INEOS UK SNS Limited

Environmental Report 2018

INEOS
Oil & Gas UK

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INEOS Oil and Gas UK

2018 Environmental Report

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Table of Contents

Table of Tables

Glossary

BEIS	Department of Business, Energy and Industrial Strategy
BMS	Business Management System
CMS	Caister Murdoch System
EMS	Environmental Management System
HS&EMS	Health Safety & Environment Management System
HSE	Health, Safety and Environment
ISO	International Standards Organisation
NUI	Normally unattended installation
OCNS	Offshore Chemical Notification Scheme
OCR	Offshore Chemicals Regulations 2002 (as amended 2011)
OPEP	Oil Pollution Emergency Plan
OSC	Offshore support contractor
OSPAR	Oslo Paris convention for the protection of the marine environment of the NE Atlantic
PLONOR	Poses Little or No Risk to the environment
PON1	Petroleum Operations Notice 1
PWT	Produced water treatment plant
SNS	Southern North Sea
TGT	Theddlethorpe Gas Terminal
VOC	Volatile Organic Compounds

1 Introduction

This document is the 2018 Environmental Report for INEOS UK SNS Ltd ('INEOS Oil and Gas UK') and describes offshore operations undertaken throughout the year.

This report is a public statement designed to:

- Describe the scope of the company's offshore activities;
- Provide a description of the INEOS Oil and Gas UK Environmental Management System (EMS);
- State the company's environmental policy, goals, objectives and targets; and
- Provide a performance summary for 2018.

This document is the fourth annual Environmental Report to be issued as a public statement by INEOS UK SNS Limited.

2 Scope of Activities

This Section summarises activities undertaken in 2018.

2.1 Overview of INEOS

INEOS is a global manufacturer of petrochemicals, speciality chemicals and oil products with sales of around $60 billion. It is one of the UK's largest manufacturing businesses, and through acquisitions and revitalising existing facilities, it has become a significant player in the oil and gas market. INEOS Oil and Gas UK is part of the INEOS Oil and Gas group which incorporate a number of onshore and offshore oil and gas companies.

INEOS UK SNS Limited was operator of the following fields that were producing during 2018: Breagh, Clipper South and Cavendish and was also operator of the following non-producing assets: Windermere, Topaz, Crosgan, Carna and Gasta. Cavendish was shut-in on 15th August 2018 and has not been operational since. The licences for Topaz and Carna were relinquished in 2018 and INEOS withdrew from the Crosgan licence in April 2018.

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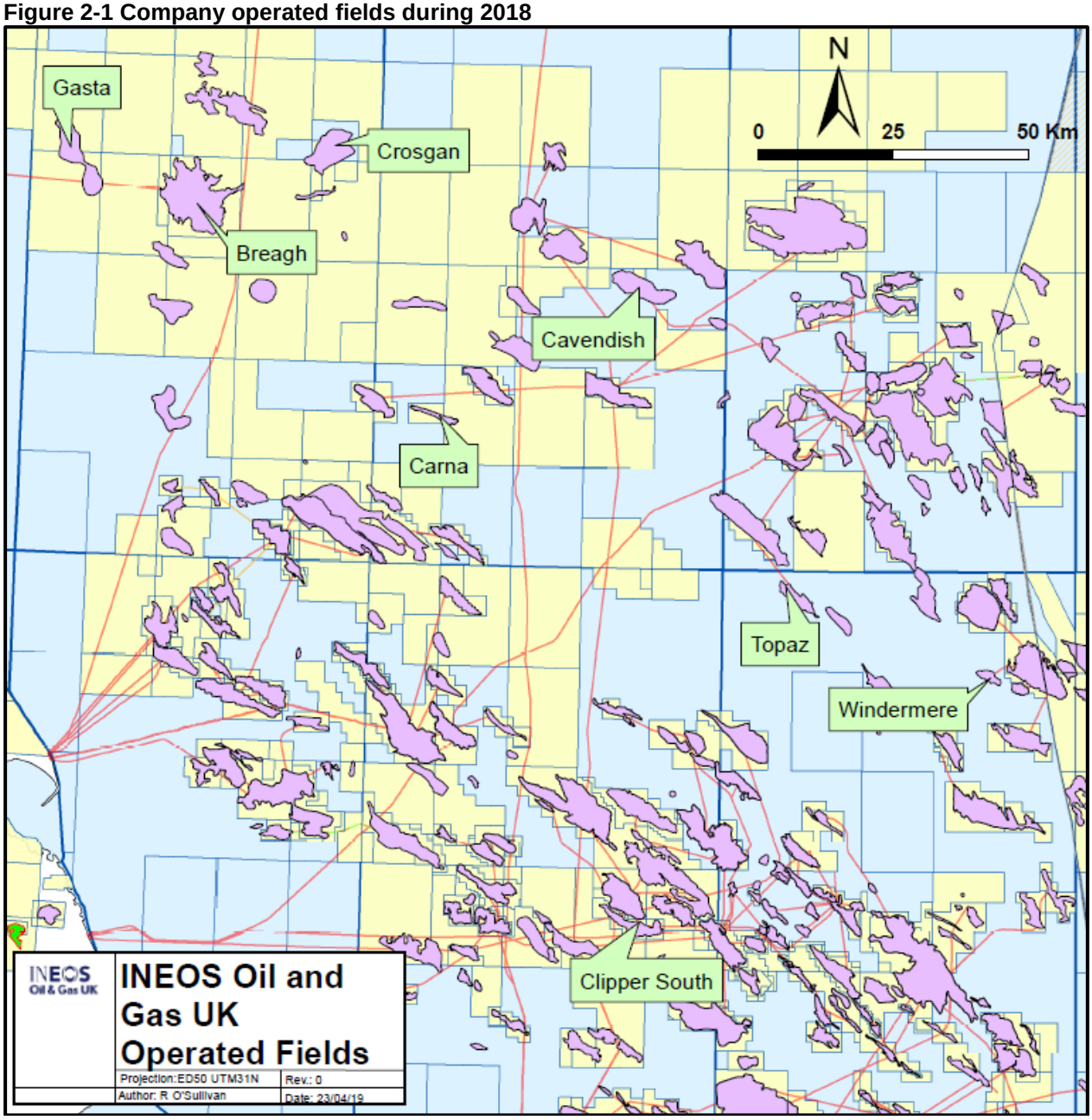
2.2 Offshore activities during 2018

The locations of INEOS UK SNS Ltd operated fields are shown in Figure 2.1 below.

Figure 2-1 Company operated fields during 2018



2.2.1 Production Operations

2.2.1.1 Breagh

The Breagh A platform is located in SNS Block 42/13a in a water depth of 62m. The platform was installed in late 2011 and production commenced in October 2013. The platform is normally operated unmanned, typically for periods of between 35-40 days in between maintenance visits. The ENSCO 121, a mobile offshore drilling unit, was brought alongside in July 2017 in order to undertake further drilling operations and left location in July 2018 having drilled two new wells, two side tracks and undertaken installation of a velocity string.

The Breagh platform is controlled, operated and maintained for production purposes by INEOS Oil and Gas UK, with the assistance of an Offshore Support Contractor (OSC).

2.2.1.2 Clipper South

Production operations commenced at the Clipper South platform in August 2012. It is located in SNS Block 48/19, approximately 100km east of the Theddlethorpe gas terminal, in a water depth of 23.5m.

The platform is operated as an NUI and maintenance visits typically occur for then days per month. INEOS Oil and Gas UK operate the Clipper South platform with the assistance of the OSC.

Clipper South originally exported gas via the ConocoPhillips owned LOGGS platform. This was taken out of service in October 2018 and therefore an alternative export route was required. Commencing in April 2018 the Clipper South to LOGGS export pipeline was taken out of service and a new pipeline between Clipper South and the Shell owned Clipper platform was installed. This was commissioned in October 2018, however, production from Clipper South was restricted by the liquids handling capabilities at Clipper. A Water Treatment Plant was installed and commissioned at Clipper South to remove hydrocarbons from produced water and enable discharge overboard. This commenced operation in December 2018. During these works the installation was fully manned. The Seafox 5 jack-up accommodation barge was present for one month during commissioning activities.

2.2.1.3 Cavendish

The Cavendish platform is a gas and condensate producing NUI located in SNS Block 43/19a. The platform is tied back via a 47 kilometre long 10-inch pipeline to the ConocoPhillips operated Murdoch host platform. The Cavendish platform is a fixed four-legged jacket that is visited on a routine basis to undertake maintenance operations. The Cavendish topsides facilities enable primary operational control from the Murdoch platform. The Murdoch platform is the main hub of the Caister Murdoch System (CMS). Incoming gas supplies are commingled at Murdoch before being landed onshore in the UK, via the CMS trunk line, at the Theddlethorpe Gas Terminal (TGT). The Murdoch platform will be decommissioned shortly. Of the three wells at Cavendish, only one remained operational during 2018 and this was shut in, in August.

The Cavendish platform is controlled, operated and maintained by INEOS Oil and Gas UK, with the assistance of the OSC.

2.2.1.4 Topaz

The Topaz subsea well head and protective structure was a gas producing seabed installation located in SNS Block 49/02a. The facility is tied back to the Schooner host platform via a 15.2 kilometre long 6-inch gas export line, with associated methanol feed line and control and communications cable. The Schooner platform is itself tied back to the Murdoch platform described above. Schooner is owned by Faroe Petroleum (UK) Limited.

Due to low flow rates, the Topaz well has been shut in and production ceased on 31st October 2017.

2.2.1.5 Windermere

The Windermere platform is an NUI located in SNS Block 49/09b. This is now operating in Hydrocarbon Safe Mode (HSM). No hydrocarbons or chemicals are now stored or used on the platform. Maintenance visits occur once per year when a vessel is used to allow daytime access. These visits last a maximum of 7 days.

2.2.2 Drilling Operations

Drilling commenced at Breagh during July 2017 and completed in July 2018. The ENSCO 121 was on location to perform the drilling of wells A9 and A10, side tracks at A4 and A5 and installation of a velocity string at A1. The wells were cleaned and tested and brought online during 2017 and 2018.

3 EMS Summary

This Section provides a brief description of the company's EMS as it operated in 2018.

3.1 Introduction

The EMS is a component of the overall Business Management System (BMS) that defines the organisational structure, planning activities, responsibilities, procedures, business processes and resources required for developing, implementing, achieving, reviewing and maintaining the environmental policy.

The EMS is a tool for identifying and managing the impact the business has on the environment. It works to reduce this impact by controlling the quantity of materials and energy used and the amount of waste produced. As well as facilitating the management of environmental impacts in a credible way, the EMS provides a practical tool to help evaluate and improve performance.

The following guiding principles and methodologies are incorporated into the OSPAR Strategy and integrated, as appropriate, into the EMS:

- the precautionary principle;
- the polluter pays principle;
- best available techniques and best environmental practice, including, where appropriate, clean technology;
- sustainable development;
- the application of an integrated ecosystem approach; and
- the waste management hierarchy of avoidance, reduction, re-use, recycling, recovery, and residue disposal.

3.2 Verification

The offshore operations undertaken by the business have had ISO 14001 certification since 2010, which was first obtained by previous owners of the business, and has continued through into INEOS Oil and Gas UK ownership. This covers the management of all the company's exploration, drilling, development and production operations. The most recent surveillance audit was undertaken in July 2018.

3.3 Review

A formal review of HSEQ performance is conducted annually. This is an essential step required to assess the effectiveness of the HS&EMS in achieving the aims of the company's policy and objectives and to achieve continuous improvement in the control system.

The review process enables the company to:

- review progress against existing objectives and targets;
- consider evidence of performance, such as audits and other reports;
- consider the sufficiency of the organisational structure, the available resources, the policy and the management system in general; and
- agree new objectives and targets.

Internal auditing is used to objectively investigate how each element of the management system is being applied. Internal audit reports provide input to management review, along with other performance indicators.

4 Environmental Policy

This Section provides a brief description of the company's environmental policy, including relevant environmental goals, objectives and targets set for significant environmental aspects and impacts.

4.1 Introduction

In line with the OSPAR Strategy, the company has established an environmental goal of protecting and conserving the maritime area against any potentially adverse effects resulting from its activities. To achieve this goal, programmes and measures to identify, prioritise, monitor and prevent/reduce/eliminate any emissions, discharges or losses of substances which could cause pollution have been developed.

Non-polluting activities, that may have potentially adverse effects on the ecosystems and biological diversity of the maritime area, include exploration activities and the installation or decommissioning of structures, cables and pipelines.

4.2 HS&E Policy Statement

The components of the HS&E Policy Statement that relate to environmental management are stated in the remainder of this Section.

The Company recognises its moral and legal obligations to conduct all activities in a manner which protects the natural environment with the prevention of pollution. All employees are required to act responsibly so as to protect the environment.

In relation to environmental management, the company will:

- annually set QHSE objectives, seeking to achieve continual improvement;
- ensure that a competent workforce is established and receives all necessary information, instruction and training and that all personnel have a clear understanding of their roles and responsibilities;
- monitor and record QHSE performance and assess compliance through internal audits;
- annually conduct management review of performance against objectives;
- ensure that sufficient resources are provided to achieve its objectives;

For all business activities and projects, the company will;

- comply, as a minimum, with all HS&E legislation applicable in the UK, to discharge its Duty of Care, applying best industry practice and undertaking steps to improve safety or environmental protection levels where appropriate;
- ensure that systematic hazard identification, assessment of risk and incorporation of measures to control risks are central to all our activities;
- apply all necessary control measures in the design, construction and operation of offshore facilities to prevent the occurrence of major accident events;
- select competent contractors with regard to their QHSE management capability and provide them with all necessary information;
- monitor and audit contractors as necessary;
- maintain emergency and contingency plans.

The company requires each of its contractors and suppliers to:

- operate effective QHSE management systems; and
- comply with INEOS Oil and Gas UK's QHSE requirements including appropriate QHSE planning, hazard identification, risk control, performance monitoring and reporting.

4.3 Objectives and targets for 2018

The environmental management objectives and targets for the period between January and December 2018 were determined in order to progressively achieve the commitments set out in the HSE Policy Statement. Section 5.2 provides further detail.

5 Performance Summary

This Section provides a summary of performance in relation to compliance with relevant legislative requirements and compliance with the environmental policy, goals, objectives and targets. A summary of offshore environmental aspects, and their associated emissions and impacts, is also provided.

5.1 Introduction

The company's internal and external auditing processes enabled reporting on the areas of environmental performance defined in Section 4, i.e. the extent to which the environmental goals listed below have been achieved:

- compliance with legislation;
- progress made in achieving environmental goals; and
- continual improvement in environmental performance.

5.2 2018 Environmental Performance Summary

Progress against the identified objectives and targets for 2018 is considered in the annual Management Review. Key objectives and targets are related to development of the EMS, risk management, training, emergency preparedness and response, environmental incidents and audit and review. The majority of objectives were achieved with two partly achieved and two ongoing. The audit schedule continues throughout the year in order to ensure that progress against objectives and targets is maintained.

5.2.1 Production Activities

Production operations during 2018 were undertaken at the Breagh, Clipper South and Cavendish fields.

5.2.1.1 PON1 Incidents

There were four incidents that required submission of a Petroleum Operations Notice 1 notification (PON 1) during 2018.

Table 5-1 INEOS Oil and Gas UK Ltd PON1 incidents

Date	Description of Incident
19/01/18	Diesel spilt from pinhole leak in bunkering hose as hose was being lifted. The quantity was estimated to be between 20 and 50 litres
11/03/18	Oily sheen observed on sea during well bore clean-out operations due to a small amount of condensate in wellbore fluid being discharged. Maximum quantity estimated to be 0.106 kg
15/04/18	Spill from Remotely Operated Vehicle (ROV) due to break in hydraulic pipework. Estimated 1 litre hydraulic oil discharged.
18/09/18	Estimated loss of 300ml of hydraulic fluid from pinhole leak in ROV hydraulic hose.

5.2.1.2 Chemical use and discharge

Platforms

During 2018, Breagh production operations used methanol gas hydrate inhibitor in order to undertake well start-up operations. The methanol remained within the production system and therefore was not discharged to sea at the platform.

Clipper South and Cavendish operations used and discharged SOBO S Gold 08 (colour band Gold) rigwash detergent for platform cleaning. No other chemicals were used or discharged.

Table 5-2 below presents the quantities of chemicals used and discharged at Breagh, Cavendish and Clipper South during 2018 based on label and ranking categories.

Table 5-2 Chemicals Used and Discharged during normal platform operations

OCNS category or colour band ranking	Additional Label	Quantity (kg)	
		Use	Discharge
E	PLONOR	25,888	0
Gold	-	131	131

No chemicals were used on Windermere or at Topaz during 2018.

5.2.1.3 Produced water discharges

The Breagh and Cavendish platforms utilise closed production systems and there are no separation facilities or disposal caissons at these installations. As such, there are no offshore discharges of produced water associated with these production operations. Windermere and Topaz were not in operation during 2018 and did not generate any produced water.

Activities to change the gas export route from Clipper South involved the installation of a Produced Water Treatment (PWT) plant. Gas is directed from Clipper South to Shell's Clipper platform, however the quantity of produced water currently exported by Clipper South cannot be managed by Clipper without exceeding their export specifications. In order for Clipper South to continue production at viable rates, some of the produced water must be removed prior to export to Clipper. The PWT package was installed on Clipper South in 2018 and was commissioned in December. Table 5-3 below presents the volume of water that was processed by the PWT and the results of the sampling of the water that is discharged once treated.

Table 5-3 Clipper South PWT Discharge Results

Month	Total Volume of Water (m^3)	Average Oil in Water (mg/l)	Weight of Oil (t)
December	5,993	11.47	0.069

5.2.1.4 Waste

A total of 142 tonnes of waste was generated by the NUIs during 2018. A summary is provided as Table 5-4 below. No waste was directed to landfill during 2018.

Table 5-4 Summary of Waste from Production Operations (tonnes), 2018

Asset	Group	Type	Reuse	Re-cycling	Waste to Energy	Incinerate	Landfill	Other	Total	Comments
Breagh	Group I	Drums/ Containers	0	0.04	0	0	0	0	0.04	
		Oils	0	4.9	0	0	0	0	4.9	
		Misc	0	0.01	0.82	0	0	0	0.83	
		Sludges/ Liquids/ Washings	0	0	3.17	0	0	7.25	10.42	Treatment
	Group II	Drums/ Containers	0	0.05	0	0	0	0	0.05	
		Scrap Metal	0	1.04	0	0	0	0	1.04	
		Segregated recyclables	0	0.42	1.3	0	0	0	1.72	
		General	0	0	2.76	0	0	0	2.76	
		Sludges / Liquids / Tank Washings	0	0	0	0	0	1.75	1.75	Treatment
Cavendish	Group I	Drums/ Containers	0	0.1	0	0	0	0	0.1	
		Oils	0	0.4	0	0	0	0	0.4	
		Misc	0	0.18	0	0	0	0	0.18	
		Sludges/ Liquids/ Washings	0	0	0	0	0	0.8	0.8	Treatment
	Group II	Scrap Metal	0	0.16	0	0	0	0	0.16	
		Segregated Recyclables	0	0.02	0.31	0	0	0	0.33	
		General	0	0	1.46	0	0	0	1.46	
Clipper South	Group I	Chemicals / Paints	0	0.4	0.34	0.01	0	0	0.75	
		Drums/ Containers	0	0.39	0	0	0	0	0.39	
		Oils	0	1.5	0.1	0	0	0	1.6	
		Misc	0	1.02	0.11	0	0	0	1.13	
		Sludges/ Liquids/ Washings	0	0	0	0	0	50.9	50.9	Treatment
	Group II	Drums/ Containers	0	0.07	0	0	0	0	0.07	
		Scrap Metal	0	3.95	0	0	0	0	3.95	
		Segregated Recyclables	0	16.6	13.91	0	0	0	30.51	
		General	0	6.58	19.1	0	0	0	25.68	
	Group III	Clinical	0	0	0	0.04	0	0	0.04	
TOTAL			0	37.83	43.38	0.05	0	60.7	141.96	

In addition to the above wastes, the liquid waste generated at the Breagh, Cavendish, Windermere and Schooner[1] platforms during routine maintenance visits was limited to small volumes of wastewater, from the sink and shower, as well as sewage from the single toilets, which was discharged to sea. The Clipper South platform has a macerator for all black waste. The small amounts of domestic waste generated during NUI visits is bagged and returned onshore. Company policy states that no garbage, including plastic, is to be disposed of overboard.

5.2.1.5 Atmospheric emissions

The Breagh, Clipper South and Cavendish platforms have self-sufficient power supplies in the form of standalone diesel generators. Operational emissions to air from combustion of diesel to power generators is summarised in Table 5-55 below.

Table 5-5 Emissions to Air from Breagh, Clipper South and Cavendish (tonnes), 2018

		Emissions to Air						
Asset	**Diesel Used**	**CO_2**	**CO**	**NO_x**	**N_2O**	**CH_4**	**VOC**	**SO_x**
Breagh	25	80	0.4	1	0.01	0.00	0.05	0.10
Cavendish	18.5	59	0.3	1	0.00	0.00	0.04	0.07
Clipper South	211.3	676	3.3	13	0.05	0.04	0.42	0.85

Atmospheric emissions relating to production operations at Breagh, Cavendish and Clipper South were also generated as a result of the combustion of fuel onboard the helicopters and supply/standby vessels utilised during planned maintenance visits. One walk-to-work (WTW) campaign was undertaken at Windermere lasting three days, which required the presence of the WTW vessel and a standby vessel. No power generation is available on Windermere.

In addition to the above, emissions to air from operational facilities emanated from the manual venting of produced gas for maintenance purposes. The calculated emissions of direct gas from operational facilities in 2018 comprised the following from maintenance venting:

- Breagh – 8.5 tonnes
- Cavendish – 0.24 tonnes
- Clipper South – 1.3 tonnes

5.2.1.6 Oil spills

Oil Pollution Emergency Plans (OPEPs) were in place to cover all production operations at Breagh, Clipper South, Cavendish, Topaz and Windermere during 2018. Each OPEP lists the required offshore and onshore actions and responses, defines roles and responsibilities in the event of an oil spill and provides a risk assessment.

5.2.1.7 Other activities

<u>Clipper South Pipeline Re-Route</u>

In order to alter the Clipper South export route the Clipper South to LOGGS pipeline was flushed, flooded and disconnected. To undertake this work a chemical permit was granted for the cleaning of the line which was left in a flooded condition with preservation products included to enable future use if appropriate. An oil discharge permit was also issued in order to undertake the work. It was estimated that approximately 20m^3 of fluids were discharged during this operation with an

[1] Waste that is applicable to the Topaz subsea tieback.

oil in water average concentration of 7mg/l. This would result in a discharge of up to 0.14kg of oil into the sea. A marine licence was granted consenting the disconnection of the pipeline.

A new pipeline was installed between the Clipper South platform and the Shell Clipper platform. The installation, hydrotesting and flooding of the pipeline prior to commissioning required the use of a number of chemicals, which are presented in Table 5-6 below. A marine licence was granted for positioning this pipeline on the seabed.

All chemicals used during these two projects are presented in Table 5-6. All other aspects of this project (including waste and energy consumption) are included in the platform information above.

Table 5-6 Chemicals used and discharged during Clipper South to LOGGs and Shell Clipper operations, 2018

OCNS category or colour band ranking	Additional Label	Quantity (kg)	
		Use	Discharge
E	PLONOR	4,049	3931
Gold	-	3432.78	362.19
Silver	SUB	643.2	0
	O-VII	0.15	0
	-	0.6	0.6

Drilling at Breagh

Drilling operations undertaken at Breagh comprised drilling of wells A9 and A10, side tracks at A4 and A5 and installation of a velocity string at A1. This was completed by the mobile offshore drilling unit (MODU) ENSCO 121. As operations commenced in July 2017 and completed in July 2018 it was determined that all information from the drilling campaign should be provided once the project was complete, therefore the information below relates to the entire campaign.

5.2.1.8 Chemical use and discharge

The total amounts of chemicals used and discharged during operations at Breagh are presented in Table 5-7. Of the 10,088 tonnes of chemicals that were used during this operation, 75% were OCNS category E chemicals that are labelled as posing little or no risk to the environment (PLONOR). Only 6% were classified as requiring substitution (SUB). A description of the strategies the suppliers are employing to replace these chemicals was provided to BEIS as part of the annual substitution reporting.

Table 5-7 Chemicals used and discharged during Breagh Drilling operations, 2017 – 2018

OCNS category or colour band ranking	Additional Label	Quantity (t)	
		Use	Discharge
E	PLONOR	7,612.3	2,898.3
	-	58.1	1.0
Gold	-	141.2	59.7
	SUB	431.4	28.9
D	-	1,668.1	0.008
	SUB	43.5	0
C	-	0.08	0.01

OCNS category or colour band ranking	Additional Label	Quantity (t)	
		Use	Discharge
	SUB	132.7	0
B	-	0.4	0.001
Total		10,087.82	2,988.01

5.2.1.9 Waste

The MODU undertaking the drilling operations is responsible for ensuring compliance with all waste disposal licences and waste transfer documentation requirements for scrap metal and non-hazardous waste. Reuse or recycling is the preferred option. Company policy states that no garbage, including plastics, are to be disposed overboard. Only macerated food waste and sewage is discharged.

Drilling operations used water based mud (WBM) for a number of the upper sections. It is permitted to discharge cuttings derived from WBM drilling sections to sea. During the Breagh operations approximately 2,180 tonnes of WBM cuttings were generated, of which 664 tonnes were discharged to sea. Oil based mud (OBM) cuttings are not discharged to sea. Approximately 4,530m^3 of OBM fluids were used during the operation; these fluids are either retained downhole or returned to shore for treatment.

5.2.1.10 Atmospheric emissions

Drilling operations at Breagh required the combustion of 3,250 tonnes of diesel on the Ensco 121. This resulted in the following calculated emissions to air.

Table 5-8 Summary of emissions to air (tonnes)

Source	CO_2	CH_4	NMVOC	SOx	NO_x
Power generation	10,400	0.59	6.5	13	193

In addition to the above, various supply boats, standby vessels, tugs and helicopters were used in association with the campaign which would slightly increase the emissions associated with the project.

5.2.1.11 Discharges to Sea

In accordance with MARPOL 73/78 Annex 1, oily drainage water generated onboard the Ensco 121 and the contracted support vessels, was collected and treated to provide an effluent with a maximum oil in water content of 15 ppm.

Once drilling is complete the well-bore must be cleaned prior to production. This may require that water contaminated with synthetic hydrocarbons is discharged to sea. The water is treated and tested prior to discharge to ensure permitted oil concentrations are not exceeded. Discharges to sea were required following three well clean-up operations. This resulted in discharge of 574m^3 of water which contained up to 27.1kg of oil.

The Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 (as amended) requires that discharges of reservoir hydrocarbons (i.e. produced water) are regulated. During well testing operations at Breagh a total of 397.8m^3 of water was generated. Oil discharge Term Permits were issued for all of these discharge activities. The average concentration of oil within the water was measured to be 12.4mg/l which resulted in a discharge of 0.007 tonnes of oil.

All drilling operations had a dedicated Oil Pollution Emergency Plan listing the required offshore and onshore actions and responses, defined role and responsibilities in the event of an oil spill, risk assessment and outline relief well drilling plans in the event of a blowout.