Annual Environmental Statement 2024

Petrodec UK Ltd

PETRODEC

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Abbreviations

CEFAS	Centre for Environment, Fisheries & Aquaculture Scheme
CCS	Carbon Capture Storage
CHARM	Chemical Hazard Assessment & Risk Management
EMS	Environmental Management System
GHG	Greenhouse Gases
HCS	Hydrocarbon Safe
IMS	Integrated Management System
NSTA	North Sea Transition Authority
OCNS	Offshore Chemical Notification Scheme
P&A	Plug and Abandonment
PLONOR	Poses Little or No Risk
PON	Petroleum Operations Notices
QHSE	Quality, Health, Safety & Environment
ROV	Remotely Operated Vehicle
WHPS	Well head Protective Structure.

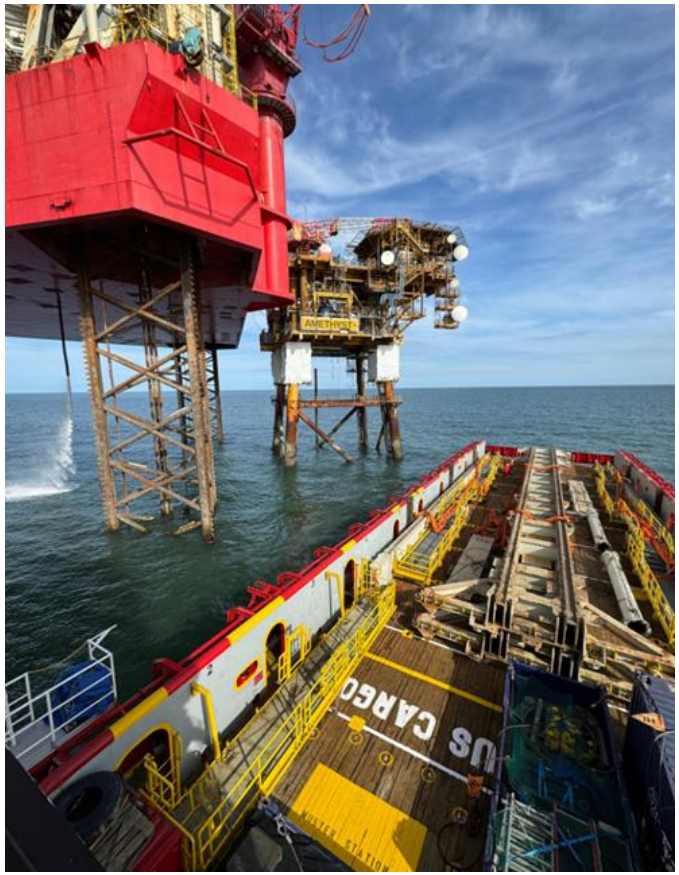


Figure 1: ERDA at Amethyst A1D to facilitate the topside removal in 2024.

Introduction

For Petrodec UK Ltd. (Petrodec), 2024 was an exciting year. The decommissioning of the Arthur field was Petrodec's second subsea wells decommissioning project (the first being Gawain in 2023). In this challenging project, we successfully plugged and abandoned the three wells and removed the wellhead and protective structures (WHPS), and a manifold with the support of the HAEVA. On Amethyst A1D and Leman 27J, the ERDA completed the topside decommissioning projects by removing both topsides and transporting the two platforms to shore for waste recovery in The Netherlands.

Additionally in 2024, Petrodec also provided support for the Perenco UK led Poseidon Carbon Capture Storage (CCS) project. This involved the injection of recovered CO_2 into depleted reservoirs in the Leman gas field and was the first injection of CO_2 in the UK under CCS. Petrodec provided logistic support for the Poseidon project and the use of the ERDA and its crew to carry out the CCS activities.

All these projects were carried out with the utmost care for the environment throughout the entire project life cycle, with the support of our Environmental Management System.

Having been founded in 2019, Petrodec was initially a decommissioning contractor before being appointed as Operator in 2022 by the North Sea Transition Authority (NSTA). 2024 was our third year as an Operator and therefore, we can provide environmental performance data for three consecutive years from 2022 to 2024, and the status of achieving our environmental objectives. This report presents the management of environmental aspects during our operations only when we were the operator. At other times, our rigs were engaged as sub-contractors in well intervention projects. These activities are not accounted for in this report.

This Annual Environmental Statement is prepared in accordance with OSPAR Recommendation 2003/5 to Promote the Use and Implementation of Environmental Management Systems (EMS).

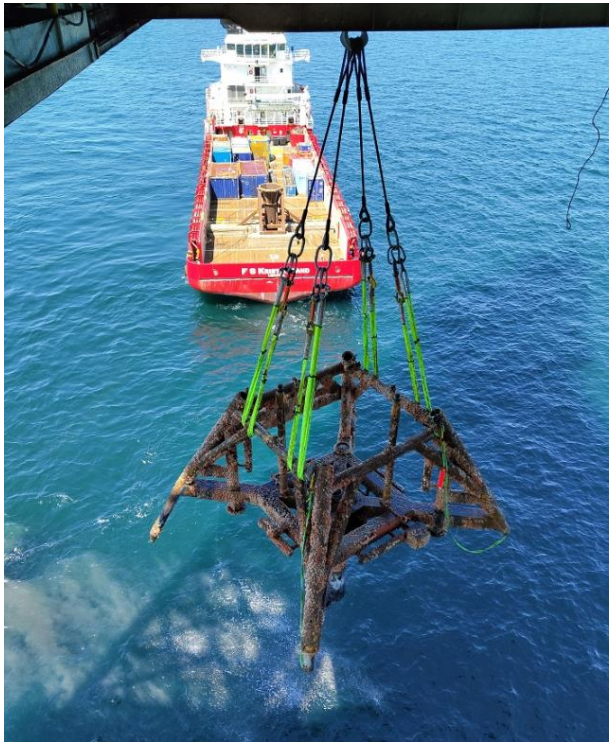


Figure 2: The decommissioned WHPS from Arthur A2. After removal from the seabed, it was loaded onto a supply vessel for transportation to a waste handing facility onshore.

About Petrodec

Petrodec began in 2019 as a Decommissioning Contractor, to provide clients with specialist services, with in-house expertise for Plug and Abandonment (P&A) of wells, making topsides Hydrocarbon Safe (HCS), and removing offshore structures, such as topsides, and their transport to onshore facilities for waste recovery.

The decommissioning services are supported by two jack-up rigs, the ERDA and HAEVA. Alongside decommissioning, the ERDA and HAEVA can be utilised to provide accommodation for and to perform well intervention projects. A third vessel, the OBANA, will officially be added to the Petrodec fleet mid-June 2025.

Since appointment as an Operator in March 2022, Petrodec offers decommissioning services with the added value of being able to take over the well and installation operatorship prior to the commencement as well as during a decommissioning project. As Operator, the company has the capacity to manage regulatory compliance of the safety cases and environmental permitting, alongside the decommissioning engineering and execution.

Petrodec is registered in London and has its operational headquarters in Hoofddorp, The Netherlands.

The start 2019

- Established as Decommissioning Contractor.
- First Jackup Barge – ERDA.
- Office opens in Hoofddorp, NL.
- First Hydrocarbon Safe (HCS) project at Pickerill A.

ERDA

Building a solid foundation 2020

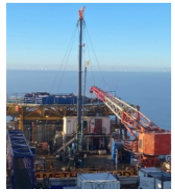
- Topside removal - Pickerill A & Pickerill B.
- HEAVA activation commences.
- Management System developed.

Pickerill A removal

Fleet expanding 2021

- HEAVA first contract – offering intervention capabilities.
- Amethyst A1D HCS.

HAEVA



A2D HCS

Operatorship 2022-2023

- Management System ISO Certification.
- Operatorship of Amethyst A2D for P&A, HCS and removal.
- First subsea wells decommissioning project (Gawain).
- Commence OBANA Heavy Lift build.

MANAGEMENT SYSTEM CERTIFICATION DNV ISO 9001 · ISO 14001 ISO 45001

Arthur manifold removal

Grow and Strengthen 24 +

- Amethyst A1D and Leman 27J topsides removal.
- Arthur WHPS and manifold removal.
- First external client
  - → Operatorship of Garrow, Kilmar and Wenlock
- Support for Poseidon CCS Project
- OBANA launch mid-2025

Figure 3: Timeline of Petrodec UK Ltd.

Jack-up Rigs

Petrodec currently has two jack-up rigs in operation – the ERDA and the HAEVA. As part of the company's philosophy of reuse, both units were standard drilling rigs that have been repurposed for decommissioning activities. Both rigs are capable of Plug and Abandonment and hydrocarbon safe operations.

On the ERDA, the drilling package and derrick has been removed, and replaced with a skidding system. The skidding system allows for a topside to be skidded onto the rig's main deck. The topside can then be transported on the rig to an onshore waste disposal site for the environmentally safe waste recovery. The HAEVA's derrick has been retained for P&A purposes.

A third rig, the OBANA, will officially become part of the Petrodec fleet mid-June 2025 and will begin its first heavy lift removal campaign in June 2025. The OBANA is comprised of two repurposed drilling rigs and a new mid-section connecting the two. It is the largest of the Petrodec owned rigs and can be used for the heavy lift of installations for removal operations, as well as conducting P&A and HCS activities.

ERDA	HAEVA	OBANA (under construction in 2024)
		
Key Capabilities ❖ Jack-up rig ❖ Well Intervention ❖ Plug and Abandonment ❖ Hydrocarbon Safe ❖ Topside Skidding ❖ CO_2 storage (for CCS)	**Key Capabilities** ❖ Jack-up rig ❖ Diving support ❖ Well Intervention ❖ Plug and Abandonment ❖ Hydrocarbon Safe	**Key Capabilities** ❖ Self elevating heavy lift jack up barge ❖ Diving support ❖ Well Intervention ❖ Plug and Abandonment ❖ Hydrocarbon Safe ❖ Heavy Lifting

Decommissioning Projects & Operatorships

The approach Petrodec often applies to decommissioning is to take over the installation and / or wells operatorship for the duration of the decommissioning project and then hands this back to the field owner when completed.

Since becoming operator in 2022, Petrodec has taken over the Operatorship at five sites from Perenco UK Ltd. - the Leman 27J, Amethyst A1D and Amethyst A2D installations, and the Gawain and Arthur subsea installations. Furthermore, in late 2024, Petrodec acquired the operatorship of Energean UK Ltd.'s Wenlock, Garrow and Kilmar installations, in advance of their planned decommissioning in 2025. All sites are located in the UK Southern North Sea.

The decommissioning of the Amethyst A1D and Leman 27J topsides was performed using the ERDA, and the Arthur subsea wells in 2024 was decommissioned by utilising the HAEVA.

At Amethyst A1D, the topside was removed, having been made hydrocarbon safe by Petrodec in 2021. For Leman 27J, Petrodec conducted Plug and Abandonment works and made the topsides hydrocarbon safe and then removed and transported the topside for waste disposal onshore.

In both cases, the topside was cut from the jacket and skidded on to the ERDA's main deck. It was then transported, under an International Waste Shipment (IWS) consent, to the licensed waste handling and dismantlement company in the Netherlands. There it was dismantled, and the waste material was recovered.

Petrodec remains the operator for the two jackets, which are now in Jacket Dismantlement Interval status and will be removed within 5 years of the topside removal.

The decommissioning of the Arthur field was Petrodec's second subsea wells decommissioning project to design and execute (the first being Gawain in 2023). The project, utilising the HAEVA, consisted of the P&A of three wells and the removal of the Well Head Protective Structure (WHPS) and manifold. The recovered materials from the Arthur subsea well were dismantled and recovered at waste management facilities in the United Kingdom.

The Garrow, Kilmar, and Wenlock installations came into Petrodec's Operatorship in December 2024, and decommissioning activities at the three installations will commence mid- 2025.

Refer to Figure 4 for a map of the locations of the installations under operatorship by Petrodec from 2021 to 2024.

Table 1: Decommissioning projects and operatorship status up to the end of 2024.

Decommissioning Project	Operatorship Status	Activities Conducted
Amethyst A2D	Wells & Installation Operator	P&A and HCS – 2022 Topside removed - 2023
Gawain	Wells Operator	Subsea P&A and WHPS removal - 2023
Amethyst A1D	Wells & Installation Operator	Topside removed - 2024
Leman 27J	Wells & Installation Operator	Topside removed - 2024
Arthur	Wells Operator	Subsea P&A and WHPS & manifold removal – 2024
Garrow	Wells & Installation Operator	Operatorship only – 2024
Kilmar	Wells & Installation Operator	Operatorship only – 2024
Wenlock	Wells & Installation Operator	Operatorship only – 2024

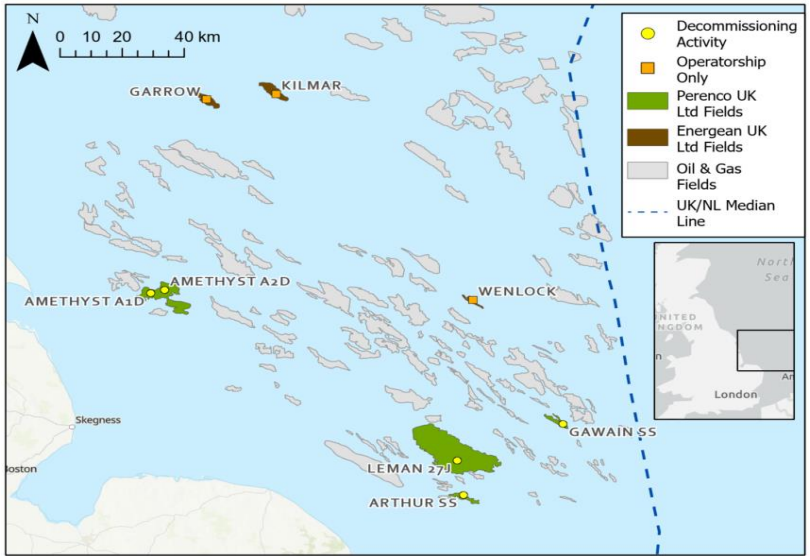


Figure 4: Map of Petrodec decommissioning projects and operatorships from 2021 to 2024.

Environmental Management System

Petrodec has an Integrated Management System (IMS), that incorporates Quality, Health, Safety and Environmental (QHSE) elements along with core business functions such as Operations, Engineering, Supply Chain and Human Resources.

The IMS framework comprises of ten key elements which together provide a roadmap to safe, environmentally conscious and reliable operations. Refer to Figure 5.

Environmental Policy

The Petrodec Environmental Policy sets the foundation of the environmental stewardship philosophy within the business. It demonstrates the commitment from senior management for environmental protective thinking within project planning and execution.

Certification

Petrodec's IMS was first certified compliant to the ISO9001, ISO14001 and ISO45001 standards in 2022, became the first offshore decommissioning company with ISO certification.

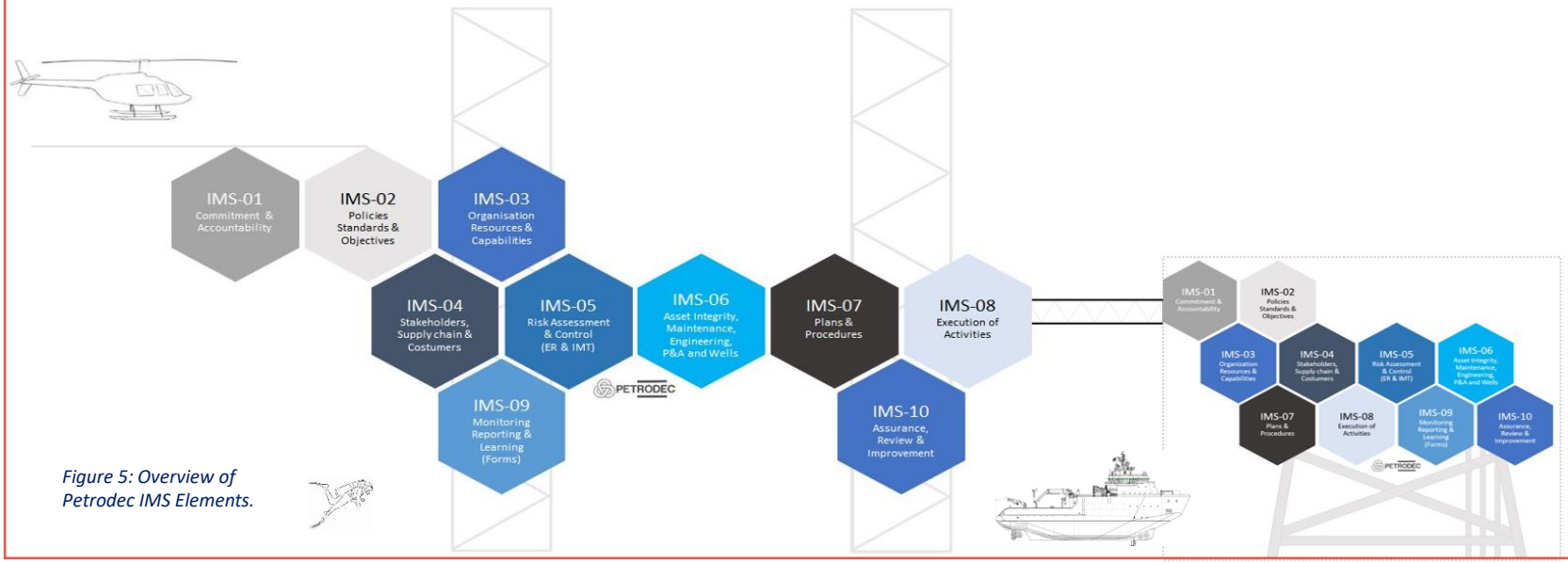


Figure 5: Overview of Petrodec IMS Elements.

Introduction

Both the ERDA and HAEVA work throughout the year, but they are only engaged on work as an 'Operator' for specific time periods. At other times they are sub-contractors on well intervention projects.

In 2022, the ERDA was worked as an 'Operator' for 112 days (approx. 15% of the total combined days (i.e., 730 days) worked for both rigs that year). In 2023, operatorship days rose to 189 days with both the ERDA and HAEVA being utilised (approx. 25% of the days in 2023). In 2024, both rigs worked a total of 290 days as operator, the highest to date , at approx. 40 % of the days. (There is a maximum of 726 days in 2024 between the two rigs).

This report provides a summary of the environmental performance of Petrodec while it is an 'Operator' only. This is in line with the principle of Scope 1 emissions and helps to ensure that there is no 'double counting' of emissions or discharges. Petrodec's annual environmental performances for all activities, as operator and during non-operator projects, are presented elsewhere.

2024 was the third year that Petrodec acted as operator for their decommissioning projects. It is therefore possible to present data from 2022 to 2024 to allow for comparisons.

However, it is important not to draw too strong an inference of performance change between the three years. The operations each year varied in quantity, duration, and activity type, and these variations in circumstances can influence the level of emissions or discharges. In the coming years, as further data is gathered, it may be practical to normalise the data and generate more meaningful comparisons.

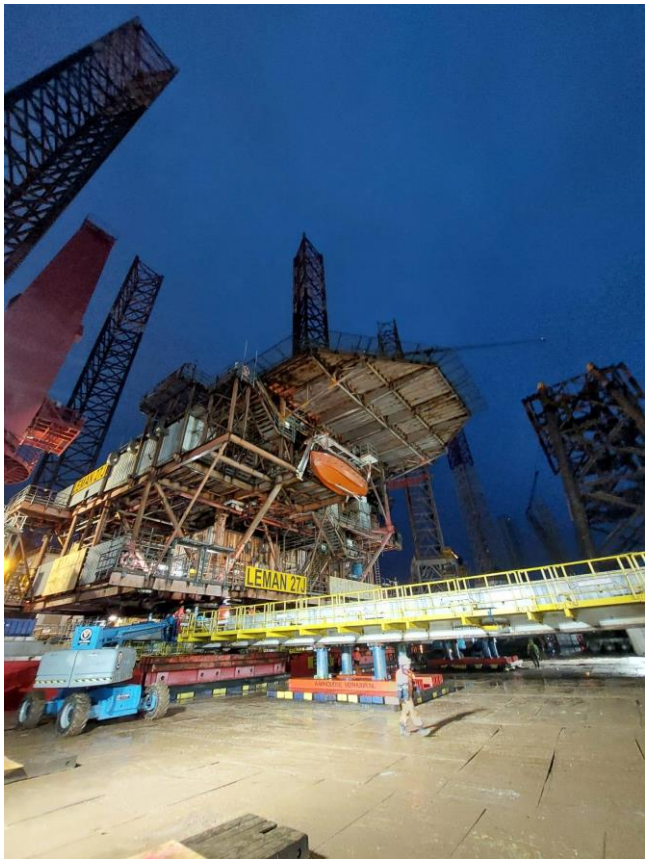


Figure 6: Leman 27J topside being loaded onto the waste disposal yard for dismantlement and waste recovery.

Environmental Performance

Atmospheric Emissions

Atmospheric emissions presented are for Scope 1 Greenhouse Gas (GHG) emissions from the rig's engines and venting of wells and topsides during decommissioning projects.

In 2024, a total of 3,314 $MTCO_2eq$ was emitted during decommissioning operations. This was dominated by engine emissions, of 3,190 MT CO_2eq, while there was 124 MT CO_2eq from venting, as presented in Figure 7.

In terms of emissions from fuel usage, there has been an annual increase since 2022, with 1,179 $MTCO_2eq$ in 2022 to 3,190 $MTCO_2eq$ in 2024.

This rise is attributed to the increase in the number of days the ERDA and HAEVA have worked as Operator, which went from 112 days in 2022 to 290 days in 2024. By normalising the emissions, it is further demonstrated that the rise correlates with increased operator activity. The emissions per 1,000 manhours was calculated for each year, as presented in Figure 8. This shows a relative consistency in the emissions, with an actual increase in efficiency in 2024, at 13.48 MT CO_2eq per 1,000 hours, compared to 14,49 MT CO_2eq per 1000 hours in 2022.

The volume of venting emissions is dependent on the configuration of the wells and topsides being decommissioned. It has varied each year, from a high of 199 MT CO_2eq in 2022 to 66 MT CO_2eq in 2023. In 2024 124 MT CO_2eq of venting gases were emitted. Refer to Figure 7.

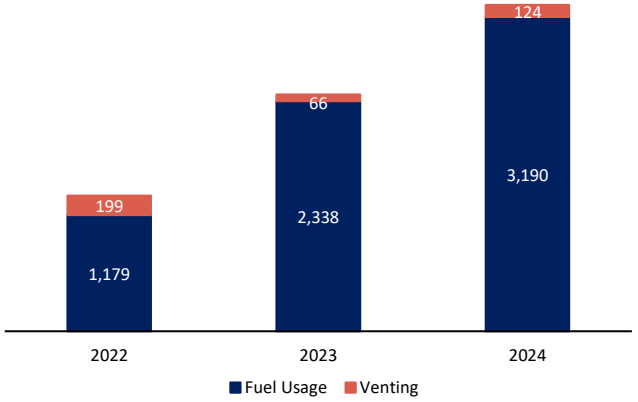


Figure 7: GHG Emissions per source (MT CO_2eq).

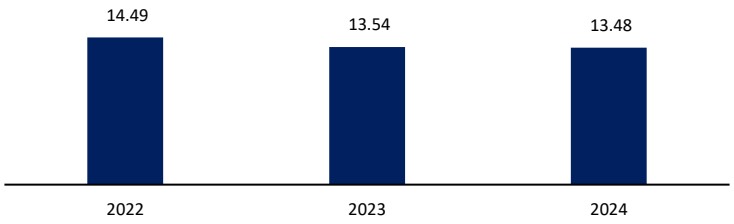


Figure 8: Normalised GHG emissions (MT CO2eq) per 1,000 man-hours (engine emissions only).

Waste Management

Operational Waste

The waste generated from operating the rigs is considered operational waste and recorded separately from the disposal of the offshore structures.

Operational waste from 2024 weighed a total of 406.8 MT, consisting of 133.2 MT of Group 1 Special Waste, 273.7 MT of Group 2 General Waste and 0.01 MT of Group 3 Other Waste. The largest waste source was scrap metal (219.9 MT and part of the Group II – General Waste) which was recycled. Refer to Figure 9.

There was an overall increase in operational waste in 2024 when compared to 2022 (122 MT) and 2023 (155 MT). The increase in 2024 is due to the increase in the number of operating days of the rigs from 15% of the total combined days worked for both rigs in 2022 to 40% in 2024.

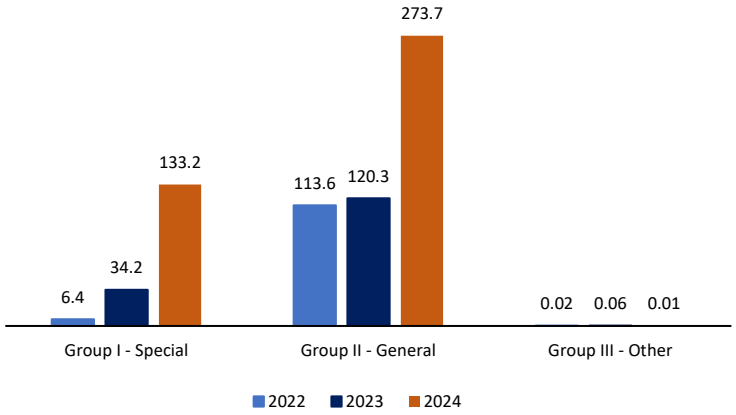


Figure 9: Operational Waste by Group (MT).

Decommissioned Offshore Structure Waste

The Amethyst A1D and Leman 27J topside and the Arthur WHPS and manifold were transported to shore for waste recovery. The A1D and Leman 27J were brought to Vlissingen in the Netherlands, and the Arthur WHPS and manifold to Middlesbrough in England.

Steel is the main component of these structures and is recyclable. In these three cases, approximately 97.6% of waste material was recycled. Refer to Table 2 and Figure 10.

Table 2: Waste categorisation of decommissioned offshore structures 2024 (MT).

Topside	Reuse	Recycling	Waste to Energy	Incinerate	Landfill
Amethyst A1D	0	809	27	0	1.4
Arthur *	0	324	0	0	0.6
Leman 27J	0	898	20	0	1.5
Total	**0**	**2031**	**47**	**0**	**3.5**

** Estimated weight. Final waste recovery report not available at time of writing of report.*

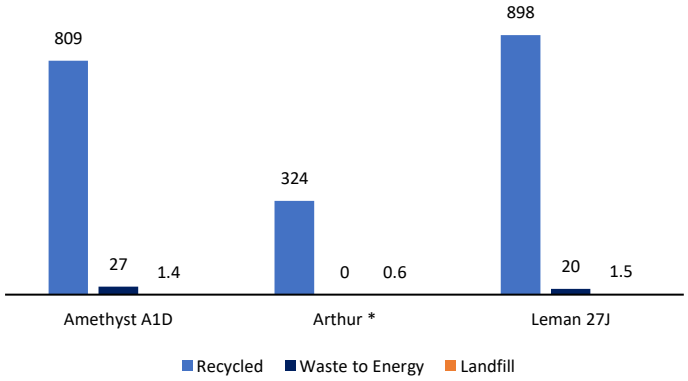


Figure 10: Topside waste disposal in 2024 by method (MT).

Discharges

Deck Water Discharge to Sea

The discharge of deck water from the ERDA and HAVEA is permitted for each project with a maximum oil content discharge of 30 ppm. On both rigs, deck water is passed through an oily water separator that removes residual oils from the water prior to discharge. In 2024, the total deck water discharged was 396 m³ during the Amethyst A1D, Leman 27J and Arthur projects. This represents a decrease in the total volume from 2023 (510 m³) and 2022 (413 m³), despite increased operating days in 2024. This can be attributed to less rainfall during operating days in 2024 as most of the operations took place during the summer months.

Flush Waters & Produced Water

P&A works require the flushing of wells, and to make a topside hydrocarbon safe, the various systems and pipes are flushed with seawater and the flush water is typically discharged to a donor well.

During the operations in 2024, all flush water was either discharged to a donor well or backloaded to the shore for treatment. The exception to this was Leman 27J, where 50 m³ of flush water was discharged to the sea due to blocked wells. In 2022 and 2023, no flush waters were discharged to the sea.

When the operatorship of the installations and wells is transferred to Petrodec, the wells have already ceased production and therefore, no produced water is generated. Consequently, no produced water was discharged during Petrodec operations from 2022 to 2024.

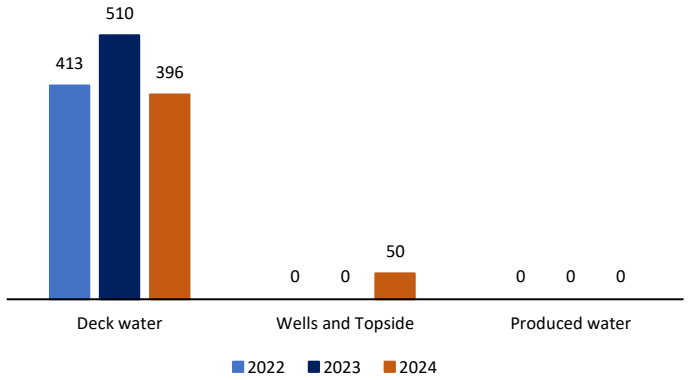


Figure 11: Discharges to sea (m³) by source from 2022 – 2024.

Releases to Sea

PON1

In 2024, there was one Petroleum Operations Notices No 1 (PON1) of Releases of Chemicals or Oils to Sea. This was for a very small (50 ml) oil leak from the Remotely Operated Vehicle (ROV) during the P&A works at the Arthur subsea well.

There were no PON1 notifications for Petrodec decommissioning operations during 2022 and 2023.

Operational Chemical Usage

All operational chemicals used during the decommissioning project require a chemical permit and must be approved by Centre for Environment, Fisheries and Aquaculture Science (CEFAS). The Offshore Chemical Notification Scheme (OCNS) provides chemical categories and ranking to indicate which chemicals are more or less hazardous to the environment.

A total of 244,300 kg of chemicals were used in Petrodec in 2024. Of this, 38,180 kg were discharged to sea, which is approximately 16% of the total used. 96% of the chemicals used in 2024 were ranked as Gold/E rated. Refer to Figure 12.

There was an increase in chemical usage and discharge in 2024 in comparison with 2023. In 2023, 78,483 kg of chemicals were used, and 13,805 kg discharged. The main reason for the increase in chemical usage and discharge is due to the increase in operational days for 2024.

It is Petrodec's policy to use environmentally friendly chemicals when available. During 2024, the majority of chemicals used (>96%) were considered environmentally friendly, either classified as Gold (Low risk) or Posing Little Or No Risk (PLONOR) / 'E' rated.

There was one chemical classified as 'Silver'. This chemical was used in the P&A works at Leman 27J to stabilize the returned OBM prior to backload. It was not discharged to sea.

One chemical, a subsea hydraulic fluid, was classified as 'D'. This was a legacy chemical at Arthur that was discharged during actuation of the subsea systems.

Table 3: Chemical Use and Discharge Quantities by OCNS in 2024.

Category	Ranking	Hazard/Risk	Used (Kg)	Discharged (Kg)
CHARM Model Chemical Categorisation	Purple	High Risk	0	0
	Orange		0	0
	Blue		0	0
	White		0	0
	Silver		1,638	0
	Gold	Low Risk	9,716	8,252
Non-CHARM Model Chemical Categorisation	A	High Hazard	0	0
	B		0	0
	C		0	0
	D		8025	802.5
	E	PLONOR	224,921	29,125
Totals			244,300	38,180

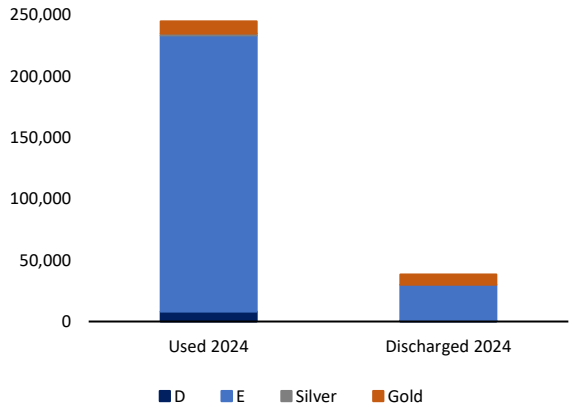


Figure 12: Chemical Usage by OCNS Ranking in 2024 (kg).

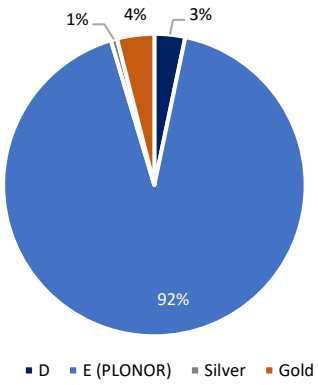


Figure 13: Chemical Usage (%) by OCNS Ranking in 2024.

Environmental Objectives

Petrodec has set three Environmental Objectives and four Environmental Targets for 2025, which have been incorporated into the business operations. These are the same as were in place during 2024.

Our first environmental objective relates to maximizing the recycling of decommissioned assets. Petrodec is in the position to choose the waste disposal company, which supports the objective of 99% waste recover of decommissioned assets. In 2024, a rate of 97.6% recycled was achieved. This objective will continue to be applied for future decommissioning projects, as we aim to increase the recycle rate to meet the > 99% target.

Contributing to the NSTA's Net Zero Stewardship Expectation 11 is an important objective of Petrodec. In 2024, we continued to monitor our emission. There will be a renewed focus on this objective in 2025 and 2026.

A zero releases to sea had been achieved every year up until 2024. Unfortunately, there was a minor release during the Arthur subsea decommissioning project, when a ROV had a small leak (50ml). This was reported to OPRED as a PON1. The zero-release objective remain applicable for 2025.

Table 4: Petrodec Environmental Objectives 2025.

Objectives	Targets	Status
Objective 1: Maximise the recycle and recovery of materials from decommissioned assets.	**Target 1:** >99% recycling and recovery of decommissioned assets (i.e. <1% to landfilled).	97.6% of the waste from the decommissioning works is recycled and in total, less than 0.02% is sent to landfill. Target continues for future decommissioning projects
Objective 2: Create a Net Zero Policy to support the NSTA Net Zero Stewardship Expectation 11.	**Target 2:** Develop a Petrodec Net Zero Policy in 2024.	Not achieved in 2024. Applicable for 2025.
	Target 3: Establish an implementation plan for Net Zero Policy.	This has been moved to 2026.
Objective 3: Zero releases to sea.	**Target 4:** No PON1 notifications as Operator or from JUBs.	A 50ml release from an ROV was reported as a PON1 in 2024.

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