



CNOOC Petroleum
Europe Limited
**Environmental
Statement 2019**

Foreword



It is my pleasure to present to you CNOOC Petroleum Europe Limited's (CNOOC) 2019 Environmental Statement.

We are committed to minimising our impact on the environment and recognise that protecting the environment is integral to the Company's sustainable growth.

Included in this Environmental Statement is:

- A description of the facilities operated by CNOOC and the activities carried out in 2019
- A summary of our Environmental Management System
- Environmental emissions and discharges figures from our 2019 operations
- CNOOC's 2019 objectives and their progress
- A brief overview of our key 2020 objectives

2019 has been a busy and challenging year with a continued emphasis on developing initiatives that will focus on improving our impact on the environment:

- All single use cups/lids, packaging and cutlery were discontinued as part of our plan to eliminate single use plastics, 'Eyes for Waste' cards were launched as part of the Cherish the Margin programme.
- Environmental Representatives (E-Reps) visited onshore waste management facilities to gain insight in to waste processing and recycling. Waste awareness training took place and the E-Reps led new recycling initiatives.
- Successful review, update and production of 62 environmental documents/procedures.
- Variation of over 150 regulatory permits, consents and OPEPs due to the company name change.
- Risk assessment of all platform diesel systems and tanks and identification of corrective actions to minimise the risk of diesel spills.

These achievements were only possible due to the hard work, commitment and engagement of our workforce at CNOOC, who consistently strive to **Be the Best** and **Win Together**.

2019 has been a successful year with many milestones being achieved:

- Drilling commenced on the Buzzard Phase II Project as well as the Cragganmore and Howick campaigns West of Shetland.
- Scott Drilling celebrated 12 years without a Lost Time Incident (LTI).
- Golden Eagle celebrated one-year PON1 free, one-year hydrocarbon release free and 5 years LTI free and reached a production milestone of 100 million barrels.
- Launch of the CNOOC Limited Plan for Green Development.

CNOOC strives to be a leading force for clean and green energy development and recognises the importance of caring for the environment. Looking forward into 2020, CNOOC is committed to progressing towards our Net Zero ambitions, further reducing the number and volume of spills, and enforcing challenging environmental targets in key performance indicators.

I hope that you will find this Environmental Statement both informative and indicative of the continued commitment that CNOOC has to minimising our footprint on the UK Continental Shelf.

Jeff Dawson

General Manager – HSE & Assurance, UK

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Introduction

Energy for All

CNOOC Petroleum Europe Limited, which will be referred to as 'CNOOC' in this document, is a wholly-owned subsidiary of CNOOC Limited (CL). CL is the largest producer of offshore crude oil and natural gas in China and one of the largest independent oil and gas exploration and production companies in the world. CL mainly engages in exploration, development, production and sale of crude oil and natural gas. The Company's core operation areas are Bohai, Western South China Sea, Eastern South China Sea and East China Sea in offshore China. Overseas, CL has oil and gas assets in Asia, Africa, North America, South America, Oceania and Europe. Throughout this statement CNOOC refers to UK operations only.

CNOOC is one of the largest producers of oil and gas in the UK North Sea, contributing more than 25% of the UK's oil production, and 10% of the country's energy needs. CNOOC is the operator of three production platforms, including the Buzzard, Golden Eagle and Scott installations. We are actively exploring in the Central North Sea and West of Shetland, and our UK operations support exploration activity in Africa.



Health, Safety, Environment & Social Responsibility

The HSE&SR Policy shown below details the beliefs, values and principles governing the management of HSE&SR within CNOOC.

Our commitment to

Health, Environment, Safety & Social Responsibility



This Policy Commitment underpins the requirements outlined in the Corporate Policy Framework and applies to all activities carried out by and under the control of CNOOC Petroleum Europe Limited, its branches and subsidiaries (CPEL).



Within CPEL, the Board of Directors owns and takes responsibility for our overall HSE&SR performance working with our executive leadership and functional teams. We believe that management and staff commitment to HSE&SR is essential to ensuring a healthy, safe and environmentally acceptable operating environment.



We see our people are our most important asset and we will not compromise our HSE&SR standards to achieve other corporate goals, in so far as it is reasonably practicable. As such, we value the experience, professionalism and integrity of our workforce, and the commitment, leadership and accountability of all personnel for our HSE&SR performance.



We integrate HSE&SR planning and management into our day-to-day activities, defining individual responsibilities, authority and accountability. By providing adequate control of HS&E risks arising from our work activities, we strive to prevent accidents, injuries and cases of work related ill health, damage to equipment and the environment.

We meet all applicable regulatory requirements, as well as other compliance requirements to which we subscribe, and strive to deliver continuous improvement in our HSE&SR performance.



Occupational Health and Personal Safety

CPEL consult with our people on matters affecting their health and safety working conditions, plant and equipment, and provide appropriate HSE&SR information, instruction, training and supervision to employees and contractors.



We strive to optimise the safety of all our worksites by contracting those contractors who can demonstrate that they have suitable HS&E performance and management systems in place.

In addition, we ensure that emergency response capability is in place and periodically test for all our operations and facilities.

We ensure all workers are competent to carry out their tasks, in so far as they can impact on the health and safety of themselves and those around them, or the environment.

CPEL maintains safe and healthy working conditions, by providing and maintaining safe plant and equipment, and ensuring that the use and handling of substances is carried out safely.

Process Safety

CPEL applies the principles of Process Safety Management to maintain the integrity of our operations.

We ensure that risks associated with major accident hazards, arising out of our offshore operations, are identified and controlled.

Environmental Management

CPEL is committed to integrating responsible environmental management into all aspects of its operations.

Our EMS provides the framework for setting and reviewing environmental targets and objectives, and the process by which the EMS is documented, implemented and maintained. Our actions will support the prevention of pollution and the reduction of waste generation.

Social Responsibility

We are committed to behaving ethically and contributing to economic development while improving the quality of life of the workforce and their families as well as the local community within the sphere of our activities.

At regular intervals the Board of Directors reviews and revises this policy, as necessary. The Directors of the company each individually and collectively share the commitment and will seek to act as Directors in accordance with the above principles.

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Revision 8.0, May 2020

Jeff Dawson
General Manager
HSE & Assurance, UK



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Asset Information

Energy for All

Production Operations

Scott

FACT

Scott is the only CNOOC asset in the UK to have a fixed drilling package.



Location	141 kilometres North East of Rattray Head, Peterhead
Block Number	Block 15/22
Discovery Date	The Scott field was discovered in 1987 and came on stream in 1993
Water Depth	142 metres
Tie Backs	Telford and Rochelle fields
Infrastructure	The Scott installation consists of two steel jackets, the Drilling/Production (DP) platform and the Utilities/Quarters (UQ) platform linked by two bridges
Export	Oil is exported via a subsea pipeline into the Ineos operated Forties Pipeline System (FPS) to the Kinneil reception terminal on the Firth of Forth. Gas is exported via the Apache operated Scottish Area Gas Evacuation (SAGE) system to St Fergus in north-east Scotland.

Buzzard

FACT

Buzzard Phase II field development commenced in April 2019.



Location	55 kilometres North East of Rattray Head, Peterhead
Block Number	Block 20/06a
Discovery Date	The Buzzard field was discovered in May 2001 and came on stream in January 2007
Water Depth	96 metres
Tie Backs	N/A
Infrastructure	The Buzzard installation consists of four platforms (Wellhead, Production, H2S sweetening and UQ) supported by steel jackets which are interconnected by three bridges
Export	Oil is exported from the Buzzard installation via a subsea pipeline into the Ineos operated FPS to the Kinneil reception terminal on the Firth of Forth. Gas is exported via the Frigg system to St Fergus in north-east Scotland.

Golden Eagle

FACT

Production milestone of 100 million barrels achieved – equivalent to nearly 28 billion Starbucks gingerbread lattes!



Location 65 kilometres North East of Rattray Head, Peterhead

Block Number Block 20/1S

Discovery Date The Golden Eagle and Peregrine fields were discovered 2007-2009. First oil was produced in late October 2014

Water Depth 104 metres

Tie Backs Solitaire and Peregrine

Infrastructure The Golden Eagle field consists of two subsea drilling centre manifolds (Northern and Southern), tied-back to two installed bridge-linked platforms (GEAD platform complex)

Export Oil and gas from the development is processed at the GEAD platform complex, with gas exported to the SAGE export line via the Ettrick pipeline end manifold (PLEM), and oil exported to the Flotta Terminal via a tie-in at the Claymore field.

Drilling Operations

COSL Pioneer



Rig Name	COSL Pioneer
Type	Semi-Submersible
Wells Drilled in 2019	■ BPII Batch Drilling

Maersk Innovator



Rig Name	Maersk Innovator
Type	Jack-Up
Wells Drilled in 2019	■ Buzzard Infill Wells 1-4

Island Innovator



Rig Name	Island Innovator
Type	Semi-Submersible
Wells Drilled in 2019	■ Howick

Ocean Great White



Rig Name	Ocean Great White
Type	Semi-Submersible
Wells Drilled in 2019	■ Cragganmore

Prospector 5



Rig Name	Prospector 5
Type	Jack-Up
Wells Drilled in 2019 (Until February 2019)	■ Glengorm II, 22/21c-M

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Environmental Programmes

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Environmental Management System

CNOOC has implemented an Environmental Management System (EMS) aligned with requirements of ISO 14001:2015. The EMS is independently verified in line with the requirements of the Oslo/ Paris Convention (OSPAR) Recommendation 2003/5, to promote the use and implementation of Environmental Management Systems on the UKCS.

An OSPAR verification statement with zero comments was reported to the Department for Business, Energy and Industrial Strategy (BEIS) in May 2019. The next EMS OSPAR verification is scheduled for Q2 2021.

Environment Representatives (E-REP)

CNOOC E-Reps continue to provide valuable support in offshore workforce engagement during various activities and initiatives, including;

- Roll out of procedures and environmental initiatives
- Reduction of waste
- Spill reduction, OPEP awareness and environmental hazard identification
- Area inspections
- Supporting environmental audits and inspections
- Identification and trialling of new environmental training options

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Atmospheric Emissions

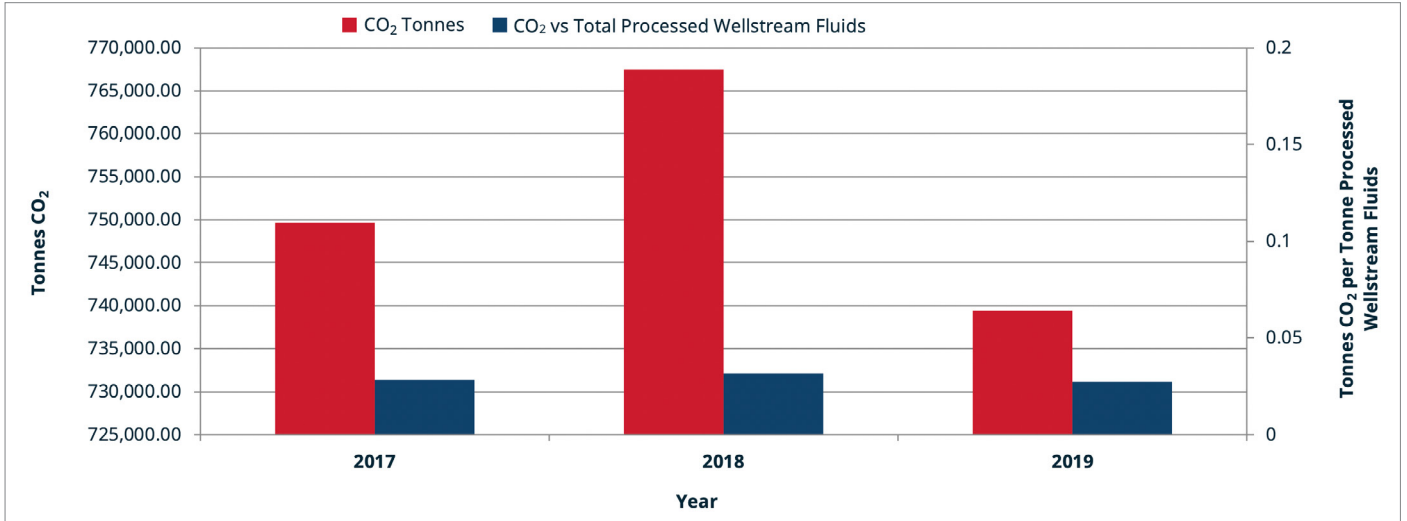
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Production CO₂ Emissions

The chart below shows a decrease in combined CO₂ emissions from 767,512 tonnes in 2018 to 739,420 tonnes in 2019.

This 3.6% decrease can be attributed to increased flaring from Buzzard in 2018, associated with unavailability of the export route during an outage on the Frigg pipeline, and extended outages on the Scott platform due to issues with the gas export system.

CO₂ Emissions from Production Activities



Individual Installation CO₂ Emissions

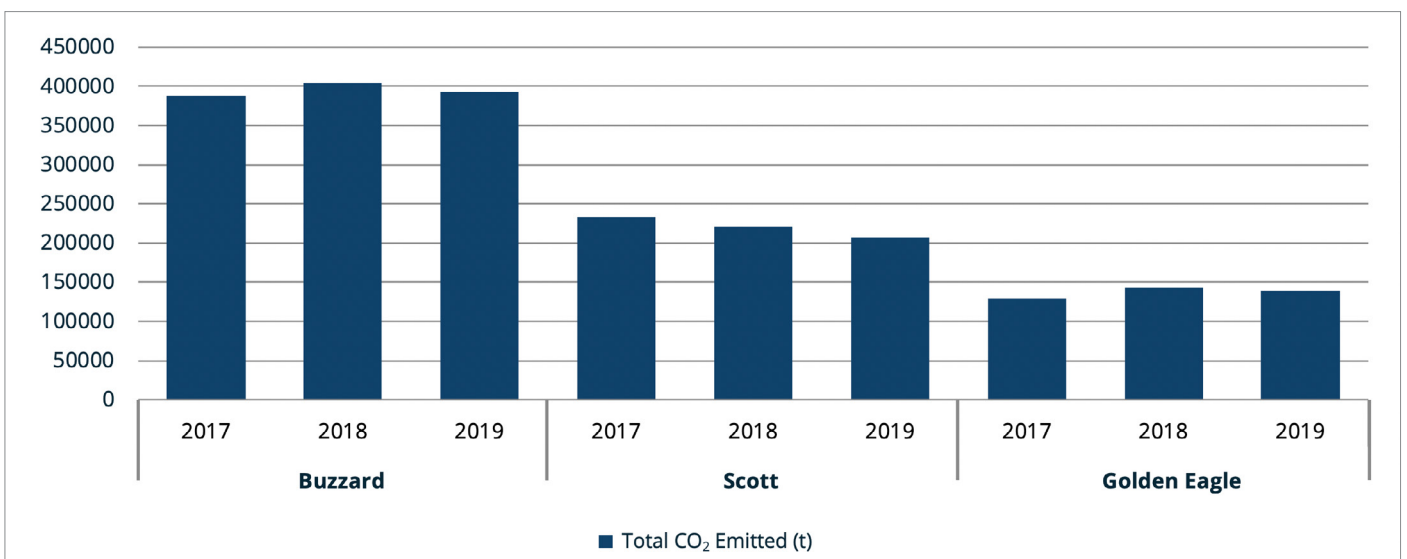
The chart below shows individual installation performance on CO₂ emissions in 2019. Each asset showed a slight decrease in CO₂ emissions compared with the year before, which is summarised as follows:

Buzzard experienced elevated flaring in 2018. Otherwise emissions have held relatively steady in 2019.

Scott's emission rates for 2019 were reduced against 2018 due to extended outages and the periodic use of diesel for power generation. The asset consumed significantly less fuel gas as a result of the outages which was not offset by the increase in diesel usage due to the overall reduction in power demand.

The decrease in CO₂ emissions for Golden Eagle can be attributed to the steady fuel gas utilisation, offset by high production uptime resulting in reduced flaring.

Platform Emissions



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Oil in Produced Water Discharge

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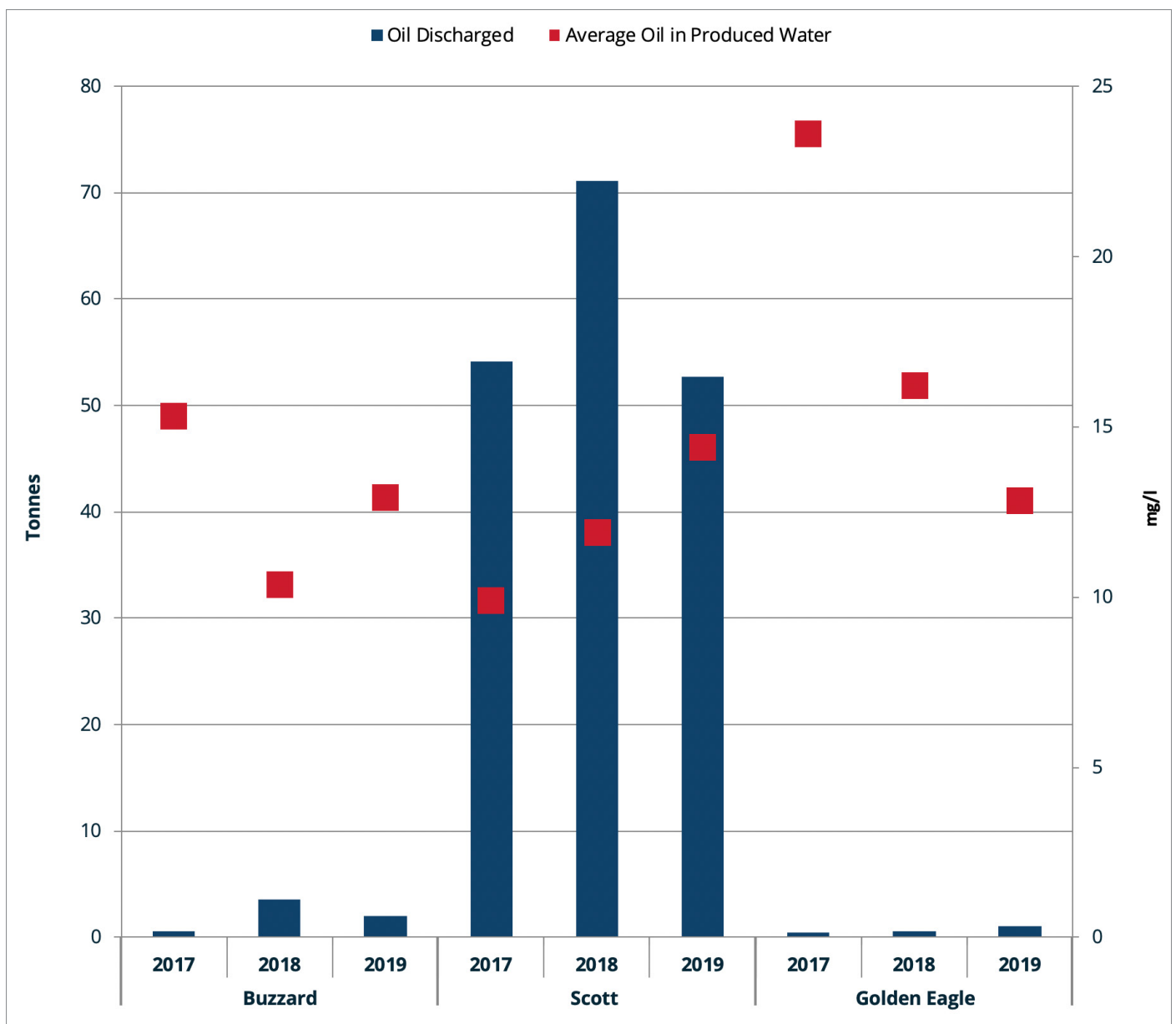
Oil in Produced Water Discharge

The mass of oil discharged decreased from 75 tonnes in 2018 to 56 tonnes in 2019. Reduced production uptime on Scott in 2019 is responsible for the majority of this decrease. Scott over-boards all produced water whilst Buzzard and Golden Eagle re-inject where possible. Increased uptime/efficiency on the Buzzard Produced Water Re-Injection System is responsible for the small decrease on this asset. Total water volume discharged also decreased on Buzzard and Scott for the same reasons.

Golden Eagle saw a slight increase in total water discharge due to issues with water injection pumps resulting in increased over boarding of produced water. However, there was a decrease in average oil in produced water on Golden Eagle from the previous year, due to continued improvement in the water handling process equipment and optimisation of the demulsifier.

Water re-injection increased on Buzzard and Golden Eagle in line with increase of produced water. Produced water re-injection is an important process as it maintains reservoir pressure, improves production and reduces overboard discharge of oil and chemicals in produced water. This is especially noticeable on Buzzard and Golden Eagle where produced water re-injection uptime is high resulting in very low produced water discharges. The Scott platform does not have produced water re-injection capability.

Oil in Produced Water



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Chemicals

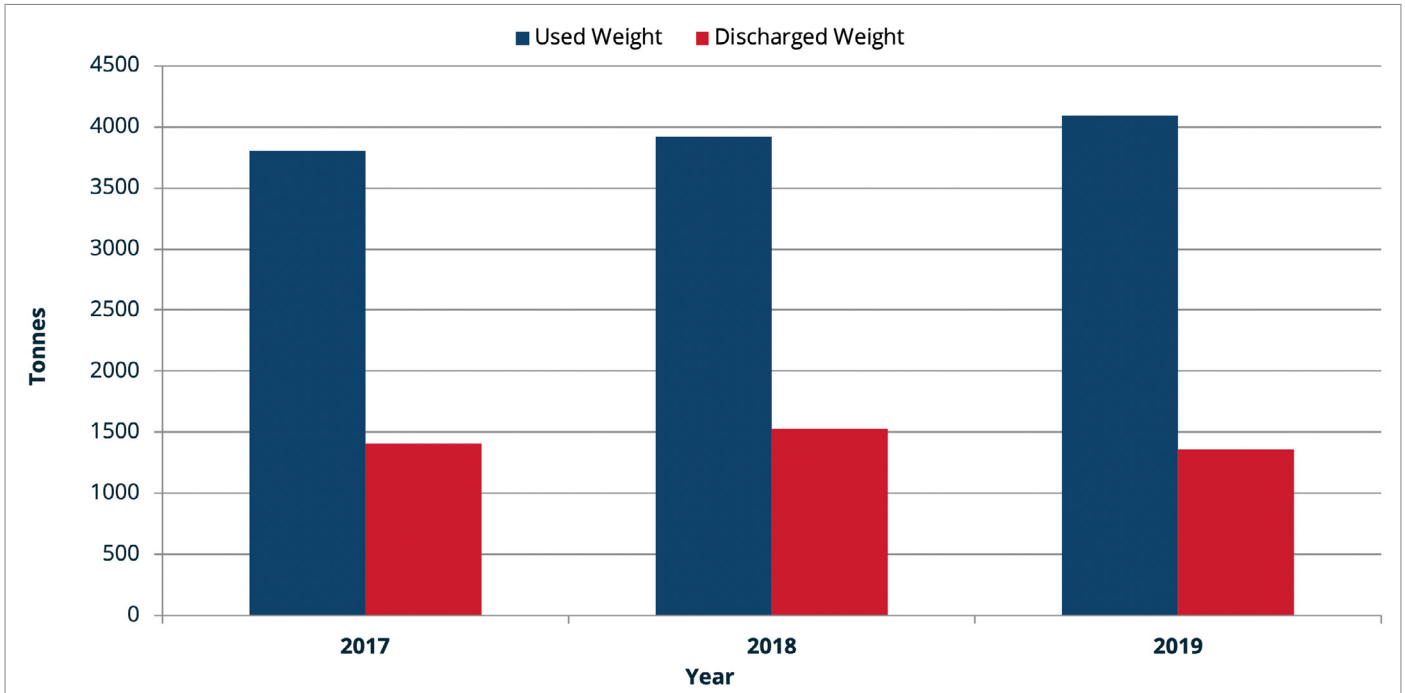
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Production Chemicals

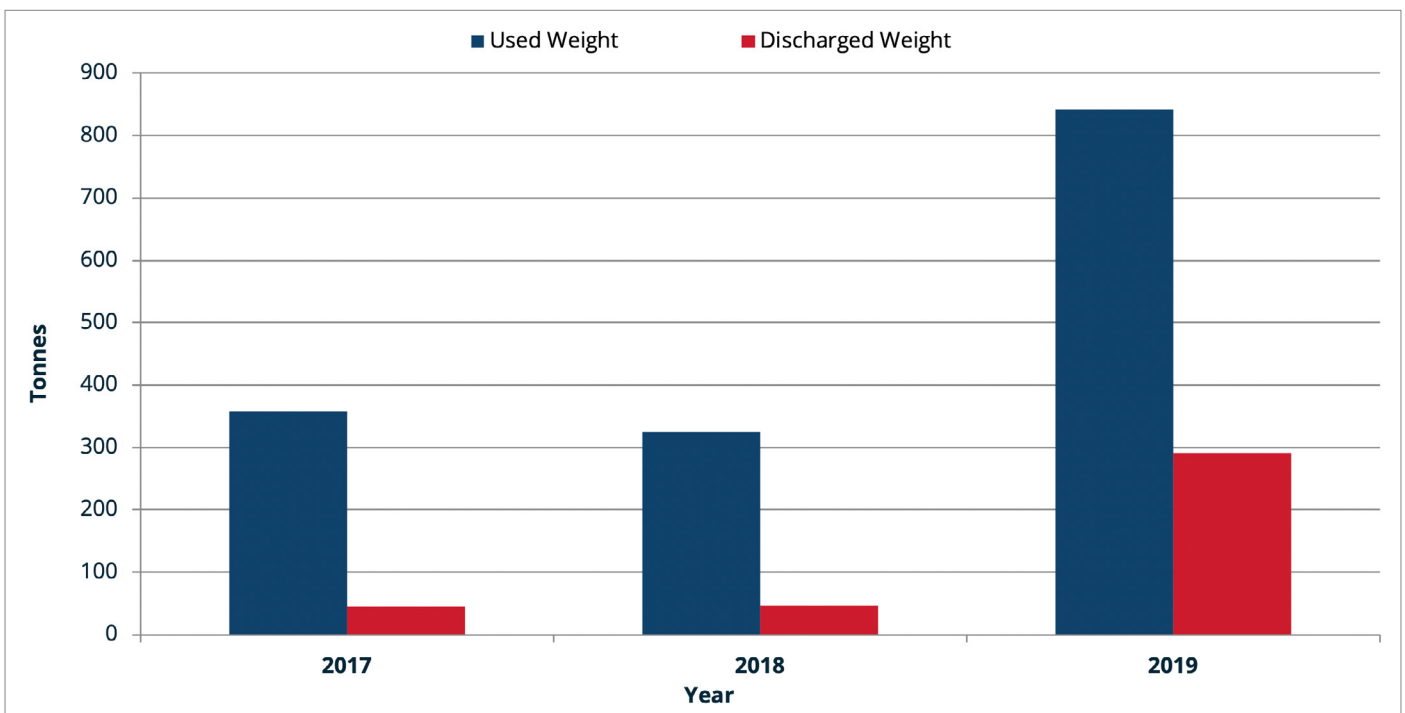
The increasing volume of produced water on Buzzard and Golden Eagle means more chemicals are required. The decrease in discharge is due to high produced water re-injection on Buzzard and Golden Eagle. On Scott the majority are disposed of overboard.

Use of production chemicals with substitution (SUB) warnings has more than doubled with the total usage in 2019 being 842 tonnes compared to 324 tonnes in 2018. This increase can be attributed to the scale squeeze inhibitor chemical used on Buzzard and Scott gaining a 'SUB warning' during re-registration in 2019. This is currently the highest use single product for CNOOC. The vast majority of 'SUB warning' chemicals used on CNOOC installations are dosed downstream of the last stage of separation, meaning there is no associated discharge of chemical.

Production Chemical Usage



Production Chemical Usage with Substitution Warnings

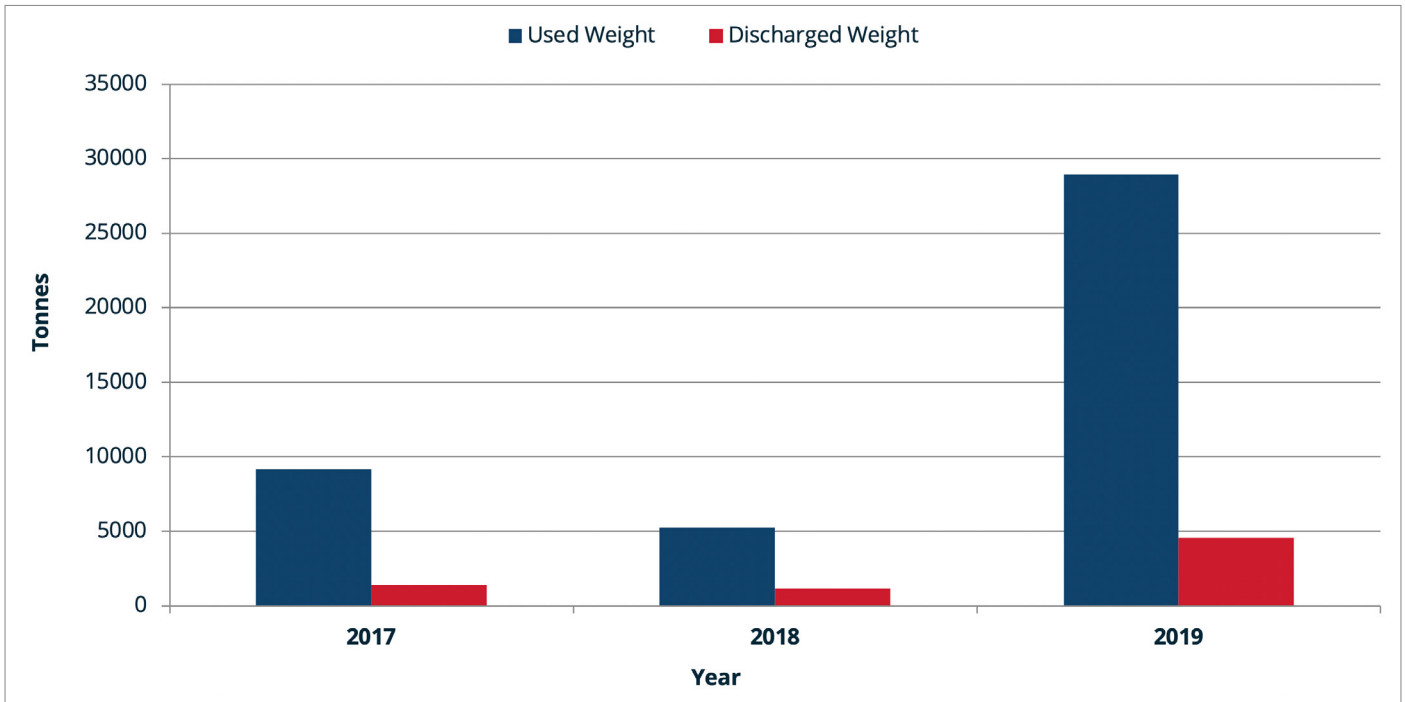


Drilling, Well Intervention and Pipeline Chemicals

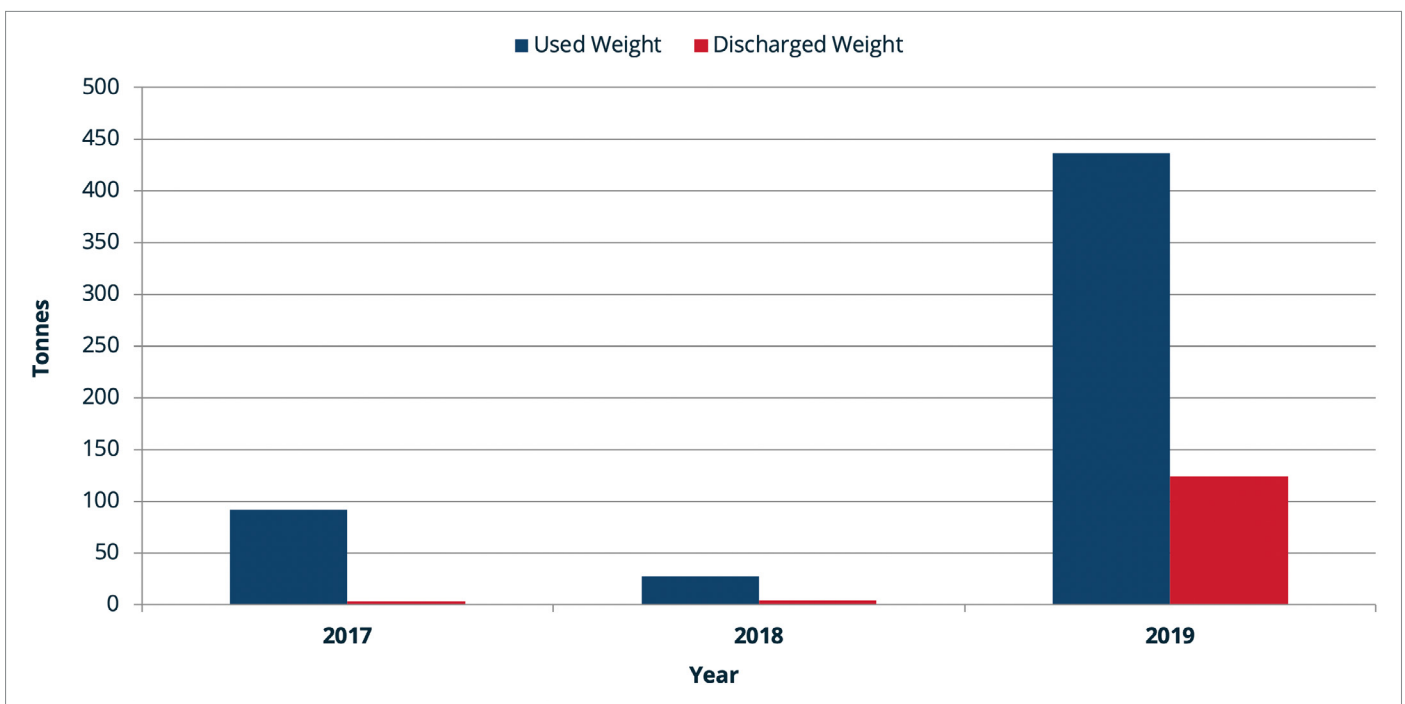
Chemical usage increased from 5210 tonnes in 2018 to 28938 tonnes in 2019. This is due to much higher drilling activity in 2019 compared to 2018, with BPII (6 well batch drilling campaign), Cragganmore, Howick, final stages of Glengorm exploration and Buzzard infills well campaign all taking place.

The use of SUB labelled chemicals for drilling, interventions and subsea operations also increased in 2019 to 436 tonnes from 27 tonnes in 2018. Overall discharge of chemicals with SUB warnings also increased from 4 tonnes in 2018 to 124 tonnes in 2019. This correlates with the much higher drilling, intervention and subsea activity in 2019 in comparison to the year before. Many of the SUB chemicals required currently have no alternatives that do not carry a SUB warning.

Drilling, Intervention & Subsea Operations Chemical Usage



Drilling, Intervention & Subsea Operations Chemicals Usage with Substitution Warning

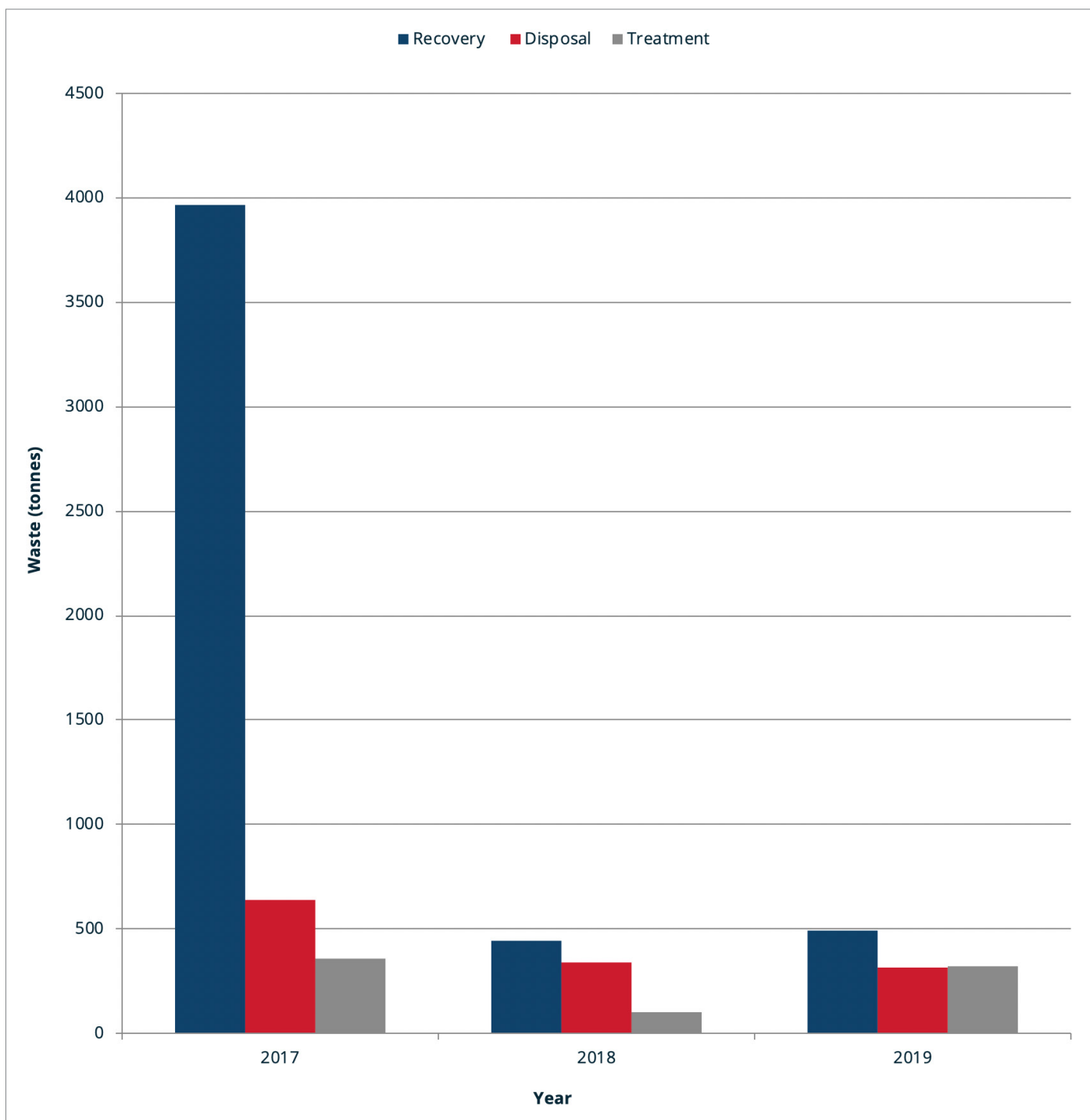


Waste

Production Waste

In 2019, 1129 tonnes of waste was generated across all installations, which is a slight increase from the 886 tonnes generated in 2018. There was an increase in waste recovery and treatment, largely due to initiatives in place to increase recycling and better awareness offshore.

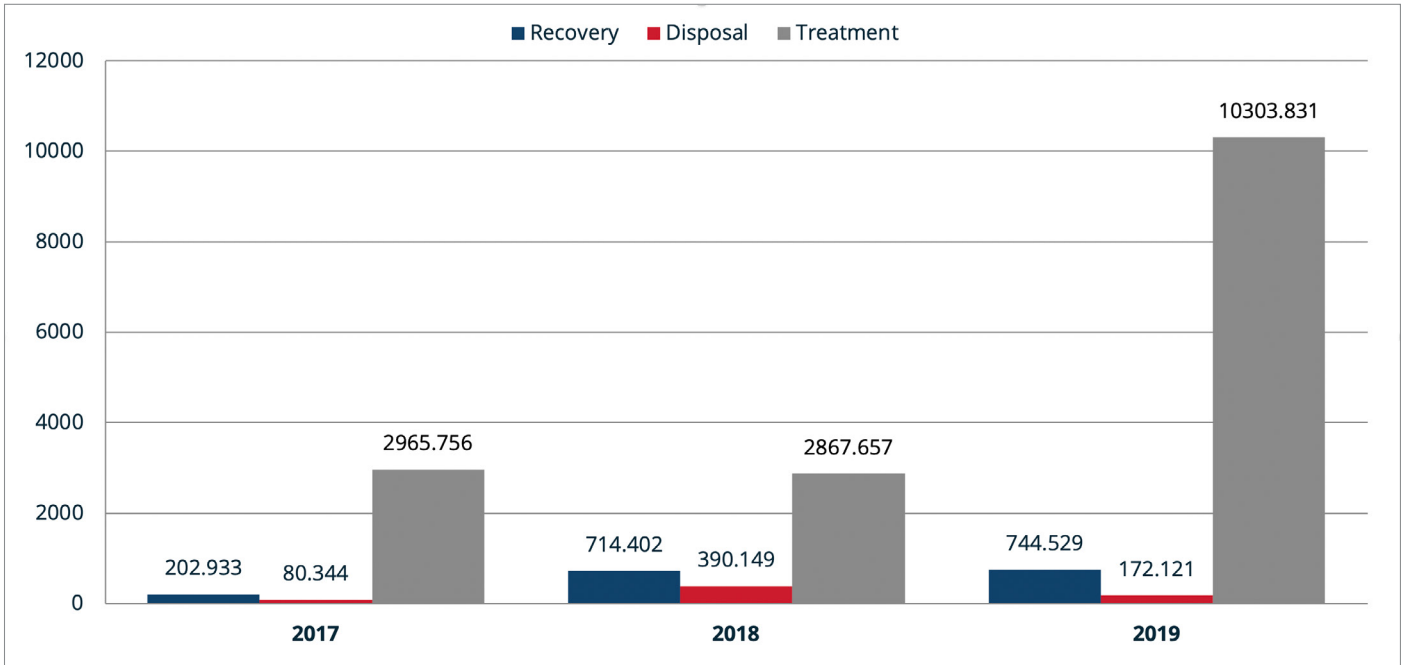
Production Waste Generation



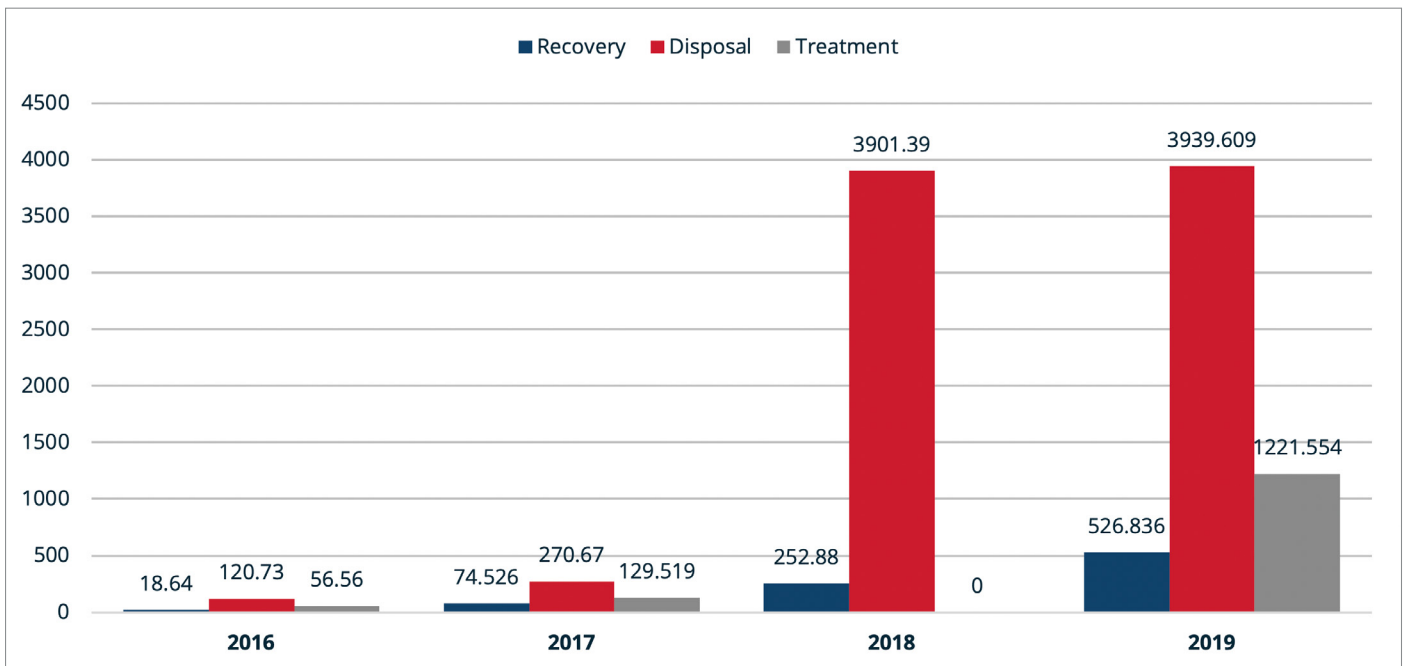
Drilling Waste

Drilling waste generated (excluding cuttings) in 2019 was 11220 tonnes. This is a large increase of approximately 7248 tonnes compared to waste generated during 2018. This correlates with the increase in drilling operations. Recovery and treatment of waste have increased from 2018 due to a change in waste fluid reporting. Drilling slops from the Scott platform are now reported as 100% treatment. Previously they were split between landfill, treatment and recycling.

Drilling Waste Generated (Excluding Cuttings)



Drilling Waste Generated



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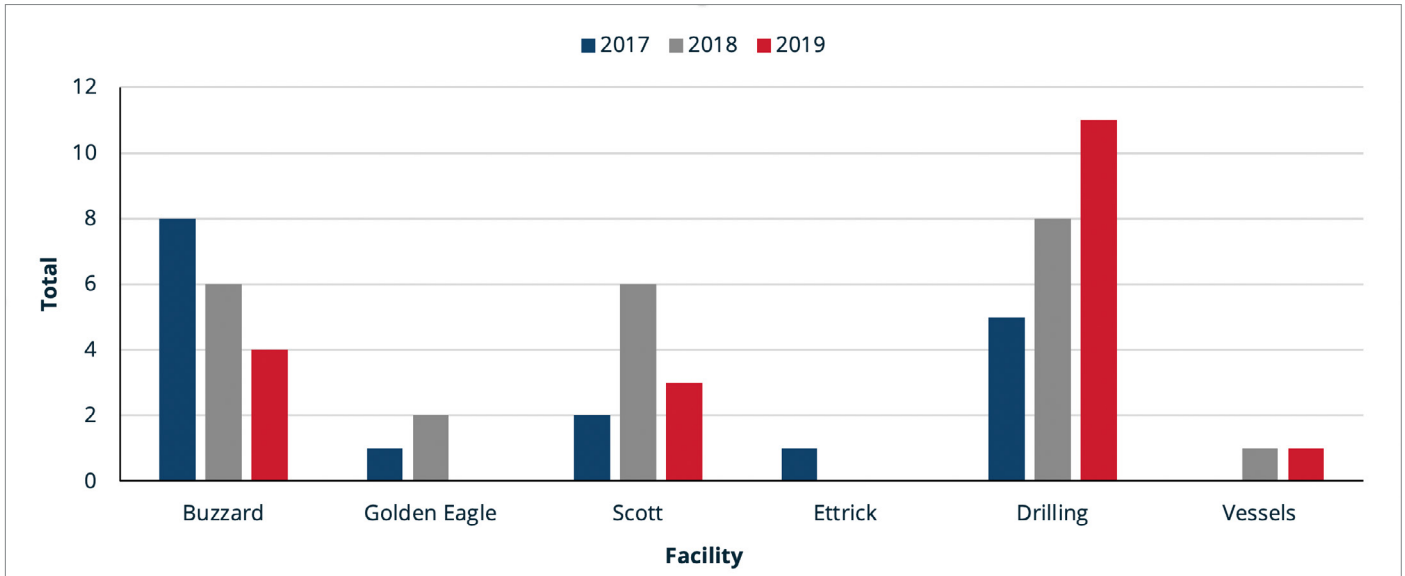
Compliance

Energy for All

2019 Unplanned Releases

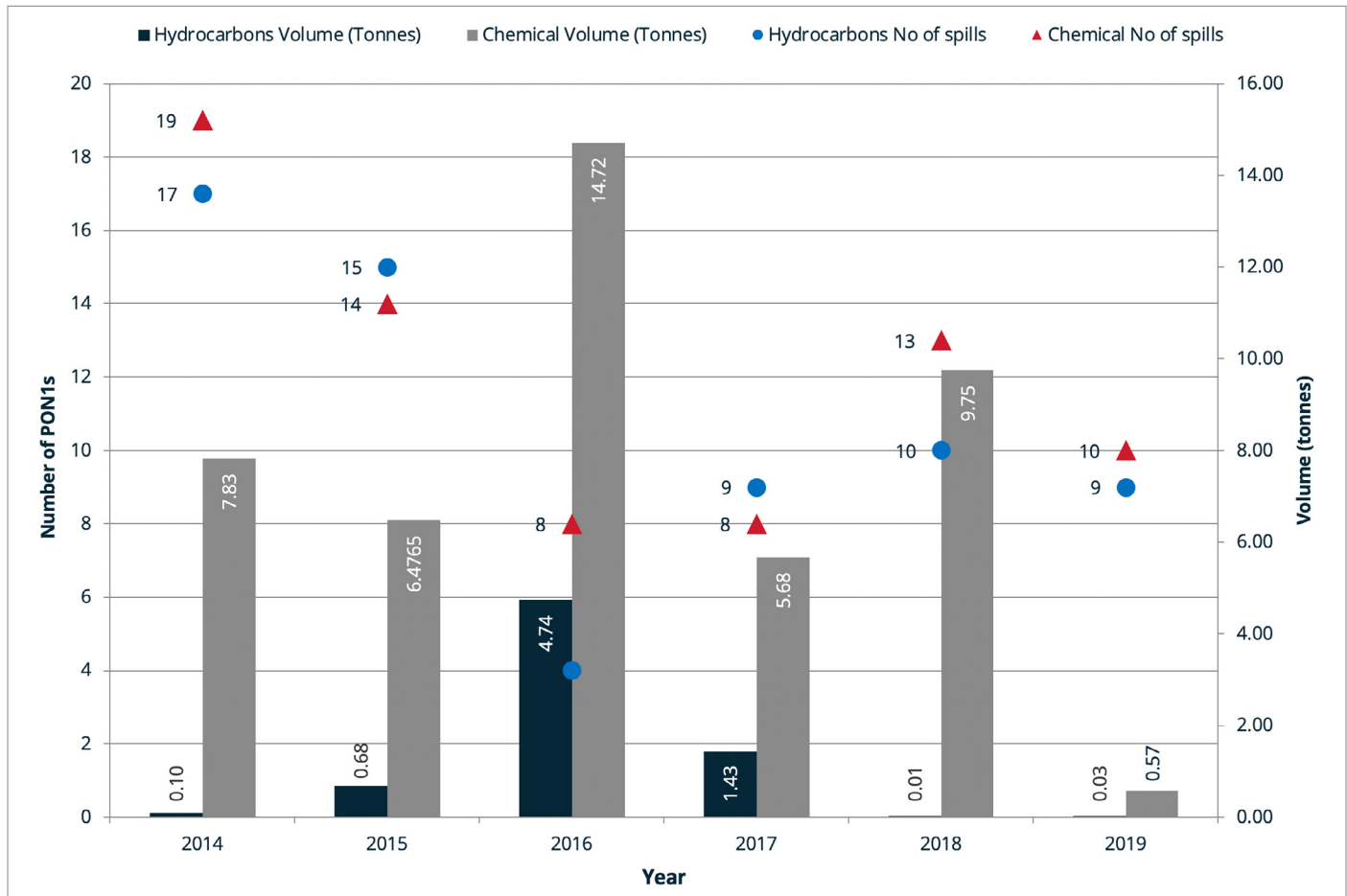
During 2019, there were 19 unplanned releases, a decrease from 23 releases in 2018. The majority of these releases were from drilling operations. This correlates with the increase in drilling operations in 2019.

Individual Installations - PON1 Summary



9 releases resulted in 0.03 tonnes of oil being released to sea, a substantial decrease compared to previous years. The remaining 10 releases resulted in 0.57 tonnes of chemicals being released to sea, a substantial decrease from 9.75 tonnes released in 2018.

PON1 Summary 2014-2019



Regulatory Non-Compliances

In addition to CNOOC reporting unplanned oil and chemical spills associated with offshore activities, CNOOC is also required to submit notification to the Regulator in the event of a non-compliance with the current legislative regime.

	OCR (Offshore Chemical Regulations) Non Compliance	OPPC (Oil Pollution Prevention and Control) Non Compliance	EIA (Environmental Impact Assessment) Non Compliance	Discharge Pending Analysis	EU Emissions Trading Scheme	IPPC	PPC	Pending Reply from SEPA
Scott		3						
Buzzard								
Ettrick								
Golden Eagle	2							
Drilling Rigs	6							
Vessels								

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Environmental Objectives

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Environmental Objectives 2019

2019 Objective	Programme	Performance
<p>Well delivery process development and support including environmental support to Buzzard Phase II (BP2) and New Country Entry</p>	<p>Support to well delivery process improvement activities.</p> <p>Environmental support to the BP2 team throughout the 2019 drilling program and Ireland and Senegal new country entries.</p>	<p>Support was provided to a full review and update of the well delivery process which was completed and implemented by Q3 to support BP2 delivery. The improvements in CNOOC and contractor processes were demonstrated by a really positive BEIS inspection in Q4 2019.</p> <p>Key ER team members took part in successful Ireland operations Regulatory ER Validation exercise to demonstrate cross country capability. UK Environment Team members also supported offshore visits to the Stena Icemax as part of HSE assurance activities and compilation of key management system documents. The project was successfully delivered with no environmental events or non-compliances.</p>
<p>Spill Reduction & Prevention</p>	<p>Spill reduction and prevention through communication and actioning lessons learned from previous events and focusing on high spill risk activities, equipment and contractors.</p> <p>PON1 focused awareness campaign to be rolled out.</p>	<p>Spill awareness was rolled out across UK operations in the form of a Q1 awareness campaign on environmental hazards and hazardous conditions offshore. A Q2 campaign focused on drainage protection and bunding followed by a Q3 campaign on control of contractor chemicals.</p> <p>Lessons learned slides were shared across operations for contained spills as well as spills to sea.</p> <p>Diesel system risk assessments were conducted across the platforms to identify areas for improvement to minimise the risk of incidents. Reports and improvement opportunities were rolled out during Q3 and captured within action tracking databases.</p> <p>Although the number of PON1s reported in 2019 remained high, the volumes were very small. The majority of spills originated from drilling related operations with the platforms demonstrating a marked improvement in spill reduction.</p>
<p>2019 Emissions Compliance</p>	<p>Successful delivery of annual EU Emissions Trading Scheme verification, 2019 National Implementation Measures (NIMs) submission, Energy Savings Opportunity Scheme (ESOS) updates and Scott LCP/PPC compliance activities ahead of regulatory deadlines.</p>	<p>2018 Annual Emissions Trading Scheme verification was delivered ahead of the tight deadline. 2019 verification activity commenced with a new verifier and included completion of offshore visits to each platform, pre-verification work in October and final AER submission before the end of Feb 2020.</p> <p>NIMS submission was made ahead of Regulatory deadlines with only minor comments received and efficiently responded to.</p> <p>ESOS assessments were carried out across the UK platforms including an offshore audit and onshore workshops. The final compliance statement was submitted ahead of Regulatory deadline.</p> <p>Due to power generation issues on Scott it has still not been possible to complete the LCP emissions sampling during 2019. This activity had been planned for 2020.</p>
<p>EMS OSPAR Verification</p>	<p>Preparation and delivery of the EMS verification including offshore visit and post verification management of opportunities for improvement.</p>	<p>In May 2019 the CNOOC UK EMS was successfully verified by a new verifier with no comments. Work continued to better align the EMS with the 2015 ISO standard and fulfill UK management system (UKMS) plans with 62 documents undergoing review during 2019.</p>

Environmental Objectives 2020

The CNOOC Environmental Objectives are to:

- Manage and minimise emissions from power generation, flare and unburned hydrocarbons
- Manage and minimise discharges to sea of oil and hazardous chemicals
- Manage and minimise waste generation within the supply chain and zero waste to landfill
- Prevent and mitigate significant environmental unplanned/accidental discharges to sea & air

2020 Environmental Targets are:

- Zero increase in emissions against 2019 levels
- Zero waste to landfill
- Zero significant (enforcement action level) spills to sea

In line with these objectives, the following improvement activities have been planned for 2020:

2020 Objective Area	Programme
Manage and Minimise Emissions – Net Zero	<ul style="list-style-type: none"> • 2019 carbon footprint • Energy & Emissions Management Systems Gap Analysis • Initiate flare, vent & fugitive emissions scoping • Industry metrics embedding and reporting • UK Emissions Trading Scheme preparation
Oil & Chemical Discharges – Cross Operations	<ul style="list-style-type: none"> • Q2/3 awareness campaigns based on permit compliance requirements and lessons learned • Review of SUB Chemicals and management of surplus chemicals • 5 yearly OPEP reviews including weather and dispersibility analysis
Manage and Minimise Waste Generation – Zero Waste	<ul style="list-style-type: none"> • Working directly with waste contractors to identify new waste management options away from landfill • E-Rep led trials of new recycling, composting and source reduction options offshore • Continuation of waste management training to offshore operations
E-Rep Engagement – Contributes to All Environmental Objectives and Targets	<ul style="list-style-type: none"> • E-Reps trials of online EMS internal auditor training • NEBOSH Environmental One Day training for E-Reps • E-Reps OPEP exercise awareness sessions offshore • Ongoing platform and cross asset meetings and E-Reps-led environmental improvement campaigns

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