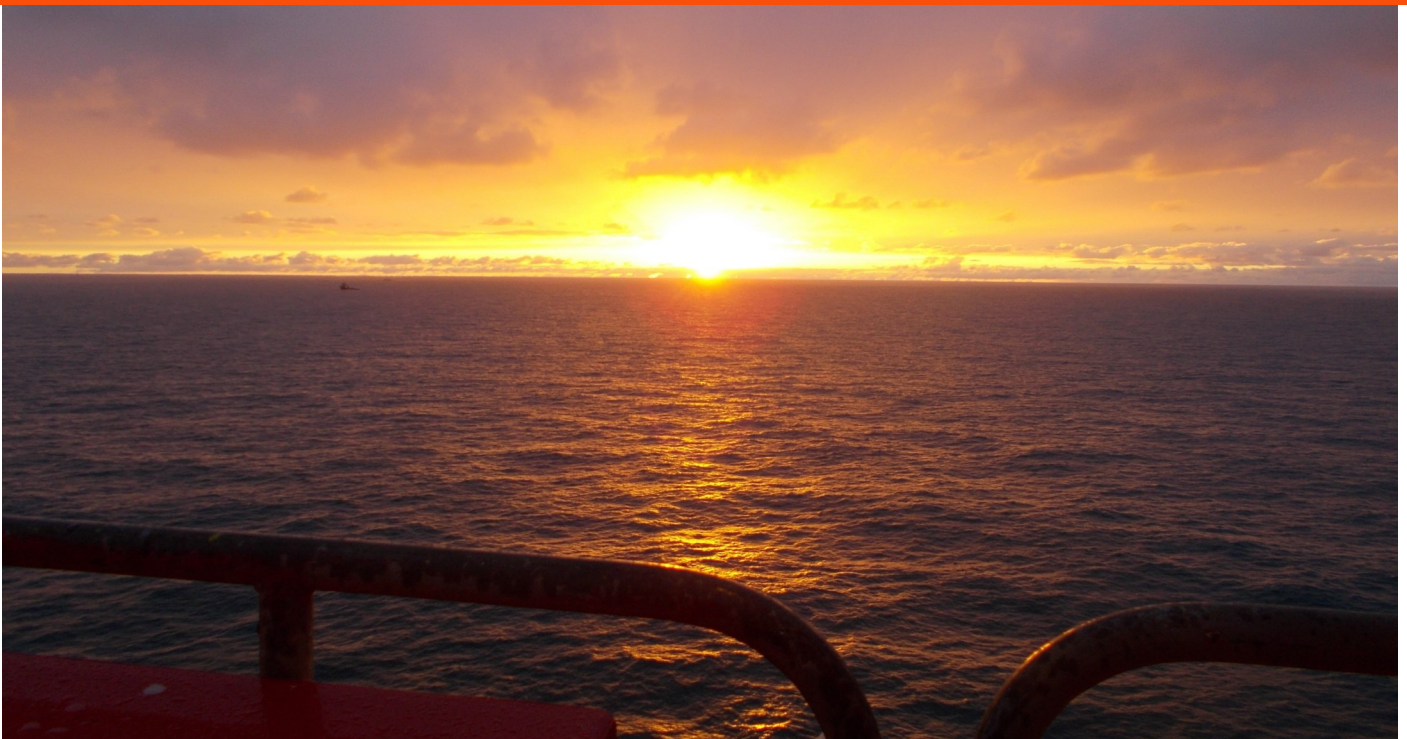


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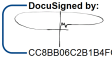
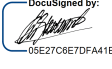
2021

## Annual Environmental Report





# Document Control

Signed	Date	Signed	Date	Signed	Date	Signed	Date
	18/05/2022		31-05-2022		31-05-2022		31-05-2022
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## 1 Welcome from the COO

**2021 saw a more than ten-fold increase in gas prices during the year, allowing ONE-Dyas to extend the planned production lifetime of the Sean field and other ONE-Dyas assets. But it also opens new opportunities for exploration, and ultimately contributes to the security of energy supply during the energy transition. As part of the energy transition ONE-Dyas has focused on our Environmental and Social Governance (ESG) and commenced our ESG integration project.**

At the start of the year the North Sea Transition Deal was set out by the UK government. This plan describes how UK's offshore oil and gas sector will work with the government to meet stretching greenhouse gas emissions reduction targets. It recognises that we have a critical role in maintaining the UK's energy security. Domestic gas was approximately 46 percent of the UK's supply of gas in 2019 and the Climate Change Committee forecasts our continued need for fossil fuels for years to come.

This was highlighted to licence holders through the Oil and Gas Authority (OGA) strategy which, alongside ensuring economic recovery from the UK's hydrocarbon resources, includes a requirement reducing greenhouse gas emissions from sources such as venting.

During the year there has been an increasing focus on measuring and reporting GHG emissions, with the move to UK Emissions Trading Scheme, and the changes to the way cold venting is regulated. The processes that ONE-Dyas were already implementing were extended this year with the addition of Power BI reporting to enable daily tracking of emissions.

After a number of stakeholder consultations the latest revision of the Sean Decommissioning Plan (DP) was issued and advertised for consultation. In line with Net Zero planning the Comparative Assessment (CA) option selected for the Sean pipeline to Bacton allows for its potential re-use if selected, for future projects such as Carbon Capture and Storage.

In the summer the annual ISO14001 Environmental Management System certification was expanded this year to also cover the ISO45001 Occupational Health and Safety Standard. After an extended audit by DNV at onshore and offshore locations we were certified without any Non-conformance issues being identified.

The ONE-Dyas Assessment and Verification Strategy was launched towards the end of 2021 which sets out the requirements and recommendations for the assessment and verification of Operators /Technician's working on our Upstream assets. The In house OPCOM programme aligns with OPITO and will assure the competence of operators. This includes the relevant Environmental legislation, monitoring and reporting requirements, which have been incorporated into the assessments.

In this year's report we have added a summary of highlights from our Environmental, Social and Governance (ESG) project with the aim of encouraging and promoting best practice within the company.



**Peter Nieuwenhuijze**

**Chief Operating Officer -  
ONE-Dyas BV**

*Peter Nieuwenhuijze*



## 2 Introduction and Scope

This annual statement is issued in line with the objectives of OSPAR Recommendation 2003/5 to Promote the Use and Implementation of Environmental Management Systems by the Offshore Industry, as implemented by the UK Department of Business, Energy and Industrial Strategy (BEIS). In accordance with BEIS guidance on Environmental Management Systems (EMS), operators on the UK continental shelf (UKCS) must maintain a certified EMS, including the requirement to produce an annual public statement covering all offshore operations undertaken in the previous calendar year.

This report provides:

- A description of the UK assets and activities
- An overview of ONE-Dyas Environmental Management
- An overview of the main 2021 activities included in the report
- Details on the key environmental aspects
- A summary of the 2021 performance in relation to legislative requirements and environmental objectives and targets

ONE-Dyas has operated and non-operated assets in the UK, Dutch, Danish and Norwegian sectors in the North Sea and also in Gabon. In the UK it has non-operated shares in Buzzard and Gead assets (with Nexen) and Cladhan (with Taqa) and also the Breagh (with INEOS).

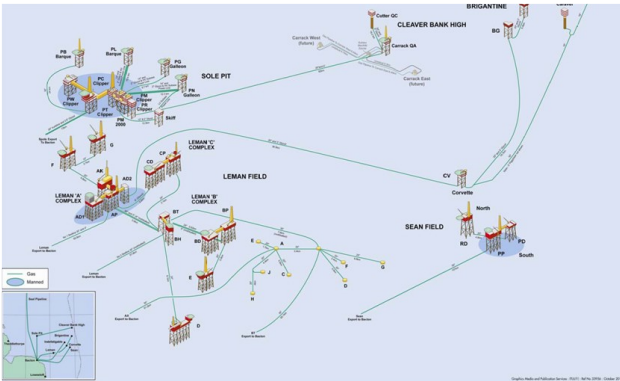


Figure 1:  
Location of Sean Assets

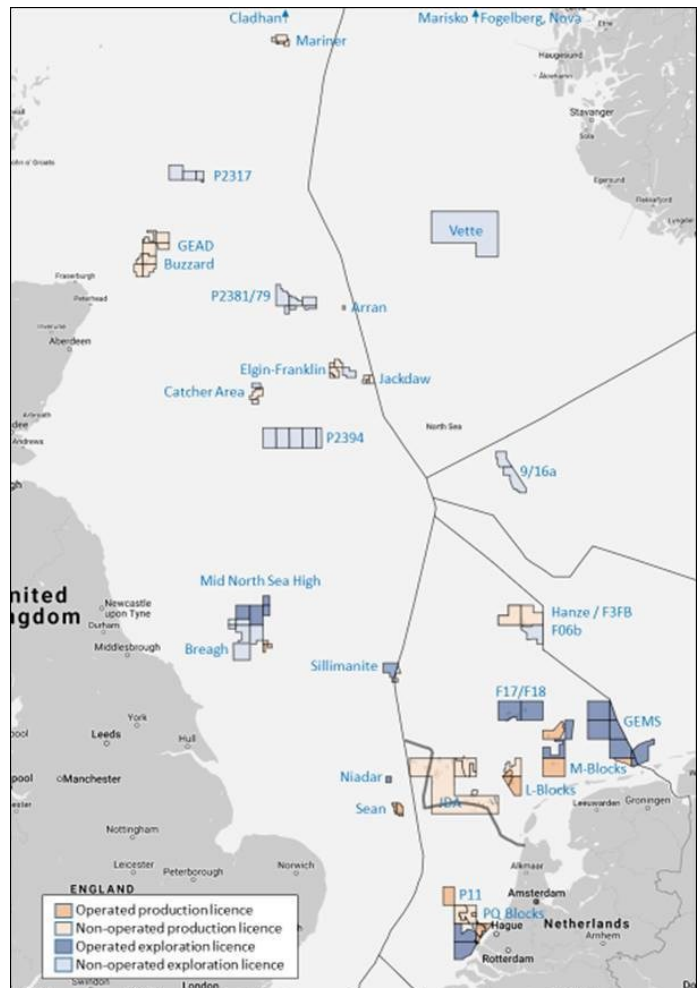


Figure 2:  
Overview of ONE-Dyas  
assets in the Dutch and  
UK North Sea

### 3 ONE-Dyas UK 2021 Production

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 94 km from the nearest point on the Norfolk coast. It is a Normally Manned Installation (NMI) comprising two fixed bridge linked platforms; a wellhead platform (PD) and a production and accommodation platform (PP). Gas from Sean Papa is exported to the Bacton terminal in Norfolk via a dedicated 30" pipeline.



Figure 3:  
Sean Papa (PP & PD)

The **Sean Romeo (RD)** is approximately located at 4.5 km of 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 30 metres of water and is situated 94 km from the Norfolk coast. The Sean Romeo has been converted to a Not Normally Manned installation (NNMI). The gas from Sean East wells was transported to Sean Papa for processing before export to Bacton.



Figure 4:  
Sean Romeo (RD)

There were no drilling activities for ONE-Dyas in the UK continental Shelf during 2021.







## 5 ONE-Dyas Environmental Management

The ONE-Dyas Environmental Management System (EMS) comprises of strategic corporate documents cascading down to UK and Sean specific documents and procedures. The UK management system was successfully certified to the ISO14001:2015 standard in December 2017. Despite the restrictions, surveillance audits have been completed annually with the last one in June 2021.

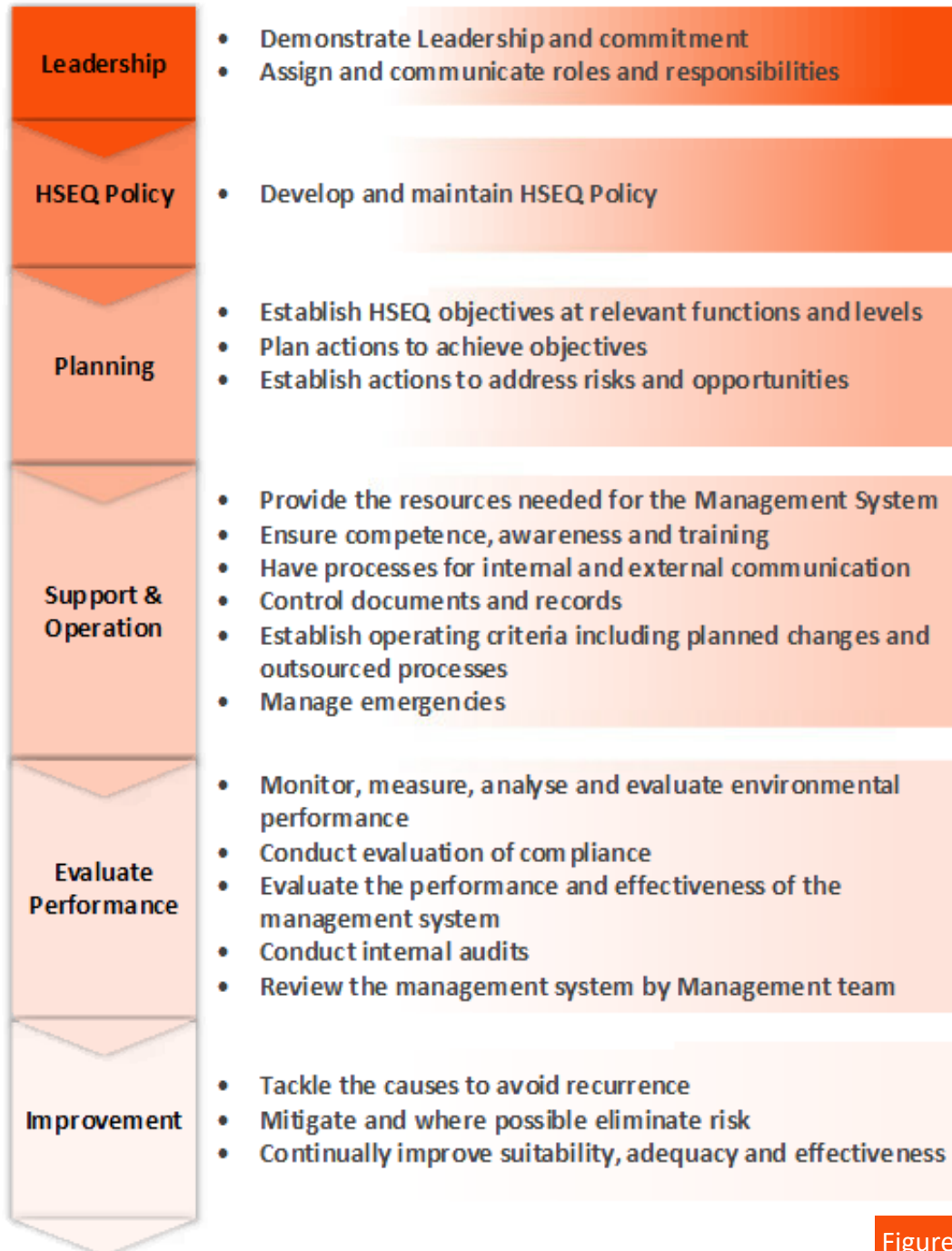


Figure 6:

### Structure of ONE-Dyas Environmental Management System

The ONE-Dyas EMS provides 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, explore and develop oil and gas production assets in compliance with all relevant legal and stakeholder requirements.

## 6 Health, Safety, Environmental and Quality Policy

The Corporate ONE-Dyas HSEQ policy covers all ONE-Dyas activities in the UK, the Netherlands and in Norway and reflects the commitment of the owners and the management team to develop and operate oil and gas production in a sustainable way. To protect the health and safety of all persons involved and to prevent pollution and to minimise impact on the environment. ONE-Dyas believe that a responsible and pro-active management is a key factor in ensuring business success.



### Commitment

ONE-Dyas B.V. and its subsidiaries are committed to conduct operations in a safe and sustainable way, to minimise the impact on the environment and to protect the health, safety and wellbeing of employees, contractors and the public.

All employees, consultants and/or contractors working for ONE-Dyas are responsible for achieving our HSEQ goals, through compliance with our HSEQ standards, requirements and ambitions.

Personnel is authorised and expected to take action and stop unsafe work and to report incidents, near-misses and sub-standard conditions.

Pro-active HSEQ and risk management is an integrated part of all our activities and is considered a key factor in our licence to operate.

### Implementation

To implement our commitments we will:

- Maintain a systematic HSEQ Management System, developed to ensure compliance with applicable laws and regulations;
- Develop an annual HSEQ program, with tangible goals and measurable targets, to assure continuous improvement of our HSEQ performance;
- Conduct twice a year a compliance and effectiveness review of our HSEQ Management System;
- Perform risk assessments for all operated and non-operated assets and ensure effective controls and mitigations are in place, to minimise the risk of harming people, the environment, our assets and company reputation;
- Perform internal and external risk-based audit and verification activities;
- Investigate incidents in order to identify direct and indirect causes. Results of investigations will be shared openly;
- Actively co-operate with the industry and authorities, to further enhance HSEQ standards and performance.

Chris de Ruyter van Steveninck  
CEO

Figure 7:

ONE Dyas Health, Safety, Environmental and Quality Policy

## 7 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. Legislation for 2021 has been revised to account for the UK exit from the European Union.

### 7.1 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 Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) on the IRS electronic Portal. This notice provides details of the spill and actions taken to prevent a reoccurrence. ONE-Dyas reports and investigates all spills to sea and tracks and manages the actions on the Synergi system.

### 7.2 Oil in Water

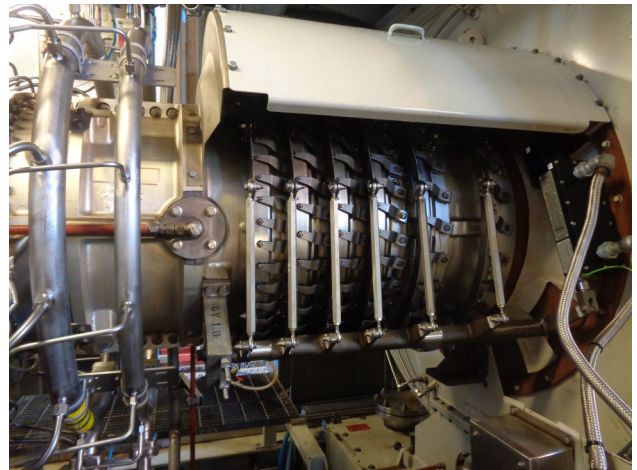
Produced water from wells associated with gas production is regulated by OPRED. ONE-Dyas has a permit to re-inject produced water to the A-2002 well on the Sean PD installation. Volumes of water and concentrations of oil are monitored and reported on the Environmental and Emissions Monitoring System (EEMS) system. Drainage water discharged from the skimmer tank is also tested for oil content and reported.

### 7.3 Offshore Chemicals

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 OPRED via EEMS.

### 7.4 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.



### 7.5 Atmospheric Emissions

Sean Papa atmospheric emissions are highly regulated and reported under several pieces of associated legislation. This includes venting, Carbon Dioxide (under United Kingdom 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.



## 8 Environmental Objectives and Targets

A description of the extent to which the environmental objectives and targets of ONE-Dyas 2021 have been achieved

2021 Environmental Objective	Achievement
Further reduce chemical use and loss for the Sean SSIV use.	✓ 55% reduction from 675 kg in 2020 to 299 kg in 2021.
Incorporate environmental training into UK off-shore personnel competency assurance system.	✓ Training has been incorporated and 90% delivered
Incorporate monitoring of nesting birds into maintenance management system.	✓ Work orders for implementation of a seabird management system
Evaluate the feasibility of reducing the dispersed oil in water content for discharge to sea	- Discharge to sea is not required at this point.
Continue to improve accuracy of monitoring of methane emissions from ONE-Dyas installations	✓ A detailed investigation of process flows has been initiated
Identify and Implement feasible energy savings opportunities	✓ Identified opportunities are being assessed.
Develop monitoring for freshwater	- More investigation needed to improve accuracy



## 9 Spills to Sea

Three new spills to sea occurred during 2021 from the Sean Papa platform for which a PON 1 was issued to OPRED. The 2017 incident is ongoing and the quantity of fluid lost is updated to the regulator on a monthly basis and the quantity lost was reduced by 55% from 2020. Actions for the incidents have been instigated and tracked on the Synergi system.

Date	Type	Quantity	Description
16/11/2021	mixture of salt / brine and additives	Aquifer fluid 14,686 kg Grotan Ox 21 kg KCl salt 20,900 kg	From the Sean Papa. Loss of annulus brine from well 2006. The discharge was CHARM modelled and detectable effects on the marine environment are not expected. Recent discharge is water from aquifer layer. Annuli pressures are being monitored and a collar to collect the liquid
25/06/2021	Omala 220 hydraulic fluid	4 kg	From the Sean Papa. Loss of Hydraulic fluid during a pump oil change during maintenance.
03/08/2021	Tellus S2V15 Hydraulic Fluid	42 kg	From the Sean Papa. Small bore tubing coupling on control line from wellhead control panel to well A2007 was found to be weeping hydraulic oil.
Ongoing from 17/02/2017	Oceanic subsea hydraulic fluid	229kg during 2021	This minor leak originates from a Sean Papa subsea hydraulic connection on the Bacton export pipeline SSIV. This has been monitored and the PON1 updated on a monthly basis. Lowering the pressure has reduced the leaked chemicals by 55% from 675 kg in 2020 to 299 kg in 2021.

## 10 Oil in Water

All produced water originating from the Sean Papa and Romeo wells is physically treated and re-injected. There are no re-injection limits applied to the oil in water content. No produced water was discharged during 2021, volumes of water and oil re-injected during 2021 (as reported monthly on EEMS) are shown in Figure 8. Produced water volumes increased in December due to production from well 2010 which is a high water producer

The skimmer installed to replace the lost caisson from the PD platform, has the facility to sample the drainage water discharged. These results as reported in Figure 9 are all below the 40 mg/L discharge limit, some missing samples were the result of little or no flow.

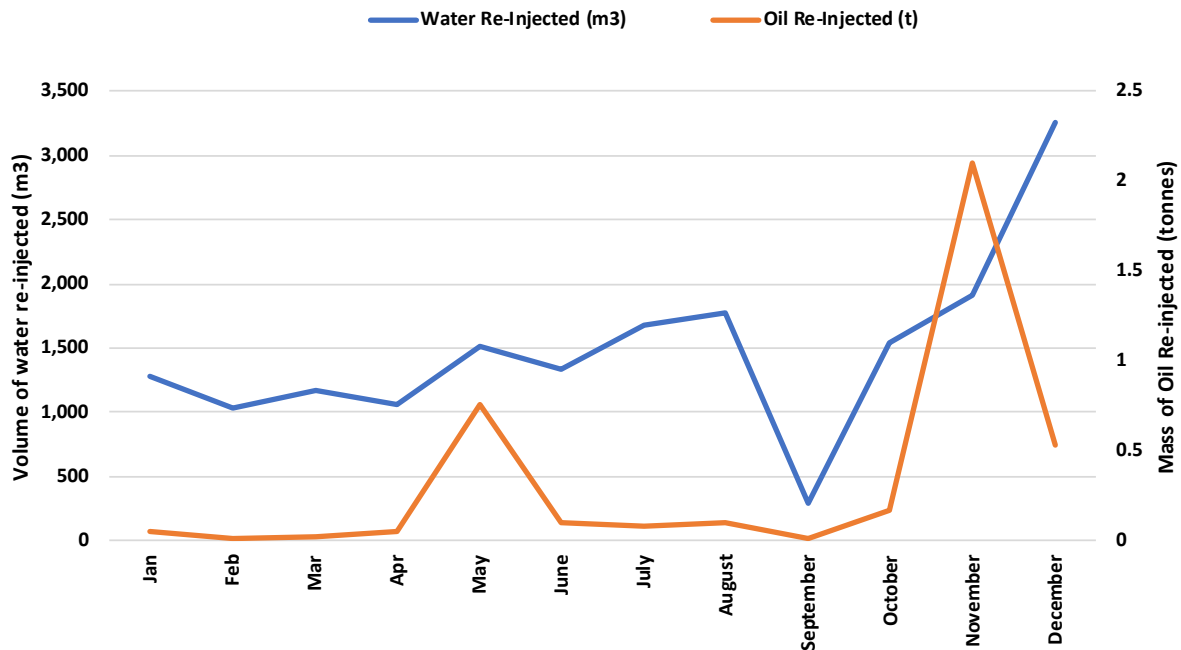


Figure 8:

Volume of produced water and mass of oil re-injected

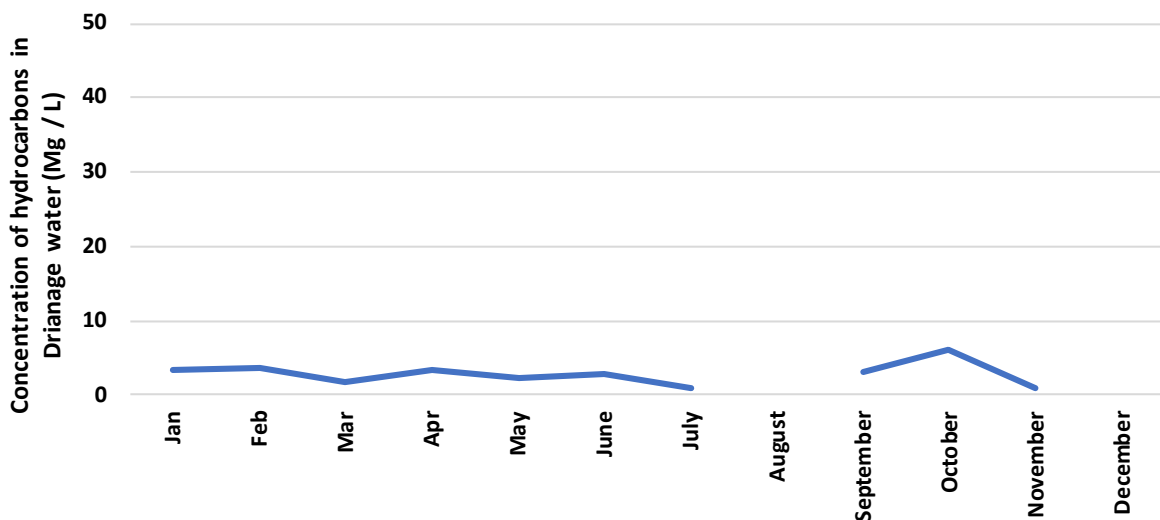


Figure 9:

Oil in water concentration in drainage water



## 11 Production Chemicals

Total use and discharge of chemicals (as reported in EEMS for 2021) is reported below (Figure 10) according to the label and ranking categories. Overall chemical use increased from 2020 (from 47,000 kg to 57,500 kg) due to the topping up of annulus fluid with Brine. The chemical discharge increased due to the seeping of some of the Potassium Chloride Brine from the annulus. This chemical is categorised as posing little or no risk to the environment (PLONOR) but has been reported as a PON1 to the regulators.

There was some progress in reducing some of the chemicals used in the UK on the Sean platforms in 2021 from 2020 levels. The use of Oceanic added to the Sub Sea Control Valve was reduced again by 55% in 2021. This chemical was moved from an E to a D rating.

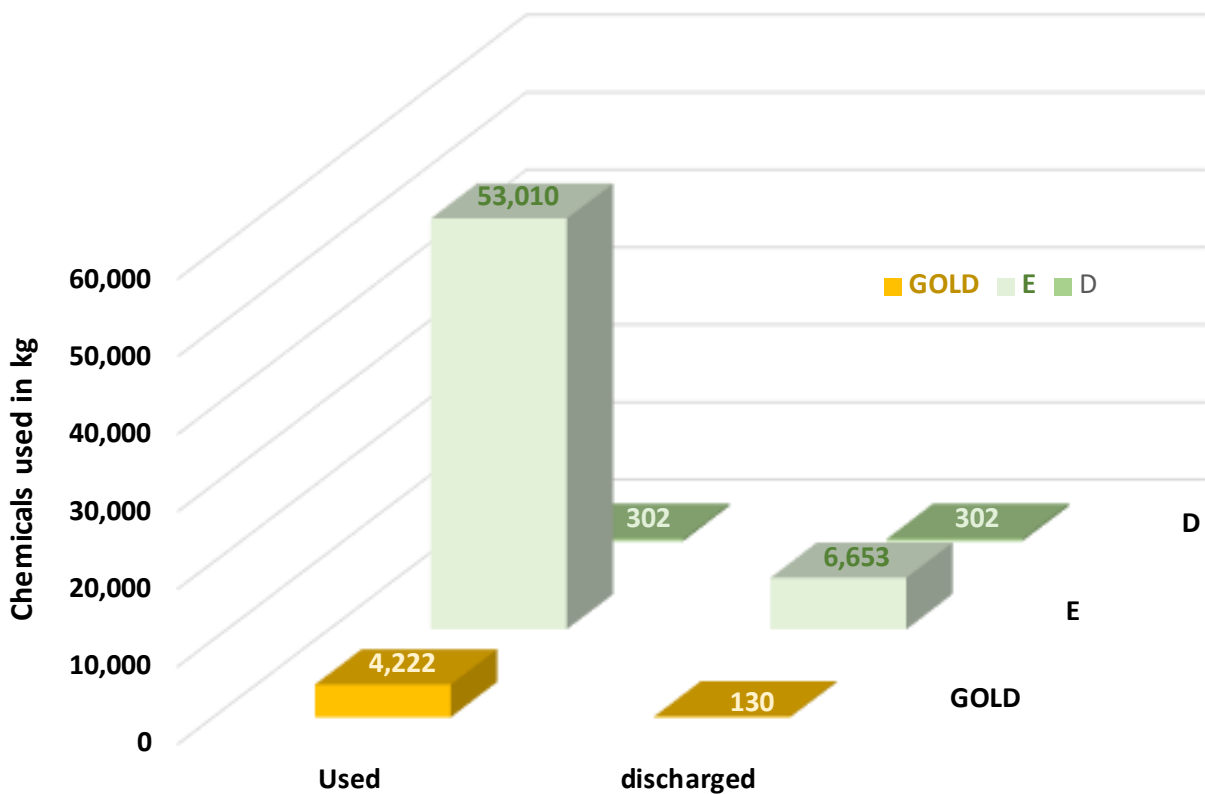
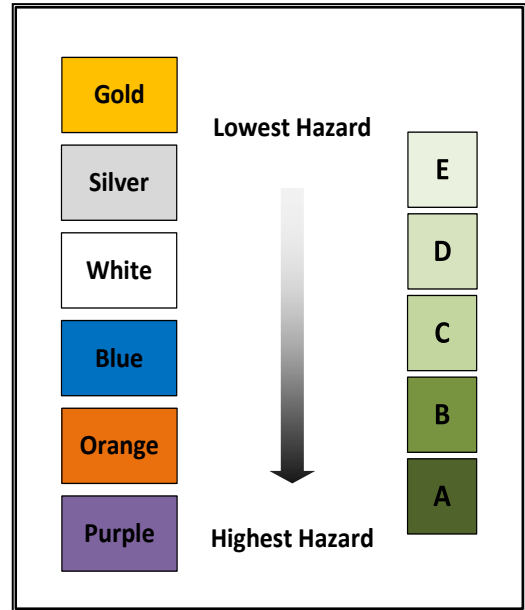


Figure 10:  
Production Chemicals used and discharged from the Sean Platform in 2021

## 12 Production Waste

The Sean Papa and Romeo platforms shipped a total 153 tonnes of waste in 2021, which is an increase on 2020 (125 tonnes). This was mostly shipped to Den Helder in the Netherlands for treatment. Tonnes of waste have been charted according to type and disposal route. The types of waste remained similar to last year. The increase in waste was due to an increase in waste from cleaning more vessels in 2021. General waste remained similar to last year. Segregated recyclables has decreased from 20 to 12 tonnes, but recycling from scrap metal has increased from 25 to 29 tonnes. Proportions of waste types (Figure 11) are relatively similar to 2020 with the exception of recycling which has decreased. However, no waste was disposed to landfill in 2021 (Figure 12)

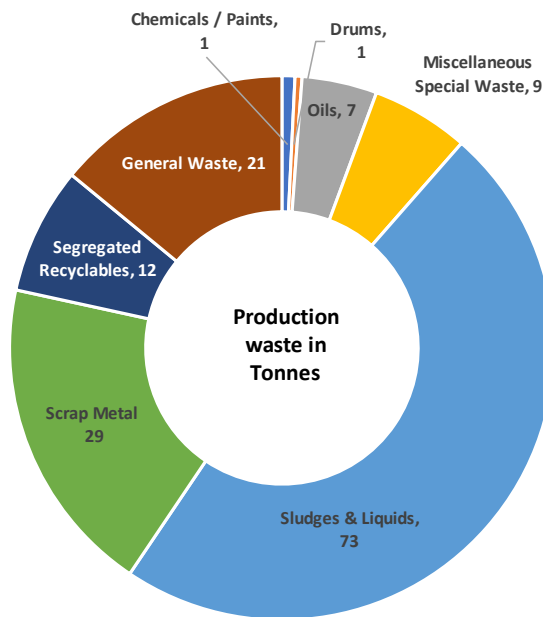


Figure 11:  
2021 Sean production waste in tonnes categorised by waste type

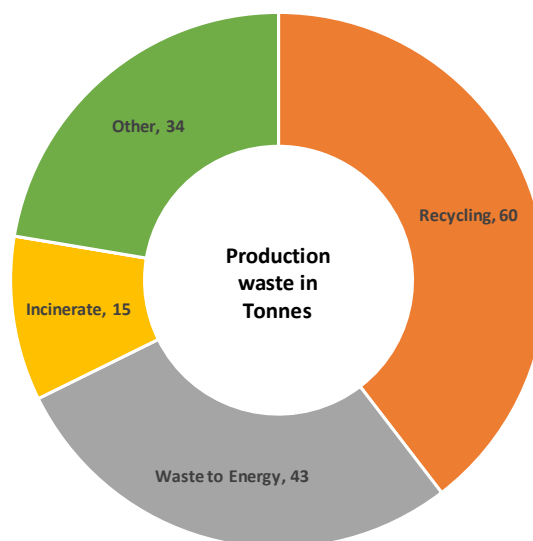
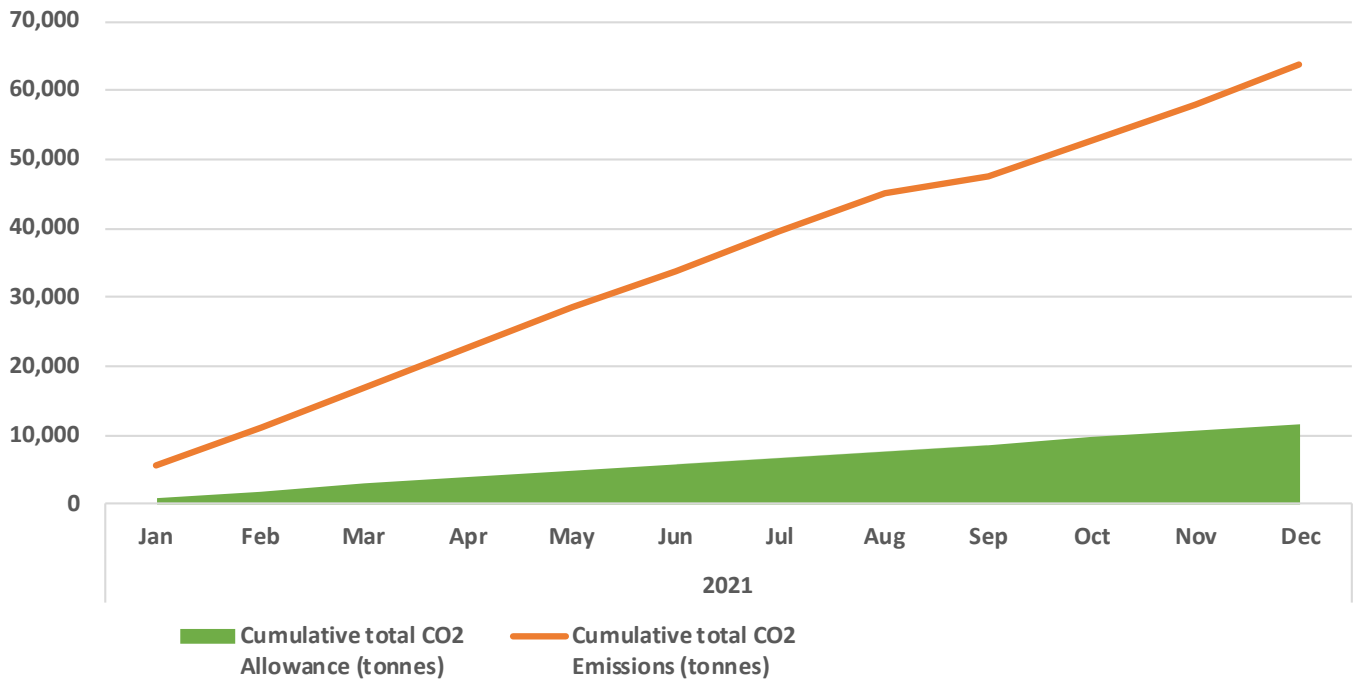


Figure 12:  
2021 Sean production waste in tonnes categorised by disposal route

## 13 Carbon Dioxide

Carbon Dioxide emissions are strictly monitored and reported for UK-ETS purposes. On the Sean Papa, 63.7 thousand tonnes of Carbon Dioxide was emitted from fuel gas and diesel use in 2021. This was an increase from 2020 (49.7 thousand tonnes) with increased production up time in 2021, due to an extended shutdown in 2020 for the addition of third stage compression equipment.

The monthly accumulated Carbon Dioxide emissions from all combustion equipment on the platform are presented in Figure 12 below. Carbon allowances were decreased substantially from 2020.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cumulative total CO2 Emissions (tonnes)	5718	11195	16968	22693	28439	33889	39532	45214	47462	52799	57964	63740
Cumulative total CO2 Allowance (tonnes)	960	1919	2879	3838	4798	5758	6717	7677	8636	9596	10555	11515

Figure 12

2021 Sean Carbon Dioxide emissions and allowances in tonnes



## 14 Air Emissions

Emissions reported on EEMS under permit issued under the Offshore Combustion Installations (Pollution Prevention and Control) Regulations 2013 are displayed in Figure 14 below. These are broken down into emissions from diesel combustion and fuel gas combustion. The largest proportion of emissions are for Nitrous Oxides (NOx) emitted from the combustion of fuel gas and diesel. Emissions increased in 2021 from fuel gas and decreased from diesel due to increased production up time in 2021, and the extended shutdown in 2020.

Emissions vented under the Energy Act 1976 are included, which show the highest contribution from Methane (CH<sub>4</sub>) emissions. 2021 Sean Papa emissions data shows an increase from 2020. This increase in the data is again due to increased production up time in 2021, and the extended shutdown in 2020.

Emissions of refrigeration gases in 2021 (Figure 15) were slightly higher than levels in 2020 due to the higher Global Warming Potential (GWP) of the gas lost. These are associated with losses from HVAC systems.

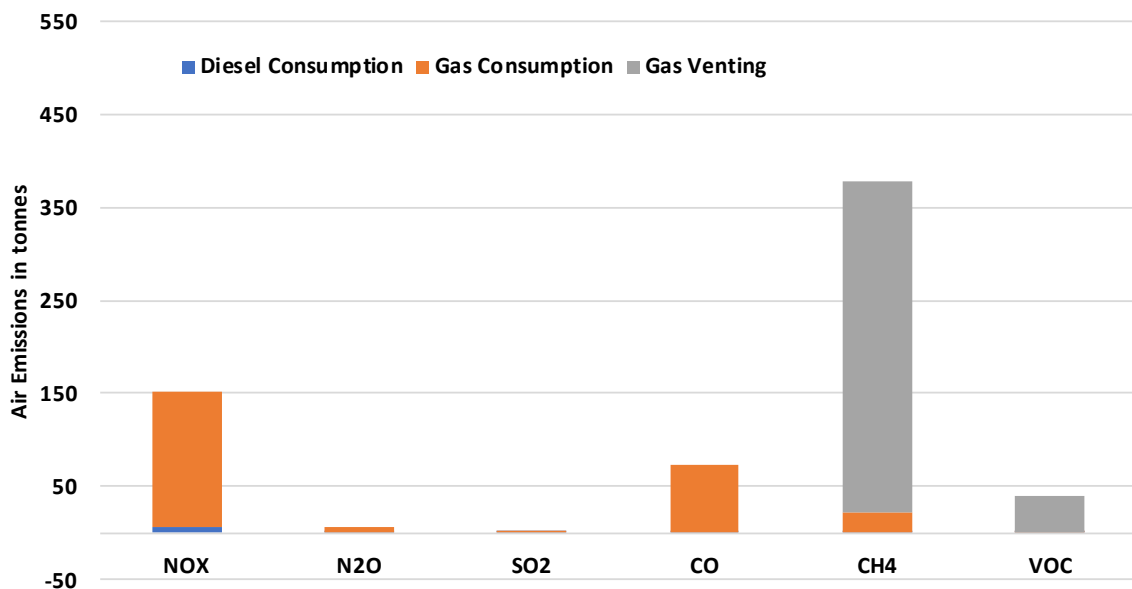


Figure 14

2021 Emissions from Sean combustion and venting

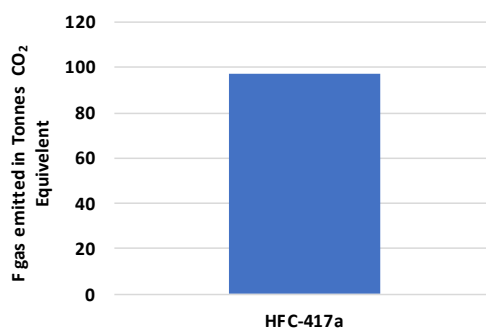
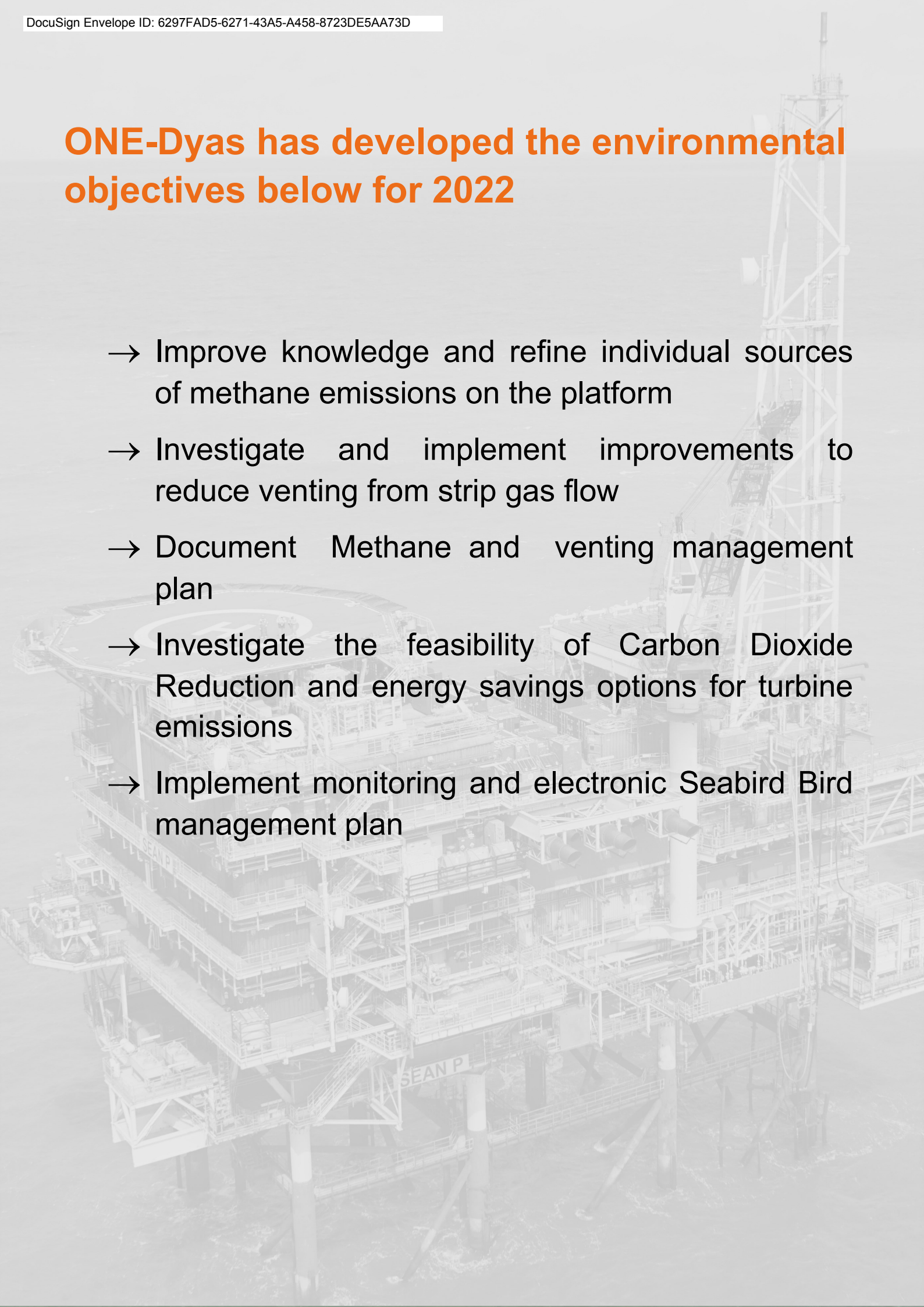


Figure 15

2021 Emissions of refrigeration gas from Sean equipment

## **ONE-Dyas has developed the environmental objectives below for 2022**

- Improve knowledge and refine individual sources of methane emissions on the platform
- Investigate and implement improvements to reduce venting from strip gas flow
- Document Methane and venting management plan
- Investigate the feasibility of Carbon Dioxide Reduction and energy savings options for turbine emissions
- Implement monitoring and electronic Seabird Bird management plan





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