

(renamed ConocoPhillips (U.K.) Britannia Limited on 12<sup>th</sup> October 2015)

## 2015 Annual Environmental Performance Statement



now ConocoPhillips (U.K.) Britannia Limited

> Rubislaw House, Anderson Drive, Aberdeen, AB15 6FZ

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### Abbreviations

BLP	Bridge Linked Platform
BOL	Britannia Operator Limited
CBOL	ConocoPhillips (U.K.) Britannia Limited
СО	Carbon Monoxide
CH <sub>4</sub>	Methane
DECC	Department of Energy and Climate Change
EU ETS	European Union Emissions Trading Scheme
EMS	Environmental Management System
ISO	International Organisation for Standardisation
mg/l	Milligrammes per litre
MBOED	Thousands of Barrels of Oil Equivalent per Day
NOx	Nitrogen Oxides
OIW	Oil in Water
PON	Petroleum Operations Notice
PPC	Offshore Combustion Installations (Prevention and Control of Pollution)
	Regulations
SOx	Sulphur Oxides
SUB-listed Chemical	Chemicals containing components that have been identified as having the
	potential to pose a risk to the marine environment
UKBU	U.K. Business Unit
VOC	Volatile Organic Compound

#### Introduction

The Annual Environmental Performance Statement, by Britannia Operator Limited (BOL), aims to provide stakeholders and the public with an overview of the Britannia installation facilities, offshore operations and environmental performance in 2015.

This report aims to:

- Describe our main asset and activities.
- Provide a brief overview of environmental management within BOL.
- Provide details on key environmental aspects.
- Summarise the Britannia installation's environmental performance in relation to environmental targets and relevant legislative requirements.

Britannia environmental data for 2015 is reported under the BOL public statement: in future years, all Britannia data will be reported under the ConocoPhillips U.K. Environmental Performance Review.

#### ConocoPhillips (U.K.) Britannia Limited (CBOL)

CBOL– formerly known as Britannia Operator Limited, a joint venture between ConocoPhillips (U.K.) Limited and Chevron North Sea Limited (Chevron), is the operator of the Britannia field. Following the acquisition of the shares by ConocoPhillips (U.K.) Limited from Chevron, BOL was renamed ConocoPhillips (U.K.) Britannia Limited and became a 100% owned subsidiary of ConocoPhillips (U.K.) Limited on the 25<sup>th</sup> August 2015 and was renamed on 12<sup>th</sup> October 2015. This led to the successful integration of the BOL organisation into ConocoPhillips. First production of hydrocarbon fluids from the Britannia field was achieved in August 1998 and 18 years on, the field continues to play a key role in meeting the UK's need for primary energy from indigenous sources.

The Britannia installation receives gas condensate from the Britannia reservoir, which lies approximately 210 kilometres north-east of Aberdeen primarily in United Kingdom Continental Shelf Block 16/26. It is one of the most significant developments in the UK. The Britannia installation consists of an eight-legged single steel platform, one subsea 14-slot manifold, a subsea centre located to the west and interconnecting three bundled infield flow lines with associated subsea isolation valves.



In 2006, a four-legged bridge-linked platform (BLP) was connected to the Britannia platform by a 92-metre bridge. The BLP receives gas condensate and oil from the Callanish, Brodgar and Enochdhu fields, which flow through to the main platform for further processing, compression and export.

A new mono-column was installed on the Britannia platform in 2013 with additional compression facilities. This came online in September 2014.

The Britannia satellite fields comprise the Brodgar, Callanish and Enochdhu fields. Brodgar, discovered in 1985, is located in Block 21/3. Callanish, discovered in 1999, is located in Blocks 15/29b and 21/4a. Production from these fields started in 2008. The fields produce through subsea manifolds and pipelines linked to the Britannia platform. Enochdhu was discovered in 2005 and is located in Block 21/5a approximately five miles southeast of the Callanish subsea manifold. The field has been developed as a single well tie-back to Callanish, with first production achieved in 2015.

The third party owned Caledonia field is a single wellhead oil development, which has been tied-back to the Britannia platform since 2001 and last produced in 2010.

The Chevron operated Alder development is a high-pressure, high-temperature (HP/HT) gas condensate reservoir located in the U.K. Continental Shelf, 17 miles west of the Britannia platform. Work was ongoing in 2015 to install a module to the BLP which will process the Alder fluids. Delivery of first gas is expected in 2016.

In 2015 the average daily net production from Britannia and Britannia Satellites was 14 thousand barrels per day of liquids and 147 million cubic feet per day of natural gas, totalling 38 thousand barrels of oil equivalent per day.





Health, Safety and Environmental Policy At Britannia, our work is never so urgent or important that we cannot take time to do it safely; we conduct our business with respect and care for the environment in which we operate\*

#### Statement Commitment

uperator Limited is committed to protecting mmunity where we operate. We conduct our risks to drive sustainable business arowshi t be satisfied until we succeed in eliminating all ting a ZERO incident safety culture and achieving cont

sation and Responsibilities ental staff are appointed within the company. These personnel are responsible for providing to backly, walface and the any responsed with reporting loss to service management. ad supervisors at Britannia Operator Limited are responsible and accountable for the health and safety of alth. Safety and Environment legislation and codes are adhered to and that appropriate action g environment. on of all personnel in the achievement of Health, Safety and Environmental O lance with the requirements of the Operating Management Systems (OMS). raging the ac I are responsible for ensuring they comply with release, their colleagues and the environment.

To	meet our Policy Statement, Britannia Operator Limited will;
	Demonstrate active Health Safety and Environmental leadership and communication of this policy.
	Comply with relevant laws, regulations and applicable codes.
	Include environmental considerations in our business decisions and minimise the impacts of our activities on the environment.
	Investigate and moort incidents and accidents with the potential to cause risks to Health, Safety or the Environment.
	Require all personnel to attend periodic Health. Safety and Environmental meetings.
•	Ensure that all personnel understand that working safely is a requirement, and that they are each responsible for their own safety and the safety of these around them.
	Manage all projects and processes through their life cycles in a way that protects health and safety and prevents waste.
	Develop safe systems of work for all potentially hazardous situations, and identify and assess major accident hazardo.
•	Implement procedures to ensure integrity and reliability issues which have the potential to cause an HSE impact are properly considered at all stores in the asset life cycle.
•	Provide personnel and suppliers with the training, knowledge and resources necessary to achieve our Health, Safety and Environmental commitmeds.
	Provide effective emergency response systems allowing onshore and offshore personnel to deal effectively with emergency all writing
	Should be a second s

Measure, audit and publicly report HSE performance and m
Promote and adhere to the Life Saving Rules.
Work with the regulator and other stakeholders to continuou

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## **Overview of 2015**

#### **Britannia Achievements**

Some of the Britannia 2015 key business accomplishments included:

- Bringing the Brodgar H3 subsea tieback, and Enochdhu, a single well tie back to the Callanish manifold, online. This was achieved in the first and second quarters of 2015, respectively. These projects increased production from the Britannia facilities in 2015 by 13.8 MBOED net.
- The completion of the heavy lift operation to install the Alder module in the third guarter and the continuing work to hook up the Alder module to the Britannia facilities.
- Continuing an extensive fabric maintenance campaign across the installation, fully utilising the accommodation on the COSL *Rival* at Britannia for the Alder installation and hook-up.
- Completion of two permanent well abandonments in the Britannia field by the Transocean Prospect mobile drilling unit in the second and third quarter.
- Meeting the production target through efficiency improvements, reservoir management and production optimisation.
- Successfully integrating into the ConocoPhillips U.K. Business Unit (UKBU).

#### **Environmental Policy**

Until the integration into the ConocoPhillips UKBU, the BOL Health, Safety and Environmental Policy provided a framework for the integrated management of environmental issues related to BOL's activities. It committed BOL to compliance with environmental legislation; including environmental considerations in our business decisions; and to minimise the impacts of our activities on the environment.



#### **Environmental Management System**

Until the integration into ConocoPhillips UKBU, the Britannia Environmental Management System (EMS) provided a framework for the management of environmental aspects. Britannia's EMS was certified to the international standard ISO14001 and this certification has been maintained since 2001. A strong and effective EMS helps to identify, prioritise and manage environmental risk as a routine part of business practice. The Britannia EMS will become part of the ConocoPhillips EMS.

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#### **Assessment and Review**

Audits provide the opportunity for independent assessment of Britannia's EMS, this assists in determining the effectiveness of the management system and measuring the fulfilment of policy commitments.

An ISO14001 re-certification visit to the installation was conducted by an independent certification body in September 2015. The assessment outcome communicated that Britannia's EMS is seen to be maintained and developed in accordance with ISO 14001:2004 and a recommendation for continued certification was made. Britannia's EMS was determined to be effective in delivering policy commitments and continual improvement was demonstrable with respect to the progression against 2015 goals. Following integration into the ConocoPhillips UKBU, Britannia will be integrated into the ConocoPhillips UKBU certification.

A Regulatory Environmental Inspection was conducted in August 2015 by the Department of Energy and Climate Change (DECC). Inspection findings were communicated to both the Britannia Asset Management Team and the Britannia Offshore Installation Manager; and were dealt with accordingly.



A heavy lift operation was undertaken to install the Alder module in the third quarter of 2015

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Concentration (mg/l/month)

Monthly average oil in water - BLP

# Environmental Aspects and Performance

#### Oil in Water

**Key Challenge:** Ensure that Britannia and BLP facilities' produced water is compliant with The Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 (as amended).

Target:Oil in Water from produced water <25 mg/l for the<br/>year for the BLP.<br/>Oil in Water from produced water <23 mg/l for the<br/>year for Britannia.

Achievement: The annual average oil in water concentration for 2015 was 18.79 mg/l for Britannia and 21.54 mg/l for the BLP.

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 Britannia installation produces only a small percentage of the produced water generated by the oil and gas industry; although there are systems in place to separate oil from the produced water, the discharge still has some residual oil content.

In 2015 the Britannia process team continued to monitor oil in water (OIW) performance and optimise the OIW process. This resulted in meeting permitted allowances for the OIW concentration and hydrocarbon discharge set for 2015.

The Britannia and BLP combined hydrocarbon discharge to sea via the produced water stream was 25.18 tonnes, which was below the forecast of 28.87 tonnes.

There were four occasions during 2015 when upset process conditions resulted in monthly average oil in water exceeding the permitted concentration of 30 mg/l, as follows:

- Britannia OIW concentration in August was 34.8 mg/l.
- BLP OIW concentration in August was 34.8 mg/l, in September was 31.5 mg/l and in November was 30.1 mg/l.

All exceedances were investigated and reported to DECC.



#### **Spills to Sea**

Non permitted releases of oil or chemicals to the sea are reported using a Petroleum Operations Notice 1 (PON1) which is submitted to DECC. The PON1 provides details of the spill and actions taken to prevent a reoccurrence. All spills to sea are reported and investigated, regardless of size.

In 2015 there were five spills from Britannia operations, two of which were diesel spills and three of which were chemical spills, as follows:

In 2015 a total of 0.2 tonnes of diesel was released to sea, 0.1 tonnes of diesel was spilt during an equipment filling operation and another 0.1 tonnes of diesel was spilt from a pin-hole leak discovered on the diesel pipework.

In 2015 a total of 1.7 tonnes of chemical was released to sea, 1.5 tonnes of hydraulic fluid was spilt from two releases at the Britannia subsea manifold in January and in December. The third spill of chemical, a corrosion inhibitor resulted from a valve not closing, this totalled 0.2 tonnes.

The circumstances relating to these incidents have been discussed with DECC and all issues have been addressed.



#### **Chemical Use**

**Target:** 

**Key Challenge:** Continue to work towards reducing the usage and phasing out of SUB-listed chemicals, and identify effective chemicals to reduce the quantity used.

Identify alternatives to SUB-listed chemicals in the laboratory for field trial on Britannia in order to reduce the use of sub-listed chemicals.

Achievement: Britannia's oil and gas production in 2015 required the use of 755 tonnes of production chemicals, of which 714 tonnes were ultimately discharged to the marine environment. This is a reduction in comparison to 2014, where 961 tonnes of chemicals were used and 854 tonnes were discharged in to the environment.



Chemicals used for offshore oil and gas production operations are regulated under the Offshore Chemicals Regulations 2002 (as amended) – a key objective of these regulations is to identify chemicals that might be considered hazardous and to ensure wherever possible their substitution by less hazardous or non-hazardous chemicals.

A substitution warning is assigned to an offshore chemical if a component appears on the Oslo Paris Convention prescribed lists for priority action, or if the component fails to meet set criteria with respect to persistence, bioaccumulation potential or toxicity. These chemicals are referred to as SUB-listed.

Of the total of the 755 tonnes of chemicals used in 2015, 35 tonnes of SUB-listed chemicals were used and discharged on the Britannia facilities compared with 90 tonnes in 2014. In 2015 there were six SUB-listed chemicals used on Britannia.





COSL Rival alongside Britannia BLP to support the Alder installation and hook-up and the Britannia fabric maintenance campaign



#### Waste Disposal

**Key Challenge:** Management of waste segregation to minimise the quantity of waste disposed of via landfill and to identify reuse opportunities.

Target:Monitor and minimise waste.

Achievement: In 2015 a total of 1371 tonnes of operational waste was shipped ashore from the Britannia installation for reuse, recycling and disposal. This is a reduction on the waste shipped to shore in 2014 which was 1,632 tonnes.

The production of oil and gas generates waste streams, which require responsible disposal. Waste can be divided into two groups, hazardous and non-hazardous. Wood, scrap metal, cardboard, paper, plastic and general waste all fall under the category of non-hazardous waste. Oils, paints and chemical waste all fall under the category of hazardous waste.

Annual Waste Summary (tonnes)		
Hazardous Waste	9.57	
Non-hazardous Waste	368.75	
Recycled Materials	992.47	

72% of all operational waste generated in 2015 was recycled or treated; 27% of operational waste was disposed of to landfill. The remaining waste was disposed of onshore via alternate methods, including waste to energy.

The Britannia installation personnel ensure that waste is managed and disposed of responsibly and in accordance with statutory obligations. Britannia works with their waste management contractor companies to reduce waste, recycle and reuse wherever possible.



The 2015 waste figures include those from two vessels working in the Britannia Area. From the second quarter there was a flotel (*COSL Rival*) alongside the Britannia to accommodate personnel working on the Alder Module installation hook-up and for the Britannia fabric maintenance. Also, in the second and third quarter the *Transocean Prospect* rig was in the Britannia field abandoning two wells.





CO<sub>2</sub> emissions per source 2015 (tonnes) including Transocean Prospect





ETS CO2 Allocation (te) ,119 335,961 336,969 318,539 318,430 337, 286,653 281,674 250,595 240,889 Tonnes 2011 2012 2013 2014 2015 Annual installation CO<sub>2</sub> emissions

Installation CO2 Emissions (te)

#### **Atmospheric Emissions**

**Key Challenge:** Generate sufficient power and export capabilities to support production requirements whilst minimising atmospheric emissions in line with allowances and limits.

Target:

- t: Provision of installation power and compression requirements whilst managing the atmospheric emissions to comply with allowances and limits.
- Achievement: The Pollution Prevention and Control (PPC) regulated emissions reported in 2015 that were generated from the combustion of fuels at the Britannia Installation were within the maximum permitted limits.

The European Union Greenhouse Gas Emissions Trading System (EU ETS) governs all Carbon Dioxide (CO<sub>2</sub>) emissions from qualifying facilities. A revised EU ETS Directive was transposed into UK law as the Greenhouse Gas Emissions Trading Scheme Regulations 2012 (as amended). The third trading period (EU ETS Phase III) runs from 2013 to 2020. The revised Directive 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 Greenhouse Gas (GHG) emissions by 2020 (compared to a 2005 baseline).

The Offshore Combustion Installations (Pollution Prevention and Control) Regulations 2013 regulate atmospheric emissions (with the exception of  $CO_2$ ) from offshore oil and gas facilities that have combustion equipment with a combined thermal capacity that exceeds 50 MWth. Britannia exceeds this capacity and therefore holds a PPC permit that specifies maximum annual amounts of emissions, these emissions are calculated based on fuel consumption and composition data and emissions factors.

Britannia installation requirements for electrical power, compression of export gas and routine safety flaring activities all give rise to the generation of atmospheric emissions.

Emissions monitoring for the Britannia facilities is undertaken by measuring the flare gas, fuel gas and diesel consumption, and calculating the associated emissions using approved emission factors.

There are six main combustion sources on the Britannia installation comprising three dual fuel turbine driven electricity generators and three gas turbine driven gas export compressors. In addition, there are three diesel driven power generation packages installed to provide emergency power only.



2013

SOx Emissions

2014

2015

Tonnes

4 2

0

2011

2012

On the installation the greatest amount of  $CO_2$  emissions arises from the combustion of fuel gas in the three turbine driven electricity generators. These accounted for 144,116 tonnes of  $CO_2$ emitted to the atmosphere, which represented 45% of the total installation  $CO_2$  emissions. The three export compressors emitted 141,771 tonnes of  $CO_2$  which was 44% of the total CO2 emissions. The diesel fuelled auxiliary combustion equipment (including diesel use on the *Transocean Prospect* generators - 1,114 tonnes of  $CO_2$ ) and emergency power generation packages emitted 5,740 tonnes of  $CO_2$  to the atmosphere which was 2% of the total  $CO_2$ emissions.

Safety flaring also contributes to the total  $CO_2$  emitted by the installation. This contributed 27,916 tonnes of  $CO_2$ , which was 9% of the installation total. Methane (CH<sub>4</sub>) and Non-Methane Volatile Organic Compounds (VOCs) are also emitted during the flaring process when there is incomplete combustion of the flare gas.

Other gases emitted from the Britannia installation combustion processes are also monitored and managed. These are Nitrogen Oxides (NOx), Sulphur Oxides (SOx) and Carbon Monoxide (CO). The tonnages of these gases emitted against previous years and the permitted limits are shown on the graphs opposite.

The emission of CO in 2015 appears to have increased substantially compared to previous years. This increase is due to a regulatory decision to change the factor used to calculate the CO emission from 0.003 to 0.006. This resulted in an allowance and CO emission increase in 2015.



This is the final public statement of Environmental performance produced for Britannia Operator Limited.

With ConocoPhillips assuming operatorship of Britannia, future information will be included within the ConocoPhillips U.K. Environmental Performance Review.



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