrocarbon free and the remaining installations have either been shut in or produced waters went to export, reducing the overall amount of produced water generated and discharged during 2021.

The volume of produced water discharged from each asset during 2021 is presented in Figure 11 with the monthly flow-weighted average concentration of oil in produced water against the consented limit.

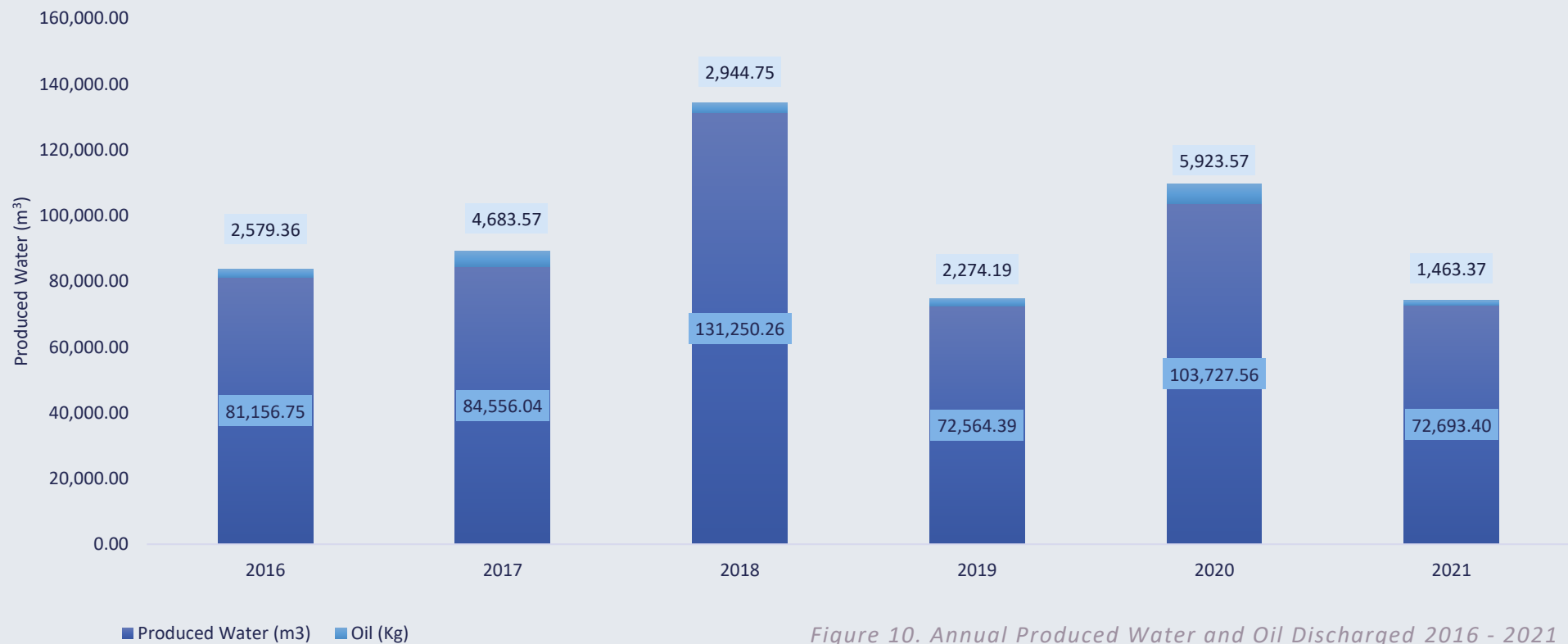
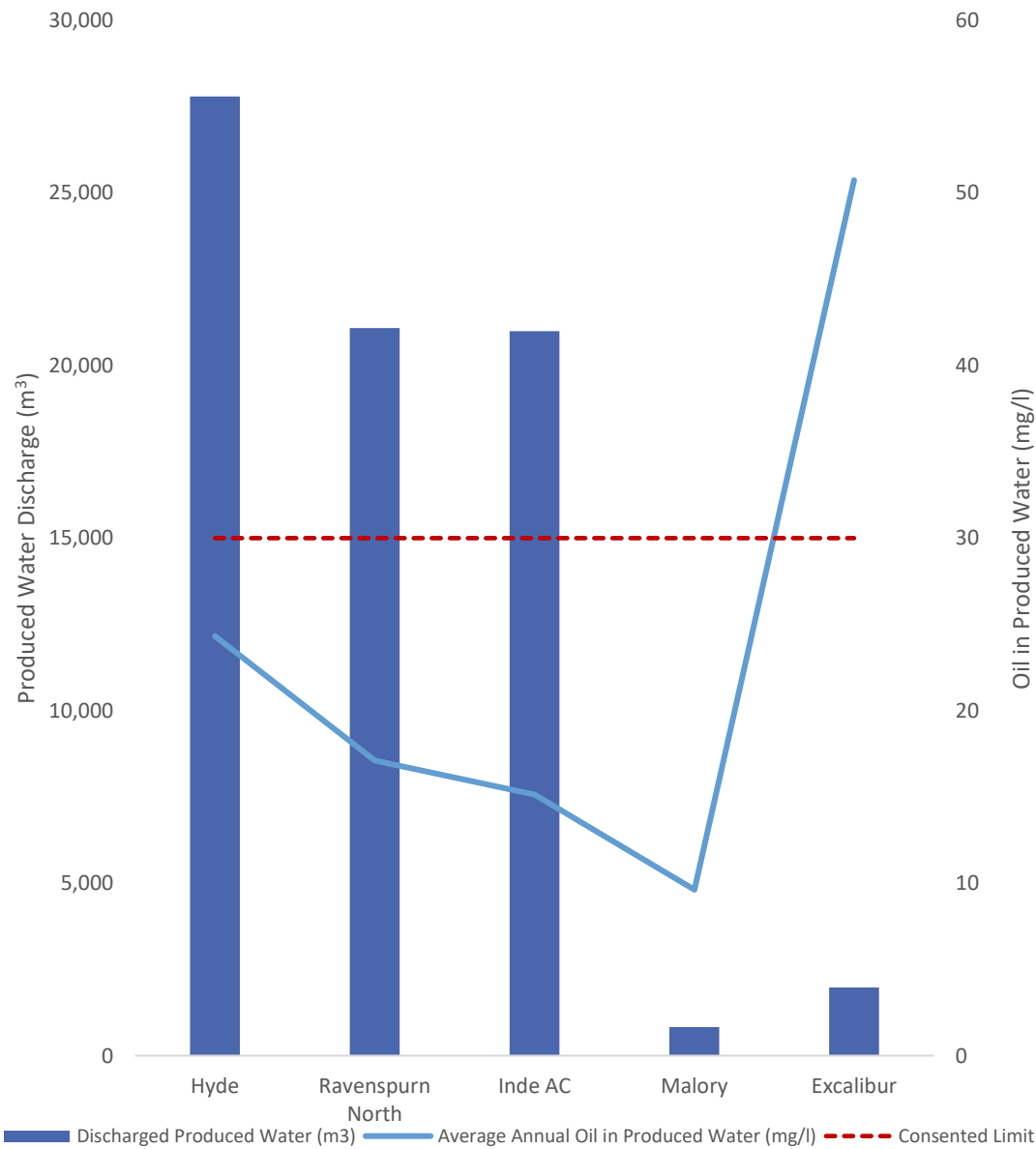


Figure 10. Annual Produced Water and Oil Discharged 2016 - 2021

Figure 11. 2021 Produced Water and Flow Weighted Oil Discharged by Asset



Ravenspurn North - Improvements

Ravenspurn North has historically discharged produced water which was far higher than the 30 mg/l permitted limit.

Following the implementation of an oil in produced water management plan, operational trials and monitoring throughout 2020 and 2021 a long-term solution was implemented and the hubs average oil in produced water reduced to 17.11 mg/l in 2021, from 67.95 mg/l in 2019.

Excalibur - Exceedances

Samples taken during an intervention visit in July 2021 returned a high oil in produced water result exceeding the 30mg/l permitted limit. Excalibur was subsequently taken offline during its annual shutdown. During this shutdown remedial works were successfully completed on the production and test separators following which all subsequent samples were below the permitted limit.

ACCIDENTAL RELEASES

As spills at sea can have consequences for the marine environment, PUK SNS works to minimise the risk whilst focusing on release prevention. Approved Oil Pollution Emergency Plans (OPEPS) are implemented across all offshore assets, alongside regular drills and training undertaken to prevent accidental releases.

The Oil Pollution Prevention and Control (OPPC) Regulations 2005 (as amended) applies to accidental hydrocarbon and chemical releases to sea, requiring PUK SNS to report all spills and conduct investigations to ascertain the cause and prevent reoccurrence.

30 spills from PUK SNS assets were reported during 2021 and have been categorised by source in Figure 12. Three (3) releases were greater than 1 tonne; two (2) of which were releases of water soluble or PLONOR chemicals. The remaining 27 releases were 0.5 tonnes or below.

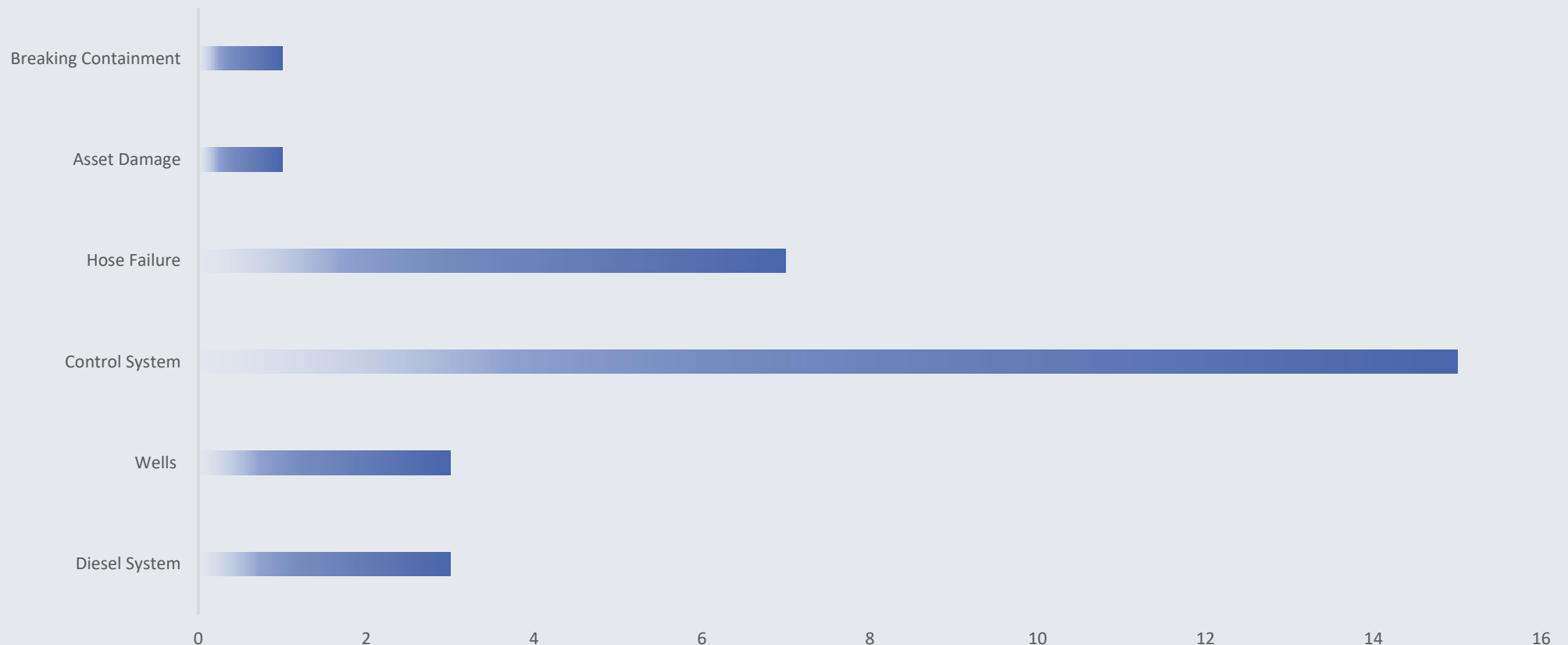


Figure 12. Accidental Releases during 2021 by Category

Accidental Release Categories

The overall ratio of hydrocarbon to chemical releases is historically low and in previously years hydrocarbon releases have accounted for less than 10% of the overall volume. As per figure 13, this has increased in 2021 due to the PL24 pipeline rupture, which led to a release of 12.19 tonnes of hydrocarbons.

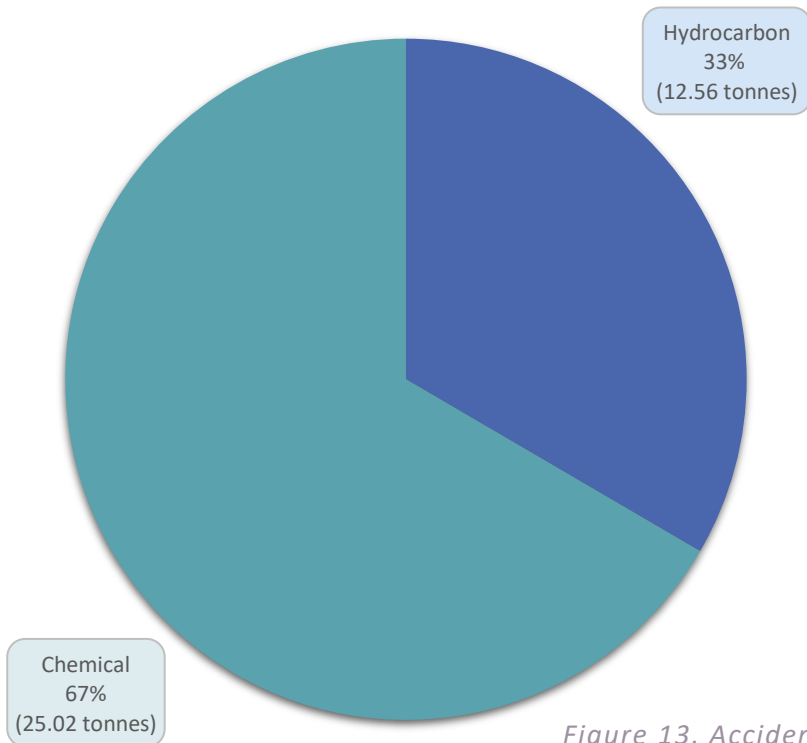


Figure 13. Accidental Releases Hydrocarbon vs Chemicals

PL24 Rupture

The PL24 pipeline is one of two gas export pipelines from the PUK SNS Leman and Inde Fields in the Southern North Sea. It was installed in 1970 and runs from the Leman 27B installation to the Bacton onshore gas terminal.

In February 2021 PL24 underwent catastrophic failure whilst being re-pressurised after a 3-month period of isolation to facilitate project activity. The pipeline bifurcated local to a field joint girth weld, releasing 12.19 tonnes of condensate and 58.7 mmscf of hydrocarbon gas.

A salvage operation was completed to recover the bifurcated sections (see below images) and remove a snagging hazard for other marine users. Following formal investigation, it was concluded that the failure was a result of a combination of factors, including extreme, accelerated seabed movement, over the preceding months and storm force weather conditions equal to 50-year significant wave height.

Although large, the quantity of condensate released would not be expected to have any significant impact on the marine environment.



PERFORMANCE AGAINST ENVIRONMENTAL OBJECTIVES

PUK SNS Senior Management annually reviews existing and agrees new environmental objectives in line with SEMS to help drive continual improvement.

2021				
Business Objective	Overall Objective	Measure	Progress	Status
Extending the field life whilst maximising economic recovery in line with the UK Net Zero Strategy	Completion of the Southern Hub Asset Rationalisation Project (SHARP).	Completion of the installation of the BC compression platform and Inde/ Leman manned hubs to NUI status.	The BC compression platform was successfully installed at Leman 27B during 2021 and Leman 27B is now a manned installation. The transition of Inde 23A and Leman 27A to NUI status has commenced and will be completed during 2022.	Ongoing
	Identification of behavioural and operational changes to drive efficiency/ limit emissions (CO ₂ e) on the Northern Hub manned platforms and terminals.	Project identification to include a hopper of potential projects; examples include Trent compressor replacement.	Emissions reduction action plans have been developed. These plans identify projects with the potential to improve efficiency and emissions.	Completed
	Establish an understanding of sources of methane emissions (both in design and fugitive) on manned platforms and terminals.	NUI fugitive emissions calculation to be re-assessed; Action plan developed for the Northern Hub Assets; SHARP project fugitive emissions included in the environmental impact reduction process.	Emissions reduction action plans have been developed.	Ongoing

2022 Objectives

Business Objective	Overall Objective	Aspect	Measure
<p>Extending the field life whilst maximising economic recovery in line with the UK Net Zero Strategy</p>	<p>Development of Perenco UK Emissions Reduction Strategy.</p>	<p>Air Emissions</p>	<p>Completion of 2022 Hub Emissions Reduction Action Plans.</p>
	<p>Delivery of commitments made in 2022 Hub Emissions Reduction Action Plan.</p>	<p>Air Emissions</p>	<p>Completion of emission reduction activities detailed in the Emissions Reduction Action Plans.</p>