

U.K. Environmental  
Performance Review  
**2018**



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Cover Picture: Ensco 120 jack-up drilling at the Jasmine Wellhead platform.

#### CAUTIONARY STATEMENT

*This report contains forward-looking statements. We based the forward-looking statements on our current expectations, estimates and projections about ourselves and the industries in which we operate in general. We caution you these statements are not guarantees of future performance as they involve assumptions that, while made in good faith, may prove to be incorrect and involve risks and uncertainties we cannot predict. In addition, we based many of these forward-looking statements on assumptions about future events that may prove to be inaccurate. Accordingly, our actual outcomes and results may differ materially from what we have expressed or forecast in the forward-looking statements. Economic, business, competitive and other regulatory factors that may affect ConocoPhillips' business are set forth in ConocoPhillips' filings with the Securities and Exchange Commission (including in Item 1A of our Form 10-K), which may be accessed at the SEC's website at [www.sec.gov](http://www.sec.gov).*

# 1. Introduction

The purpose of this report is to provide stakeholders and the public with an overview of ConocoPhillips operations and environmental performance in the U.K. for 2018.

## This report aims to:

- Describe our main assets and activities
- Provide a brief overview of environmental management within the company
- Provide details on key environmental aspects and their impact
- Summarise the environmental performance of our U.K. business and progress against objectives for the year

## ConocoPhillips

ConocoPhillips is the world's largest independent exploration and production (E&P) company based on proved reserves and production of liquids and natural gas. We explore for, produce, transport and market crude oil, bitumen, natural gas, natural gas liquids and liquefied natural gas on a worldwide basis. As of Dec. 31, 2018, we had operations and activities in 16 countries. Operations are managed through six segments, which are defined by geographic region: Alaska, Lower 48, Canada, Europe and North Africa, Asia Pacific and Middle East, and Other International.

ConocoPhillips' operating segments generally include a strong base of legacy production and an inventory of low cost of supply investment opportunities. The company also pursues focused conventional and unconventional exploration that over time can add to the company's low cost-of-supply resource base.

The company embraces its role in responsibly accessing, developing and producing oil and natural gas to help meet the world's energy needs. ConocoPhillips has the technical capability to operate globally while maintaining a relentless focus on safety and environmental stewardship.

ConocoPhillips has operated in Europe for more than 50 years, with significant developments in the U.K. and Norwegian sectors of the North Sea. These include the Greater Britannia, J-Area and Southern North Sea (SNS) fields in the U.K. and the Greater Ekofisk Area in Norway. The company also conducts exploration activity in both Norway and the U.K. Following 46 years of operations, production from the Southern North Sea in the U.K. ceased on 15<sup>th</sup> August 2018 and the focus of activity has now changed to decommissioning.

ConocoPhillips, through its entities: ConocoPhillips (U.K.) Limited, ConocoPhillips Petroleum Company U.K. Limited, ConocoPhillips (U.K.) Britannia Limited and Burlington Resources (Irish Sea) Limited together operate as the ConocoPhillips U.K. Business Unit (UKBU).

Offshore in the U.K. ConocoPhillips is operator of, or has interests in, the following fields: Britannia, Britannia Satellites, Judy/Joanne, Jade, Jasmine, CMS Area, LOGGS, Calder, Millom, Dalton, Clair, Galleon and Nicol.

The company also has an obligation in the following decommissioning fields: Victor, Viking, Jupiter, MacCulloch, Don and Miller.

Onshore in the U.K. the company has interests in the Rivers Terminal at Barrow-in-Furness, the Teesside Oil Terminal at Seal Sands, Middlesbrough and the Theddlethorpe Gas Terminal at Mablethorpe in Lincolnshire.

At ConocoPhillips, keeping people and assets safe, and being good stewards of the environment are critical to running our business well. Our SPIRIT Values — Safety, People, Integrity, Responsibility, Innovation and Teamwork — inspire our actions, they unify our organisation and we stake our reputation on being accountable to our stakeholders, communities and each other.

<b>S</b>	<b>P</b>	<b>I</b>	<b>R</b>	<b>I</b>	<b>T</b>
SAFETY	PEOPLE	INTEGRITY	RESPONSIBILITY	INNOVATION	TEAMWORK
We operate safely.	We respect one another, recognising that our success depends upon the commitment, capabilities and diversity of our employees.	We are ethical and trustworthy in our relationships with stakeholders.	We are accountable for our actions. We are a good neighbour and citizen in the communities where we operate.	We anticipate change and respond with creative solutions. We are agile and responsive to the changing needs of stakeholders and embrace learning opportunities from our experience around the world.	Our "can do" spirit delivers top performance. We encourage collaboration, celebrate success, and build and nurture long-standing relationships.

# 2. Achievements

Some of the key accomplishments of the UKBU during 2018 were:

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Successful transition of the Environmental Management System (EMS) certification from the ISO 14001:2004 Standard to the new ISO 14001:2015 Standard.
- 

The *Ensco 120* drilling rig remained at the Jasmine Wellhead Platform throughout 2018. The rig started with a horizontal Palaeocene development well, the first in J-Area for nearly 20 years, before moving on to drill a depleted Triassic HP/HT (High Pressure/High Temperature) infill well utilising novel depleted drilling techniques. This was followed by a Triassic exploration well and finally a workover to recomplete an existing well in the Palaeocene Sand.
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In partnership with the contracted waste management company, arrangements were completed to improve the management of dry recyclable waste. Wastes including general waste, galley waste, paper, cardboard, plastic, glass, aluminium cans and wood are collected in single receptacles offshore. This saves space and multiple loads with specialised facilities for sorting the waste onshore. ConocoPhillips expect this to result in a noticeable improvement in recycling and a subsequent reduction in waste sent to landfill.
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The full strip and inspect scopes of all hydrocarbon lines for Corrosion Under Insulation (CUI) were completed on the Judy and Britannia platforms, removing uncertainty and threat of loss of containment.

Successfully managed the Britannia Asset Integrity Rectification programme including the replacement of key utility systems and safe execution of 40,000 hours of inspection.
- 

At 5.00am on 15<sup>th</sup> August 2018 the flow of natural gas from the Theddlethorpe Gas Terminal (TGT) to the UK National Grid ceased, and production was stopped at the LOGGS and Murdoch platforms. This milestone marks the end of over 46 years of Southern North Sea (SNS) production operations and the shift to SNS decommissioning.
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Plugging and Abandonment (P&A) operations continue in the SNS. The *Ensco 92* drilling rig completed the abandonments of three wells on the Viscount VO platform before moving to Caister CM. The work at Caister CM provided valuable experience for the team, who developed innovative methods that allowed eight wells to be successfully abandoned before the rig moved to North Valiant SP to undertake the abandonment of nine wells. By the end of 2018, 69 wells out of 139 had been abandoned ahead of schedule.

Jasmine wellhead platform (WHP) jacket

## U.K. HSE Policy

### Policy Statement Commitment

ConocoPhillips (U.K.) Limited is committed to protecting the health and safety of everybody who plays a part in our operations or lives in the communities in which we operate. Wherever we operate, we will conduct our business with respect and care for both the local and global environment and will systematically manage risks to drive sustainable business growth.

We will not be satisfied until we succeed in eliminating all injuries, occupational illnesses, unsafe practices and incidents of environmental harm from our activities.

### Organisation and Responsibilities

The ConocoPhillips U.K. President has overall accountability for the Health, Safety and Environmental (HSE) performance of our U.K. operations.

Health, Safety and Environmental staff with reporting lines to senior management are appointed at various locations throughout the Company. These personnel are responsible for providing advice and guidance on matters relating to the health, safety and welfare of employees and on environmental matters.

All managers and supervisors at ConocoPhillips are responsible and accountable for the health and safety of their staff by:

- Ensuring that all applicable Health, Safety and Environmental legislation and codes are adhered to and that appropriate actions are taken to ensure a safe working environment.
- The active participation of all employees in the achievement of Health, Safety and Environmental objectives.
- Conducting all activities in accordance with the requirements of the Operating Management System (OMS).

Employees are responsible for ensuring they comply with relevant legislation and the OMS, to ensure prevention of harm to themselves, their colleagues and the environment.

### Arrangements

To meet our Policy Statement, ConocoPhillips (U.K.) Limited will:

- Demonstrate active Health, Safety and Environmental leadership and communication of this policy.
- Comply with relevant laws and regulations.
- Maintain "stop work policies" that establish the responsibility and authority for all employees and contractors to stop work they believe to be unsafe.
- Provide medical services to give advice, guidance, support and monitoring on health-related matters.
- Include environmental considerations in our business decisions and minimise the impacts of our activities on the environment.
- Implement procedures to ensure that integrity and reliability issues, which have the potential to cause an HSE impact, are properly considered at all stages in the asset life cycle.
- Ensure that all employees and contractors understand that working safely is a condition of employment, and that everyone is responsible for their own safety and for minimising environmental impacts of our operations.
- Manage all projects and processes through their life cycles in a way that protects health and safety, prevents pollution and manages wastes.
- Develop safe systems of work for all potentially hazardous situations; identify and assess major accident hazards.
- Provide employees, contractors and suppliers with the training, knowledge and resources necessary to achieve our Health, Safety and Environmental commitments.
- Provide effective emergency response systems allowing onshore and offshore personnel to deal effectively with emergency situations.
- Measure, audit and publicly report Health, Safety and Environmental performance and maintain open dialogue with stakeholder groups.
- Promote and adhere to the ConocoPhillips Life Saving Rules.
- Work with the regulator and other stakeholders to continuously improve Health, Safety and Environmental performance.

Terri King, President, ConocoPhillips U.K.

*"Nothing is so urgent or important, that we cannot take time to do it safely and in an environmentally prudent manner"*

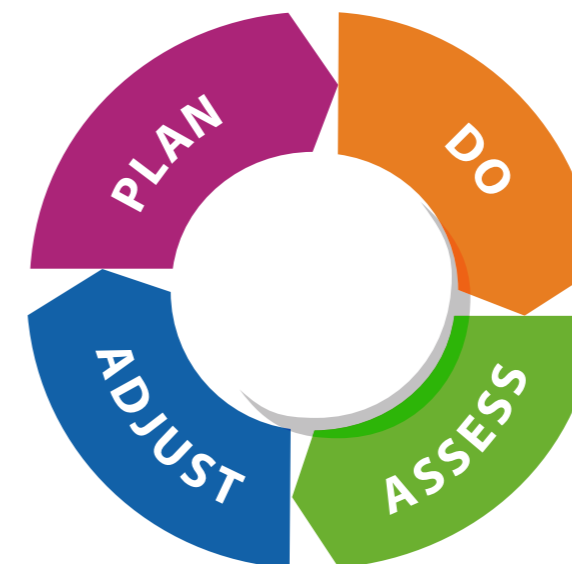
# 3. Environmental Management

As a company, ConocoPhillips is committed to conducting our business with respect and care for both the local and global environment.

The ConocoPhillips U.K. Health, Safety and Environmental (HSE) Policy provides a framework for the integrated management of environmental issues related to the UKBU activities. It commits the company to comply with environmental legislation and strive for continual improvement in environmental performance.

## 3.1 Environmental Management Process

The UKBU has implemented a dedicated environmental management process that is fully integrated within its Deming Cycle-based Operating Management System (OMS); the OMS provides the governance by which the company's HSE Policy is implemented throughout our operations.



The UKBU environmental management process has been designed to meet the requirements of the ConocoPhillips global HSE Management System Standard, utilising the framework contained in the internationally recognised environmental management systems standard ISO 14001.

## 3.2 Environmental Management System Certification

Our Environmental Management System (EMS) applies to all activities onshore and offshore carried out by the UKBU.

During 2018 our EMS certification successfully transitioned to the new ISO 14001:2015 Standard. Progress continued throughout 2018 in preparation for the full three-yearly recertification assessment in April 2019.

# 4. Viking and LOGGS Area Decommissioning

Our sustainable development approach is integrated into the company's planning and decision making with a foundation of policies and positions, action plans, performance indicators, engagement and transparent reporting. Our governance model extends from the Public Policy Committee of the board of directors, through the executive team, to company leaders and subject matter experts. Business unit and functional sustainability risk assessments provide specific focus on significant issue areas, including climate change, water, biodiversity, stakeholder engagement and social responsibility.



Seajacks Leviathan jack-up accommodation work vessel at Viking Bravo completing the transition to cold suspension in 2017

## 4.1 Viking and LOGGS Area Decommissioning

Marine Protected Areas (MPAs) are a key part of the European biodiversity strategy. Their purpose is to protect and conserve species, habitats, ecosystems or ecological processes of the marine environment and to strike a balance between this and economic activity to ensure the sustainable use of marine resources.

The UKBU is working to address the challenge of decommissioning the infrastructure associated with the Viking and LOGGS offshore gas production and export facilities, installed in the Southern North Sea (SNS) more than 30 years ago. Since that time, the offshore location where this infrastructure is situated is also now within the boundaries of two overlapping designated offshore MPAs.

- The 'North Norfolk Sandbanks and Saturn Reef, Special Area of Conservation (SAC)' is the most extensive example of sandbank habitat type in UK waters, supporting communities of invertebrates typical of sandy sediments. Areas of biogenic reef are also present in the form of large accumulations of sand-tubes made by *Sabellaria spinulosa* (a polychaete worm).
- The 'Southern North Sea Special Area of Conservation' is designated for the protection of harbour porpoise *Phocoena phocoena*. It covers an area of 36,951 square kilometres and supports an estimated 17.5 percent of the U.K. North Sea Management Unit harbour porpoise population.

Working within or adjacent to designated MPAs has influenced the design of the UKBU Decommissioning Programmes, promoting opportunities to reduce the environmental impact of our activities. The UKBU has applied the principles of the ConocoPhillips Biodiversity Position and Stakeholder Engagement practices to guide their SNS decommissioning strategy.

Following comprehensive risk assessment, our preferred option for the decommissioning of infield pipelines located within an MPA is to flush the pipelines to remove any mobile hydrocarbon residues and then leave them on the seabed with minimum intervention (that is the burial of cut pipeline ends or placement of rock over them, to reduce potential hazards to other users of the sea).

The Offshore Petroleum Regulator for Environment and Decommissioning (OPRED), a unit within the Department for Business Energy and Industrial Strategy, must determine the implications of a proposed offshore Decommissioning Programme for the conservation objectives of an MPA. They must also assess the likelihood of significant environmental impact occurring, either from an individual programme or in combination with other plans or projects proposed in the area. The decision making procedure applied by the regulator to make this determination is known as a Habitats Regulations Assessment (HRA).

The UKBU has developed an activity matrix that identifies all decommissioning activities proposed to be undertaken by ConocoPhillips within the MPA over a 10-year period. It also quantifies their potential area of impact. The information provided by the UKBU was recognised by OPRED as making a significant contribution in enabling them to complete their Strategic HRA of proposed activities within the North Norfolk Sandbanks and Saturn Reef Special Area of Conservation. OPRED concluded that the physical impacts arising from the planned decommissioning activities will not have an adverse effect upon the integrity of the site. Although the potential impacts from the proposed activities within the Southern North Sea Special Area of Conservation may cause temporary and localised disturbance to harbour porpoise and their prey species, impacted individuals will locate to other suitable sites within the MPA and the overall integrity of this site would not be adversely affected.

In support of our approach to leave the infield pipeline infrastructure in place, and agreed with OPRED, a post decommissioning monitoring programme has been developed to inspect the pipelines to identify emerging risks to other users of the sea and future remediation requirements.



*The Mountain Institute, Peru - Winner of the 2018 St Andrews Prize for the Environment.*

## 4.2 The St Andrews Prize for the Environment

The St Andrews Prize for the Environment is an initiative between ConocoPhillips and the University of St Andrews that was established in 1998 to recognise significant contributions to environmental conservation. The Prize rewards innovative, practical solutions to environmental problems, which can be replicated in different regions of the world, taking account of their social and economic implications.

On 26 April 2018, the finalists, trustees, screening committee and delegates gathered at the University of St Andrews in Scotland for the 20<sup>th</sup> St Andrews Prize for the Environment award ceremony. Since its launch in 1998, the Prize has attracted more than 5,400 entries from around the world and donated approximately two million U.S. Dollars to environmental initiatives on a wide range of topics including: sustainable development, urban regeneration, waste and recycling, water, biodiversity, environmental health and sanitation issues, renewable energy, wildlife conservation, reducing human with animal conflict, food supply, and land use and maintenance.

[www.thestandrewsprize.com](http://www.thestandrewsprize.com)

### The St Andrews Prize for the Environment winner in 2018 was:

#### The Mountain Institute, Peru – Restoring Ancient Water Technologies

The Mountain Institute, Peru works on restoring ancient water technologies. The project integrates 2,000 years of indigenous knowledge of water management in the Andes with contemporary science and technology to create hybrid solutions that improve water security, support livelihoods and increase ecosystem-wide resilience in mountain communities. Healthy mountain ecosystems help buffer the impacts of climate change for local communities, wildlife and downstream populations worldwide. People living in the mountains rely on their surrounding environment for water, food, pasture and the raw materials that are the foundation of their livelihoods. Further downstream, towns and cities depend on mountain water for drinking, agriculture and industry. Efforts to manage, conserve or restore natural environments can help people adapt to climate change by taking advantage of a healthy ecosystem's natural resilience.

### The runners-up in 2018 were:

#### Net-Works – Empowering Communities, Replenishing the Ocean

Net-Works improves the lives of marginalised coastal communities living in biodiversity hotspots of developing countries. They do this by redesigning global supply chains to create sustainable and scalable solutions for reducing marine plastics and increasing fish stocks. Net-Works' simple, scalable and holistic model applies the principles of fair trade and inclusive business, creating efficient community-based supply chains for raw materials including plastics and seaweed carrageenan (a family of linear sulphated polysaccharides extracted from red edible seaweeds that are widely used in the food industry for their gelling, thickening and stabilising properties). By increasing income from seaweed, this reduces the community's dependence on fishing, enabling them to set aside larger community-based Marine Protected Areas (MPAs) with No-Take Zones (NTZs) and mangrove rehabilitation areas, key for restoring coastal ecosystems and enhancing socio-ecological resilience. The raw materials are sold into global supply chains, giving international brands the opportunity to source premium products with a positive social and environmental story.

#### TEDs in Malaysia – Fishing Industry Incentives for Turtle Conservation

Marine Research Foundation's (MRF) project seeks to broker relationships between leading hotel chains and shrimp fishers to catch turtle-free shrimp. MRF's goal is to reduce the incidental capture and mortality of sea turtles in Malaysia by educating and incentivising fishing communities to use Turtle Excluder Devices TEDs. Their plan is to link fishers with international hotel chains that are keen to promote the use of sustainable seafood, particularly turtle-free shrimp. They will pay a small premium to fishers (in addition to the cost of the shrimp) for them to supply sustainable seafood to the hotels, enhancing the image of the fisher and the end-buyer. Long-term solutions to sustainable fishing lie in the hands of fishermen, buyers and consumers. Some people find it economically challenging to make choices based on environmental efforts, just as businesses do not waste capital on unsuccessful ventures. By bridging the two ends of the spectrum, MRF aims to incentivise fishermen and satisfy consumers.

# 5. U.K. Operations



## ConocoPhillips UK Average Daily Net Production - 2018\*

Area	Interest	Operator	Crude Oil (thousand barrels per day)	Natural Gas Liquids (NGL) (thousand barrels per day)	Natural Gas (million cubic feet per day)	Total (thousand barrels of oil equivalent per day)
Britannia	58.7 %	ConocoPhillips	2	1	74	15
Britannia Satellites	26.3 % - 93.8 %	ConocoPhillips <sup>1</sup>	11	1	92	27
J-Area	32.5% - 36.5%	ConocoPhillips	7	2	57	19
Clair*	7.5%	BP	6	-	1	6
Southern North Sea	Various	ConocoPhillips	-	-	22	4
East Irish Sea	100%	Spirit Energy	-	-	30	5
Other	Various	Various	-	-	5	1
<b>UK Total</b>			<b>26</b>	<b>4</b>	<b>281</b>	<b>77</b>

<sup>1</sup> Includes Chevron operated Alder field.

\* Production includes 5 thousand barrels of oil equivalent per day from the Clair Field 16.5 percent interest that was sold in 2018

## 5.1 J-Area

### Judy/Joanne

Commercial oil production and gas sales from the J-Area's Judy/Joanne fields began in 1997. The Judy platform and bridge-linked Judy riser platform (JRP) are in Block 30/07a of the Central North Sea, approximately 260 kilometres south-east of Aberdeen. Joanne is a single subsea manifold tied back to the Judy platform. The Judy facilities provide full processing and conditioning of gas and condensate from the Judy, Joanne, Jade and Jasmine fields.

Gas processed on the Judy platform is transported through the Central Area Transmission System (CATS) pipeline, and liquids are transported to Teesside through the Norpipe system.

### Jade

The Jade field came on stream in 2002 and consists of a normally unmanned platform tied back to Judy.

### Jasmine

The Jasmine development lies approximately 8.5 kilometres west of the Judy production facility. It comprises a Jasmine Wellhead Platform (JWHP) and an accommodation and utility platform bridge-linked to the JWHP and a multiphase pipeline from the JWHP to the JRP. The Jasmine field began production in 2013.



View of the Judy Riser Platform, which is bridge-linked to the Judy platform.

## 5.2 Greater Britannia Area

### Britannia

Britannia is one of the largest natural gas and condensate fields in the North Sea. It lies approximately 210 kilometres north-east of Aberdeen, primarily in Block 16/26 in the Central North Sea. The Britannia field is produced through the Britannia platform and a subsea centre located to the west. The Britannia Bridge Linked platform (BLP) is connected to the Britannia platform by a 92-metre bridge. It receives gas condensate and oil from the Britannia Satellite fields, these are passed through to the Britannia platform for further processing, compression and export.

Condensate is delivered through the Forties Pipeline to the oil stabilisation and processing plant, Kerse of Kinneil, near the Grangemouth Refinery in Scotland, and natural gas is transported through a dedicated Britannia pipeline to the Scottish Area Gas Evacuation (SAGE) facility at St. Fergus, Scotland.

### Britannia Satellites – Brodgar, Callanish and Enochdhu

The Brodgar field is located in Block 21/3 and the Callanish field in Blocks 15/29b and 21/4a. Production from both fields started in 2008. The fields produce via subsea manifolds and pipelines linked to the Britannia facilities. A third Brodgar well was completed and brought on stream in 2015.

Enochdhu is a single well tie-back to Callanish located in Block 21/5a, approximately 8 kilometres southeast of the Callanish subsea manifold. The Enochdhu field began production in 2015. Enochdhu production fluids are commingled with Callanish fluids and flow to the Britannia BLP via the existing Callanish facilities.

### Alder

Alder is a high-pressure, high-temperature gas condensate reservoir located in Block 15/29a, 27 kilometres west of the Britannia facilities. The Alder development comprises a single subsea well tied back to the Britannia BLP. It is remotely operated by ConocoPhillips on behalf of Chevron. First production from the Alder field through the Britannia facilities was achieved in 2016.



*The Britannia Platform.*





The Ensco 92 deployed for decommissioning at Vampire in the Southern North Sea.

### 5.3 East Irish Sea

ConocoPhillips' interests in the East Irish Sea include the Rivers Terminal at Barrow-in-Furness and six gas fields: Millom, Dalton, Calder, Darwen, Crossens and Asland. ConocoPhillips' assets in the East Irish Sea are operated by Spirit Energy, and environmental data is reported under the public statement for Spirit Energy.

Calder produces sour gas. It was developed with an unmanned platform and three development wells feeding to a producing platform and then through a pipeline to the Rivers Terminal. Options for developing the additional sour gas fields of Darwen, Crossens and Asland will be considered once the Calder Field begins to decline.

Sweet natural gas from the Millom and Dalton fields is produced through a platform and two subsea manifolds. The natural gas is fed through to the third-party North Morecambe Terminal via the North Morecambe platform.

The Rivers Terminal processes sour gas from the Calder Field, providing compression and removing hydrogen sulphide before piping the sweetened gas to the third-party North Morecambe Terminal for further processing, including nitrogen removal.

### 5.4 Southern North Sea

#### **CMS**

Production from the Caister Murdoch System (CMS) Area ceased in August 2018. CMS consists of Murdoch, the Caister satellite platform and the gas trunk line to the Theddlethorpe Gas Terminal. Decommissioning of the CMS Area is ongoing.

#### **LOGGS**

Production from the Lincolnshire Offshore Gas Gathering System (LOGGS) Area ceased in August 2018. Decommissioning is ongoing and all infield pipelines between the LOGGS Satellites and the LOGGS Complex are clean and hydrocarbon-free.

#### **Viking Area**

Production from the Viking Area ceased in early 2016. Following a decommissioning campaign, all Viking satellites and the main complex are now in a state of cold suspension. Satellite removal is scheduled to start in 2019.

#### **Theddlethorpe Gas Terminal (TGT)**

Located in Lincolnshire, the Theddlethorpe Gas Terminal (TGT) received and processed natural gas produced from the Southern North Sea, which ceased production in 2018. Decommissioning of the terminal is ongoing.

## 5.5 Decommissioning

### MacCulloch

The MacCulloch field ceased production in 2015. The field is located in Block 15/24b. The wells were tied back via two subsea drilling centres to a floating production, storage and offloading (FPSO) vessel, which was removed from location during the first phase of MacCulloch field decommissioning in 2015.

A light well intervention vessel was on location in the MacCulloch field in 2017, which undertook well intervention and suspension worksopes, assuring two verified barriers in all 11 MacCulloch subsea wells. This optimised the workscope for the future full well abandonment programme due to commence in 2019.

### Southern North Sea

The Southern North Sea (SNS) decommissioning 'final clean and disconnect' workscope has been developed by the UKBU to reduce the requirements for re-boarding satellite installations until the platform removal phase. It comprises purging the platform topsides and flushing and cleaning the infield and export pipelines: a state termed 'cold suspension' in which there are no hydrocarbons present and the facility is ready for removal from the field.

In support of the continued programme to prepare SNS assets for final decommissioning, a further 11 wells were plugged and abandoned and a further two platforms were made ready for removal. The *Seajacks Leviathan* accommodation work vessel (AWV) was brought in from April to provide accommodation facilities to support 'final clean and disconnect' worksopes in the LOGGS Area, including flushing and cleaning of a further seven infield production pipelines and associated methanol pipelines. No additional stabilisation material was required to position the AWV safely on the seabed at these locations.

Towards the end of 2018, flushing of the LOGGS and CMS export pipelines to Theddlethorpe Gas Terminal (and associated methanol supply pipelines) commenced and was successfully completed in January 2019. The Viking and LOGGS satellite platform removals programme is scheduled to commence in summer of 2019.



Viking LD platform in cold suspension ahead of removal in 2019. The solar powered temporary aids to navigation package is visible on the helideck.

## 5.6 Well Operations

The *Ensco 92* jack-up drilling rig continued its programme of well abandonments across the SNS assets. During 2018, the rig completed the abandonments of three wells on the Viscount VO platform before moving to Caister CM, the campaign's first Carboniferous platform. The work at Caister CM provided valuable experience for the team, who developed innovative methods that allowed eight wells to be successfully abandoned before the rig moved to North Valiant SP to undertake the abandonment of nine wells. By the end of 2018, 69 wells out of 139 had been abandoned ahead of schedule.

The *Ensco 120* remained at the Jasmine Wellhead Platform throughout 2018. The rig started with a horizontal Palaeocene development well, the first in J-Block for nearly 20 years, before moving on to drill a depleted Triassic HP/HT (High Pressure/High Temperature) infill well using novel depleted drilling techniques. This was followed by a Triassic exploration well and finally a workover to recomplete an existing well in the Palaeocene Sand.



Supply boat at the Britannia Platform

# 6. Environmental Aspects and Performance

## 6.1 Atmospheric Emissions

The main combustion processes giving rise to atmospheric emissions that are undertaken at our facilities in the U.K. are the generation of electrical power and gas compression. A small amount of reservoir gas provides the primary fuel source with diesel used as back-up. Emissions from well operations are primarily from running diesel-driven engines used for power generation by rigs. Flaring and venting are used to safely dispose of excess produced gas released for pressure control purposes within the process system (during oil and gas production and during unplanned events). Flaring and venting is restricted to the minimum required for the safe operation of the installations; flaring is also used to remove hydrocarbons produced during well testing and clean-up following drilling.

Atmospheric pollution affects local air quality and is implicated as one of the causes of global warming, ozone depletion and acid deposition in soil and water. As atmospheric pollutants can be carried long distances to an area where they may have an adverse effect, it is not possible to distinguish the precise origin and contribution of any individual emission source.

### Greenhouse Gas Emissions

The primary greenhouse gases (GHGs) in the Earth's atmosphere are: water vapour, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and ozone. ConocoPhillips calculates the amount of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O, produced from their activities and express the total as their GHG emissions in CO<sub>2</sub> equivalent units (CO<sub>2</sub>e) (a measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP) relative to CO<sub>2</sub> which is assigned a GWP of 1). GWP factors of 25 for CH<sub>4</sub> and 298 for N<sub>2</sub>O are used to convert to CO<sub>2</sub>e.

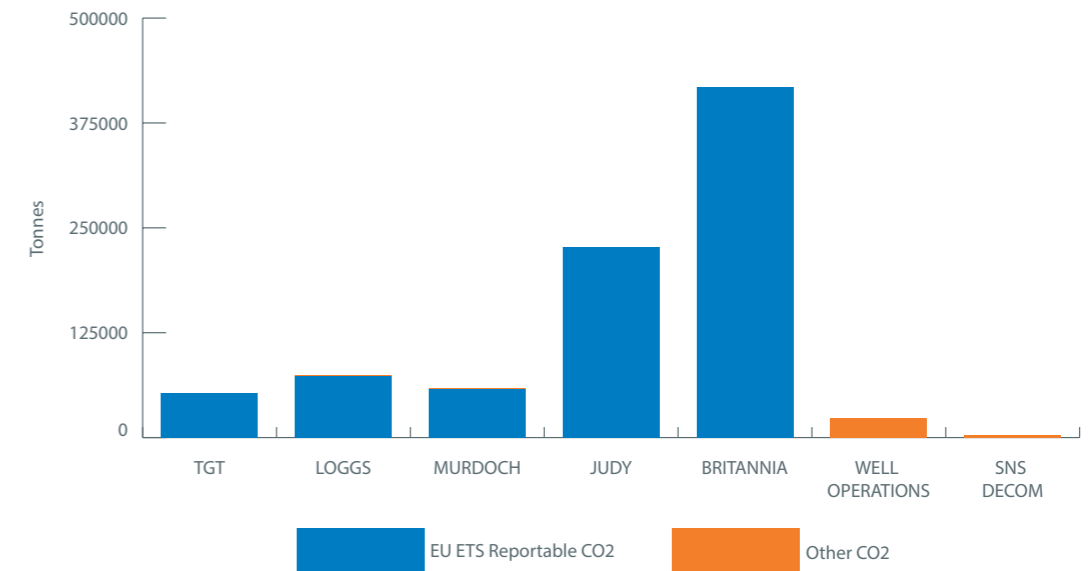
The European Union GHG Emissions Trading System (EU ETS) is Europe's key tool for cutting GHG emissions from large-scale facilities in the power and industry sectors, as well as from the aviation sector. The EU ETS governs all CO<sub>2</sub> emissions from qualifying facilities. The third trading period (EU ETS Phase III) runs from 2013 to 2020 and is designed to deliver greater emissions reductions; it includes a centralised, EU-wide cap on emissions, which declines annually with the aim of delivering an overall 21% reduction of GHG emissions by 2020 (compared to a 2005 baseline). The Paris Agreement was adopted at the United Nations Climate Change Conference (COP-21) in 2015: this set a new global GHG emissions reduction framework starting from 2020.

As part of the EU ETS, qualifying UKBU offshore installations and onshore terminals hold GHG emissions permits, which authorises them to emit CO<sub>2</sub> from the combustion of fuels. All qualifying UKBU facilities completed the 2018 EU ETS verification process and reported a verified total of 829,494 tonnes of CO<sub>2</sub> emissions within the required timeframe.

The Britannia and Judy platforms emitted the greatest amount of CO<sub>2</sub>, due to their safety flaring requirements and their greater compression capacity compared with the Southern North Sea facilities which ceased production in August. Atmospheric emissions from satellite platforms, decommissioning and rig-based activities are not reportable under EU ETS but are included in ConocoPhillips' company environmental metrics reporting and are shown here as 'Other CO<sub>2</sub> emissions'.

Successful applications were made during 2018 to surrender the EU ETS permits for the LOGGS and Murdoch platform complexes and TGT following the cessation of production.

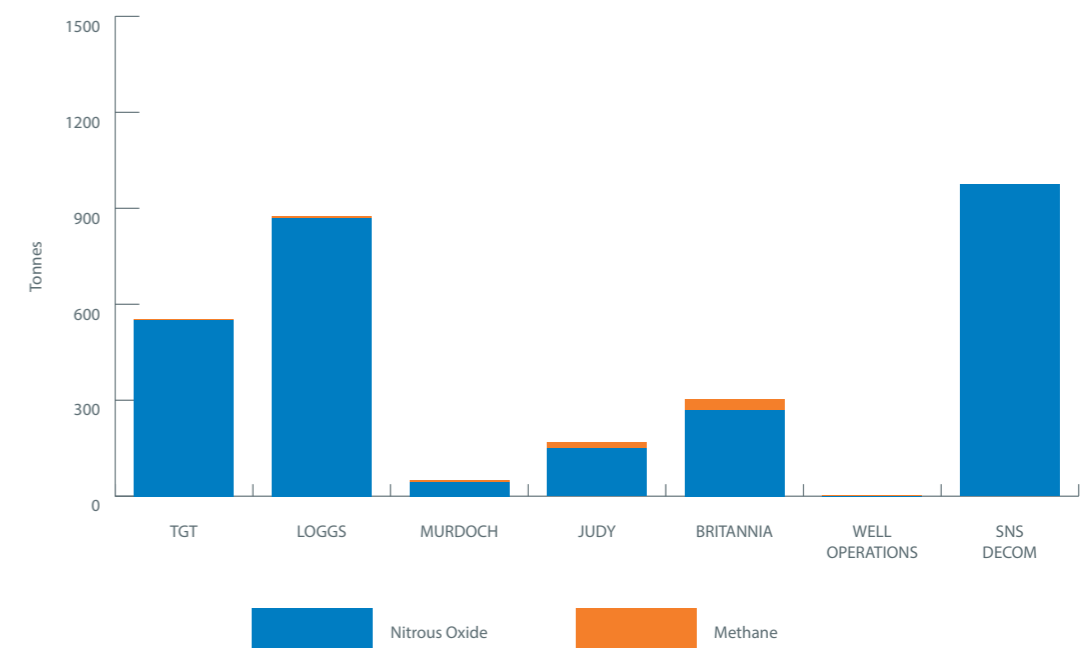
CO<sub>2</sub> Emissions from ConocoPhillips UKBU Locations 2018



Methane is the main component of natural gas. Most of the methane that is released to the atmosphere from our UKBU activities is through venting, which is the controlled release

of uncombusted gas, with smaller amounts released due to the incomplete combustion during flaring, power generation and compression.

Methane and Nitrous Oxide Emissions from ConocoPhillips UKBU Locations 2018



### Other Atmospheric Emissions

The Offshore Combustion Installations Pollution Prevention and Control (PPC) Regulations 2013 (as amended) regulate atmospheric emissions (with the exception of CO<sub>2</sub>) from offshore oil and gas facilities. The Judy and Britannia platforms each hold a PPC permit that specifies maximum annual amounts of emissions of the gases: nitrogen oxide; sulphur oxide; carbon monoxide; methane; and non-methane volatile organic compounds.

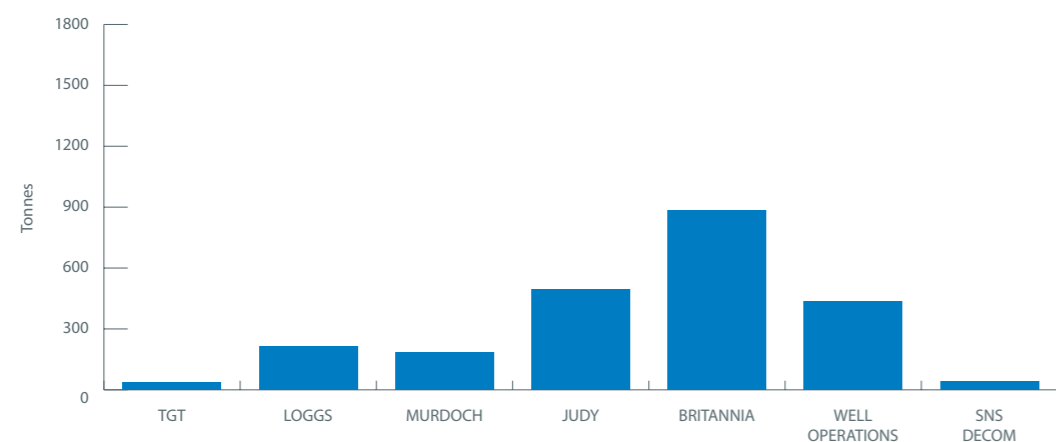
Successful applications were made during 2018 to surrender the PPC permits for both the LOGGS and Murdoch platform complexes following the cessation of production. Both permits were successfully surrendered in the fourth quarter of 2018.

The quantity of gases emitted to air are calculated based on fuel consumption and composition data and industry-agreed emission factors. The emissions generated from the combustion of fuels at our UKBU facilities, reported in 2018, were within the maximum permitted limits for each asset.

Nitrogen oxide (NOx) gases are produced by chemical reactions between oxygen and nitrogen present in air during combustion and are generated in the gas compression and power generation turbines as well as in smaller diesel engines. NOx includes nitrogen monoxide and nitrogen dioxide. For new applications, ConocoPhillips has a proven record of installing low NOx emissions gas turbines. This technology is utilised on the Judy Riser Platform and on the Britannia Long Term Compression (LTC) facility.

A total of 2,298 tonnes of NOx emissions were reported from our UKBU locations in 2018. The amount emitted from individual facilities is dependent on turbine type, fuel type and the individual operating profile. The greatest contribution to our NOx emissions was from the Britannia platform, which, in addition to running two gas export compressors, operates a booster compressor for the LTC facility.

### Nitrogen Oxide Emissions from ConocoPhillips UKBU Locations 2018



### 6.2 Discharges to Sea

#### Oil Discharges

The Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 (as amended) (OPPC) regulate oil discharges to sea via a permit system.

Water from oil and gas reservoirs (more commonly called produced water) is one of the largest sources of discharges to sea from the offshore oil and gas industry. The UKBU produces only a small percentage of the total produced water generated by the industry. Although there are treatment systems in place offshore to separate oil from the produced water, the discharge still has some residual oil content.

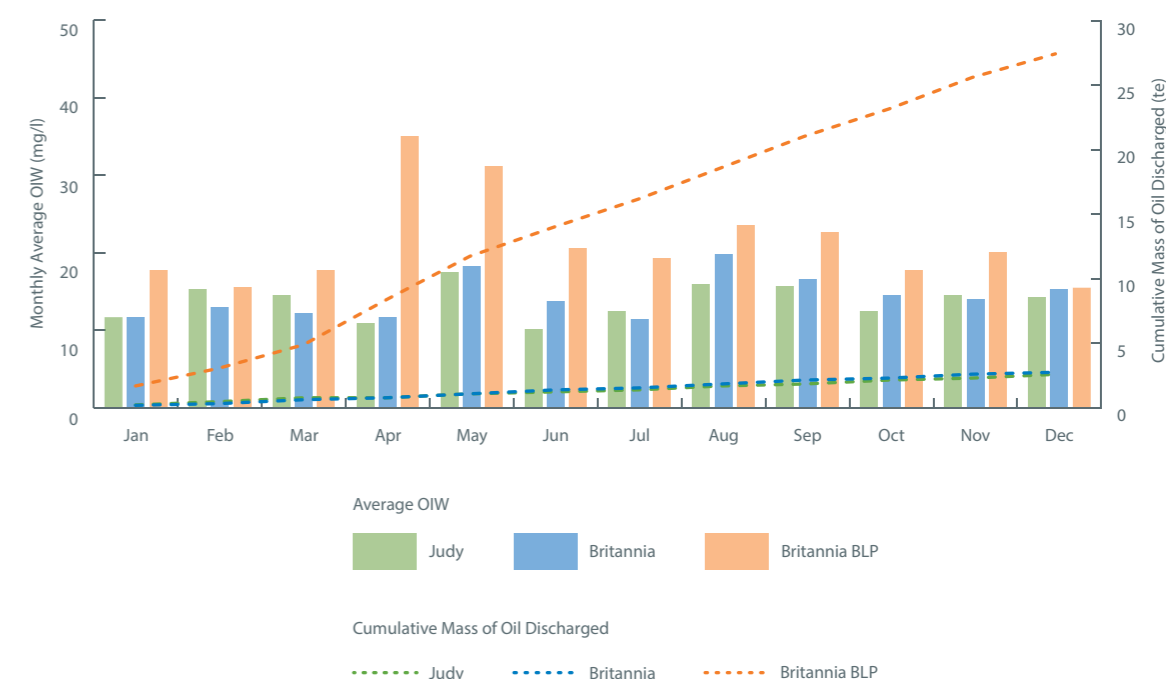
Throughout 2018, four produced water discharges OPPC non-compliance events occurred. Two events with respect to the OPPC maximum monthly average concentration of oil per litre of water (mg/l) exceeding 30 mg/l. There were two occasions in 2018 when the concentration of oil in produced water discharge measured more than the 100 mg/l OPPC permit limit.

During the production phase, produced fluids from our Southern North Sea (SNS) offshore facilities flowed to Theddlethorpe Gas Terminal (TGT) with the export gas. There was no offshore discharge of produced water from these locations. During its operational life, LOGGS was allowed under its OPPC permit to periodically discharge sand and adsorbed condensate that was carried by the gas produced from operating wells. This discharge ceased when LOGGS ceased gas production in August 2018.

The oil concentration in drainage discharges from offshore facilities is also regulated under OPPC. The Britannia, Judy, Jade, Jasmine and LOGGS platforms all have OPPC permits for their drainage discharges.

Short-duration (term) OPPC permits were in place to support pipeline flushing and cleaning operations for decommissioning operations in the SNS. All former production pipelines were cleaned to a concentration of below 30 milligrammes of hydrocarbons per litre of flush fluids.

### Oil in Produced Water Discharges 2018



### Chemical Discharges

Chemicals used for offshore oil and gas operations are regulated under the Offshore Chemicals Regulations 2002 (as amended). A key objective of these regulations is to minimise discharges to the marine environment, to 'identify chemicals that might be considered hazardous and to ensure wherever possible their substitution by less hazardous or nonhazardous chemicals.

A substitution warning is assigned to an offshore chemical if a component appears on the OSPAR prescribed lists for priority action, or if the component fails to meet set criteria with respect to persistence, bioaccumulation potential or toxicity.

Each production platform within the UKBU that holds a chemical permit also has a Chemical Substitution Plan that identifies where chemicals that carry a substitution warning are being used, justifies why these chemicals are required in the operation and identifies opportunities for their replacement with less hazardous alternatives. Typical production chemicals include; hydrate inhibitors, corrosion inhibitors, biocides, de-oilers and utility chemicals such as turbine wash and deck-cleaning agents. For J-Area and Britannia, methanol, ethylene glycol, corrosion inhibitor, wax inhibitor, scale inhibitor, demulsifier and deoiler are used in the largest quantities. Britannia also requires water-based hydraulic fluid to supply its subsea satellite facilities.

For SNS installations methanol, corrosion inhibitor and water-based hydraulic fluid make up most offshore chemical use, whereas the discharge comprises deck and turbine-wash chemicals and hydraulic fluid. Post SNS cessation of production, the chemical usage was observed to decrease compared to 2017.

Short-duration chemical permits were in place in 2018 to support well operations, pipeline operations and SNS decommissioning activities.

Well operations represent the largest chemical use and discharge within the UKBU, which comprise drilling mud, cement, completion and additive chemicals. Well operations chemical usage increased compared to 2017 as a result of the *EnSCO 120* supporting a full drilling programme throughout 2018.

The chemicals used for pipeline flushing for SNS decommissioning are presented under the chart for 'Decommissioning'. Chemicals varied dependent upon whether the original function of the pipeline was to transport hydrocarbons or to supply methanol or hydraulic fluid. The programmes typically used cleaning chemicals and ethylene glycol or methanol diluted in seawater. Discharges were minimised by using downhole reinjection or containment for onshore treatment and disposal wherever practicable.

### Chemical Use and Discharge from ConocoPhillips UKBU Facilities in 2018



### 6.3 Waste

Directive waste is the term applied to waste types included in the scope of the EU revised Waste Framework Directive (WFD, Directive 2008/98/EC). Directive waste is divided into two main categories: non-hazardous and hazardous waste. The hazardous waste being determined by whether the waste has one or more of the fifteen specified hazardous properties listed in Annex III to the WFD, using the methodology set out in the List of Wastes Decision (LoWD, 2000/532/EC).

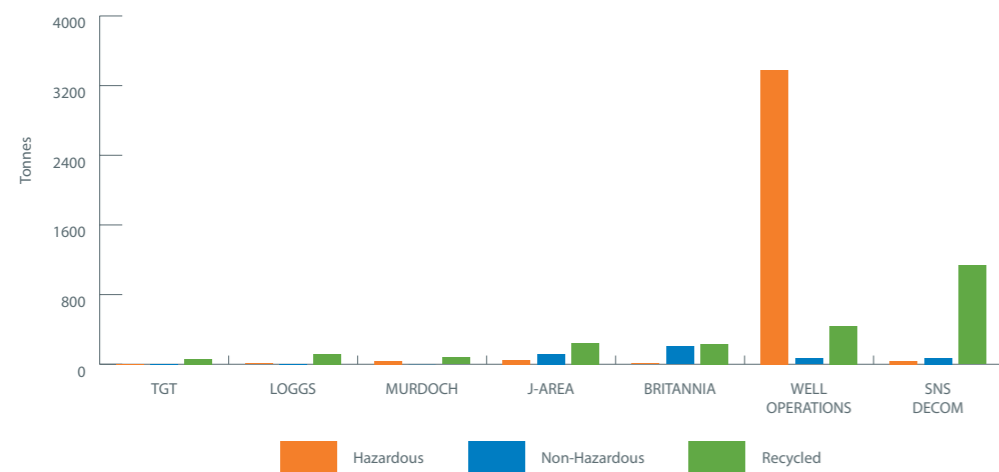
UKBU facilities work with waste management contractor companies to reduce waste, and to recycle and reuse items wherever possible. Non-hazardous waste types include packaging, galley and accommodation wastes, scrap metal and wood. Examples of hazardous waste include bulk liquid wastes from mobile accommodation or drilling units on hire, process sludges, oily rags, used chemicals, paint, batteries, fluorescent light tubes and electrical and electronic equipment.

To enable the safe recovery or disposal of waste without harming the environment, our duty of care as a waste producer is to accurately classify and describe all waste types and potential contaminants present in the waste that we consign. We are also responsible for ensuring that all our waste is transferred to facilities that are authorised to receive it and are designed and managed to prevent pollution.

Waste attributed to decommissioning is that generated by the dismantling of platforms and pipeline flushing in the decommissioning offshore worksopes and the waste produced by the *Seajacks Leviathan* accommodation work vessel when supporting some of these activities.

Waste generated from well operations includes the domestic and operational wastes from two drilling rigs: the *EnSCO 92* and the *EnSCO 120*. The largest quantity of hazardous waste produced during 2018 is attributable to Well Operations and the production of contaminated drill cuttings.

#### Waste Disposed from ConocoPhillips UKBU Locations in 2018



Vulcan UR platform in cold suspension ahead of removal in 2019. The solar powered temporary aids to navigation package is visible on the helideck.

## 6.4 Spills to the Sea

Non-permitted releases of oil or chemicals to the sea are reported to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) using a Petroleum Operations Notice 1 (PON1). This provides details of the spill and actions taken to prevent reoccurrence. All spills to sea are reported and investigated, regardless of size.

### Oil Spills

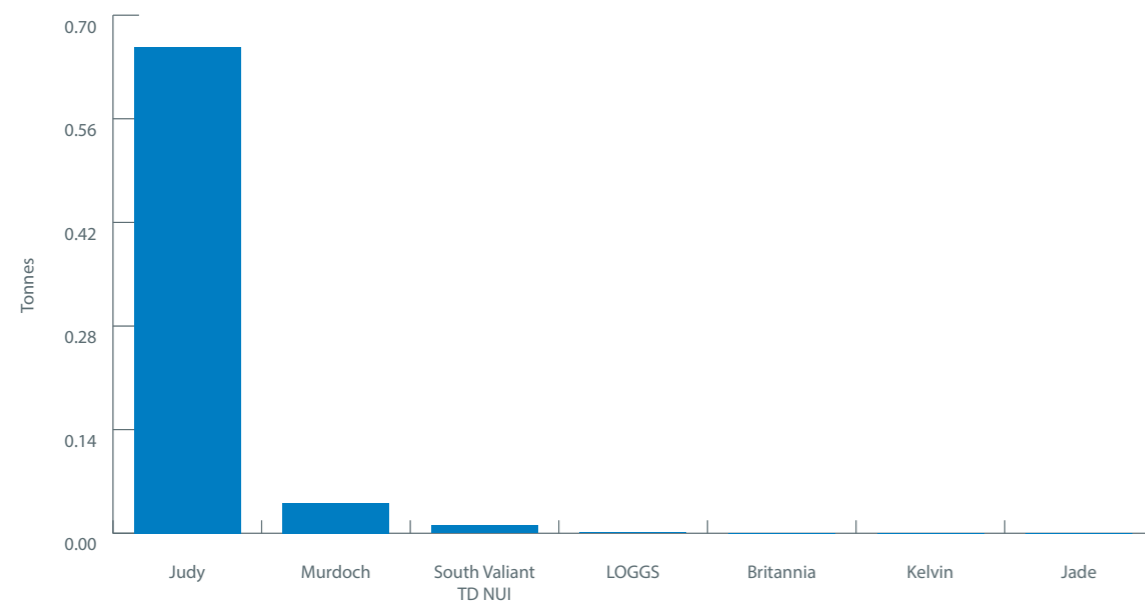
There were 11 oil spills to sea from our UKBU assets and operations in 2018, the largest of which was the loss of 0.65 tonnes of diesel fuel from the Judy platform. Individual releases from the other oil spills did not exceed 41 kilogrammes in size; oil types comprised hydraulic oil, production fluids, mineral oil and oily residues from drains. A further single PON1 was reported on behalf of a third party vessel.

### Chemical Spills

There were eight spills of chemicals to sea from our UKBU assets and operations in 2018: four of the releases were of hydraulic fluids, the other spills comprised corrosion inhibitor, ethylene glycol, and drilling mud.

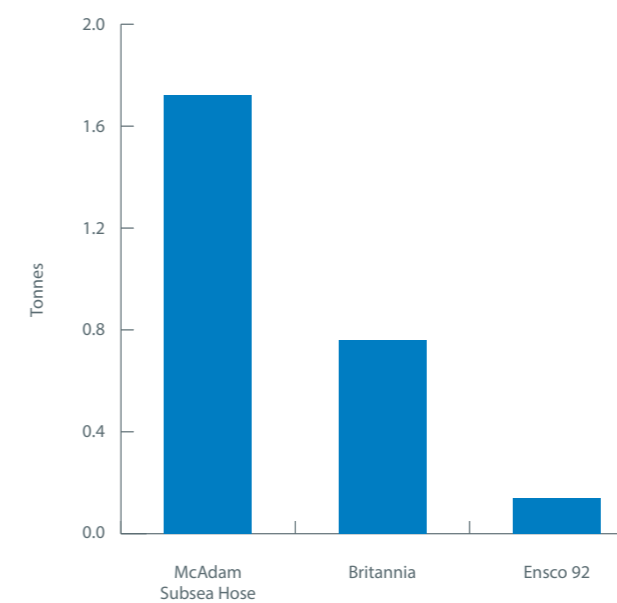
The largest individual spill was of 0.99 tonnes of hydraulic fluids from the SNS McAdam subsea development due to a hose failure.

### Oil Spills to the Sea from ConocoPhillips UKBU Facilities in 2018



(Values shown indicate the amount, in units of tonnes, released from oil spill events.)

### Chemical Spills to the Sea from ConocoPhillips UKBU Facilities in 2018



(Values shown indicate the amount, in units of tonnes, released from chemical spill events.)



# 7. Goals and Performance 2018

<p>Monitor our emissions and discharges by undertaking sampling programmes, in accordance with regulatory requirements, on both the Judy and Britannia platforms:</p> <ul style="list-style-type: none"> <li>To enable ecotoxicological risk-based assessments of our produced water discharges to the sea.</li> <li>To determine the concentrations of nitrogen oxides (NOx) and carbon monoxide in the atmospheric emissions from the exhaust streams of our gas-driven turbines.</li> </ul>	<p>Produced water samples from Judy and Britannia were collected during 2018 and subjected to ecotoxicological testing and modelling to help understand the environmental effect of the discharges in the marine environment.</p>	<p>Detailed plans for Judy and Britannia were carefully developed for the sampling activity of the gas compression turbines. Specialist contractors were engaged to carry out the sampling and subsequent analysis of the exhaust gas. The sampling took place on Judy in September 2018 and on Britannia in February 2019.</p>
<p>Undertake the removal from the field of the Viking satellite platforms associated with our approved Decommissioning Programme VDP1.</p> <p>Continue to prioritise the consideration of impacts to the seabed in protected habitats when planning the accommodation work vessel programme to support decommissioning workscopes.</p>	<p>In line with the contracted engineering and removals contractors schedule and readiness to efficiently undertake the removals programme, the 2018 removals were postponed to 2019 with nine satellite platforms scheduled for removal in 2019.</p>	<p>The strategy to eliminate or reduce seabed interactions and habitat loss within designated marine protected areas (MPAs) continues to be adopted through all decommissioning engineering design.</p>
<p>Engage with key stakeholders to progress towards regulatory approval of further Southern North Sea (SNS) Decommissioning Programmes.</p> <ul style="list-style-type: none"> <li>Evaluate new technology for an automated identification system to monitor the continued functioning of the aids to navigation on satellite platforms for shipping and third-parties whilst in cold suspension (awaiting full approval).</li> <li>Submit the Decommissioning Programmes for consultation for the remaining Viking Area facilities (VDP2 and VDP3). Support the Jupiter Area submission (LDP3) with a LOGGS Area Environmental Appraisal document, in accordance with the format specified in the revised decommissioning guidelines from the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED).</li> <li>Undertake a decommissioning Comparative Assessment for the CMS Area pipelines to identify the preferred decommissioning option. Deliver a 10-year decommissioning activity matrix for the CMS Area to support OPRED undertaking a Strategic Habitats Regulations Assessment of proposed activities within the Dogger Bank Special Area of Conservation.</li> </ul>	<p>Monitoring technology has been successfully developed and commissioned with Caister CM being the first satellite installation on which the remote monitoring package has been installed. All assets transitioning to cold stack are to be remotely monitored removing the requirement for infield inspections of aids to navigation (AtoN).</p> <p>Decommissioning Programmes VDP2 &amp; VDP3 received Secretary of State approval post statutory consultation. The decommissioning programmes demonstrate consideration of the conservation objectives for the associated marine protected areas.</p>	<p>The CMS Area pipeline Comparative Assessment is scheduled to be completed in 2019.</p> <p>10 year CMS Area activity matrix quantifying all likely seabed interactions within the Dogger Bank Marine Protected Area was completed and presented to the UK Regulator to facilitate the undertaking of a Strategic Habitats Regulations Assessment.</p>
<p>Develop UKBU plans to contribute to the achievement of the ConocoPhillips global long-term greenhouse gas emissions reduction target. Focussing on emissions forecasting quality and energy efficiency opportunities relevant to the UKBU post-SNS cessation of production.</p>	<p>The 2018 strategy was to achieve cessation of production for the SNS assets and decommissioning of the associated combustion equipment removing the SNS atmospheric emissions from the future BU emissions profile and surrender all associated combustion equipment permits (ETS &amp; PPC).</p>	
<p>Attain accredited re-certification of the UKBU Environmental Management System (EMS) to the ISO 14001:2015 standard. Ensure that the UKBU EMS is aligned with the support requirements of the new UKBU organisation post-SNS cessation of production.</p>	<p>ISO 14001:2015 EMS recertification assessment successfully completed and certification to the 2015 standard received 17th August 2018.</p>	

# 8. Objectives for 2019

Maintain accreditation of the UKBU Environmental Management System (EMS) to the ISO 14001:2015 standard determined by a three yearly recertification assessment and annual surveillance.

Raise environmental awareness performance as a key pillar of sustainable development.

Efficient management of the installations ETS permits and preparations for EU ETS Phase IV:

Surrender of the ETS permits for the Murdoch and LOGGS Complexes and Theddlethorpe Gas Terminal (TGT) following the cessation of production.

Timely preparation and submission of an independently verified National Implementation Measures (NIMs) Baseline Dataset in readiness for EU ETS Phase IV and apply for a free allocation of allowances for the first allocation period (2021-2025).

Develop and deliver a plan for achieving compliance with the UK Energy Savings Opportunity Scheme (ESOS) Phase 2 by 5<sup>th</sup> December 2019:

- Measure total energy consumption for applicable UK BU operations;
- Conduct audit(s) to identify cost-effective energy efficiency recommendations for areas of significant energy consumption;
- Report compliance to the scheme administrator.

Execute the SNS Decommissioning Programme to deliver cold suspension targets and the safe removal and transportation to an onshore demolition and disposal facility of nine satellite platforms.

Engage with key stakeholders to progress regulatory approval of further Southern North Sea (SNS) Decommissioning Programmes.

Submit for statutory consultation the Decommissioning Programmes for the remaining LOGGS Area facilities (LDP3) and Caister CM platform (CDP1) to enable installation removals in 2020.

Standardise environmental performance monitoring and data management across the UKBU assets.



*Britannia bridge-linked platform*



ConocoPhillips (U.K.) Limited  
Rubislaw House  
Anderson Drive  
Aberdeen  
AB15 6FZ

[www.conocophillips.co.uk](http://www.conocophillips.co.uk)  
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