2014 Annual Environmental Performance Statement

Britannia Operator Ltd

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Britannia Operator Ltd

Britannia Operator Limited is committed to continually improving our environmental performance through operational excellence, efficiency, reliability and integrity. Delivery of improved environmental performance is to be achieved through adherence to our environmental policy and implementation of our Environmental Management System. This report summarises Britannia's environmental **performance** in **2014.**

Abbreviations

AMT	Asset Management Team
Bcf	Billion Cubic Feet
BLP	Bridge Linked Platform
BOL	Britannia Operator Limited
CARE	Compliance, Awareness, Reduction and Effective management
CEFAS	Centre for Environment, Fisheries and Aquaculture Sciences
CO	Carbon Monoxide
DECC	Department of Energy and Climate Change
ECE	Environmentally Critical Equipment
EEMS	Environmental Emissions Monitoring System
EU ETS	European Union Emissions Trading Scheme
EMS	Environmental Management System
HMCS	Harmonised Mandatory Control Scheme
HSE	Health, Safety & Environment
ISO	International Organisation for Standardisation
LTC	Long Term Compression
Mg/l	Milligrams per litre
NOx	Nitrogen Oxides
OCR	Offshore Chemical Regulations
OIM	Offshore Installation Manager
OPEP	Oil Pollution Emergency Plan
OPPC	Oil Pollution Prevention Control Regulations
OSPAR	Oslo Paris Convention
MEG	Monoethylene Glycol
MP	Medium Pressure
PON	Petroleum Operations Notice
PPC	Offshore Combustion Installations (Prevention and Control of Pollution) Regulations 2013
SOx	Sulphur Oxides
SSIV	Subsea Isolation Valves
SUB-listed Chemical	Chemicals containing components that have been identified as having the potential to pose a risk to the marine environment
TEG	Triethylene Glycol
UKCS	United Kingdom Continental Shelf
VOC	Volatile Organic Compound

Introduction

The Annual Environmental Statement aims to provide stakeholders and the general public with an overview of Britannia Operator Limited's facilities, offshore operations and environmental performance in 2014. This report provides a brief description of Environmental Management System (EMS) and its function and summarises Britannia's environmental performance in relation to the environmental policy commitments, goals, objectives and targets and relevant legislative requirements.

History

Britannia Operator Limited – a joint venture between ConocoPhillips (U.K.) Limited and Chevron North Sea Limited, is operator of the Britannia field. First production of hydrocarbon fluids was achieved in August 1998 and 17 years on, the field continues to play a key role in meeting the UK's need for primary energy from indigenous sources.

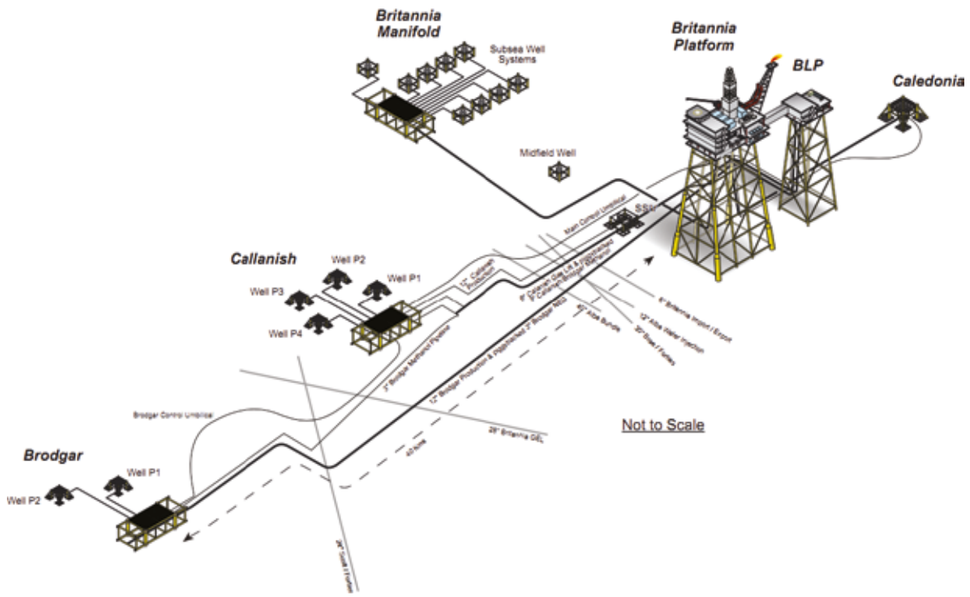
The Britannia gas condensate reservoir lies approximately 210 kilometres north-east of Aberdeen primarily in UKCS Block 16/26. It is one of the most significant developments in the UK and consists of an eight-legged single steel platform, one subsea 14-slot manifold, a subsea manifold (subsea centre)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

The Britannia satellite fields (referred to as BritSats Phase I Development) comprise the Brodgar and Callanish fields. Brodgar (P.118 Block 21/3a and P.741 Block 21/3b) was discovered in 1985 and Callanish (P.590 Blocks 15/29b and P/347 Block 21/4a) was discovered in 1999.

In 2006, an additional four-legged steel platform or 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 and Brodgar fields, which flow through to the main platform for further processing, compression and export.

The processing of gas, condensate and oil from Britannia's satellite fields began in 2008. The third party owned Caledonia field is a single wellhead oil development, which has been tied-back to Britannia since 2001 and was last produced in 2010.

In 2014 the throughput from all fields being processed via the Britannia facility was 64.8 bcf of gas and 4.5 million barrels of condensate/oil.



Schematic of the Britannia installation facilities and field layout

‘The Britannia Environmental Policy drives our culture of environmental responsibility and awareness.’

Britannia platform

2014 Overview

2014 Britannia achievements

The 2014 business milestones included:

- Installation of the Long Term Compression (LTC) module (production uplift of approximately 50%).
- Production target met through efficiency improvements, reservoir management and production optimisation.
- Continuation of an extensive fabric maintenance campaign across the installation.
- Safe operations – 310 days since last recordable incident (data to end of December 2014).

ENVIRONMENTAL POLICY

" At Britannia, we conduct our business with respect and care for the environment in which we operate"

In Britannia Operator Limited, we are committed to:

- Achieving Environmental Excellence through adopting an Environmental Management System;
- Creating a culture of environmental responsibility;

More specifically, we will:

Compliance
- Ensure continual compliance with all relevant national and international regulations and other requirements;

Awareness
- Communicate openly with regulators and stakeholders on environmental issues;
- Ensure that all personnel are aware of this policy;
- Ensure that all personnel are aware of their environmental responsibilities and the environmental impacts of their activities;

Reduction
- Minimise the occurrence and impact of environmental incidents;
- Monitor and minimise all waste, emissions and discharges;

Effective Management
- Measure performance against clear and challenging environmental goals to achieve continual improvement;
- Assess the environmental impacts of all major changes to platform operation;
- Periodically audit and review our environmental performance.

Signed ... Ann Henderson, Managing Director

Date 29th August 2013

Britannia

Environmental Policy

The Britannia Environmental Policy drives our culture of environmental responsibility and awareness. The policy describes Britannia’s commitment to conducting our business with respect and care for the environment within which we operate. Our EMS is designed and implemented to deliver the commitments made within the policy document.

Environmental Management System

The Britannia EMS provides a framework for the management of environmental effects. Britannia’s EMS is 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 EMS is key in translating environmental policy into action.

Britannia’s AMT continue to demonstrate their commitment to the EMS and the delivery of the policy commitments by structuring and resourcing an HSE Team, an offshore Green Team and the undertaking of regular reviews of environmental performance indicators.

Personnel working for and on behalf of Britannia Operator Limited (BOL) are required to adopt the aims and principles of the environmental policy, and to carry out their responsibilities within the structure of the EMS ensuring that all operations are undertaken within the commitments of ‘CARE’ for the environment (Compliance, Awareness, Reduction and Effective management).

Waste segregation area

Environmental Achievements 2014

- Review of atmospheric emissions calculations methodology completed.
- Submission and approval of the revised Oil Pollution and Prevention Control permit (OPPC).
- Verification of the annual atmospheric CO_2 emissions data by an independent certification and assessment body allowing for the timely surrender of CO_2 allowances as required by the EU Emissions Trading Scheme (EU ETS).
- Review of the Chemical Permit and Combustion Installation Permit.
- Oil in Water <25mg/l average for the year.
- Facilitation of Environmentally Critical Equipment (ECE) scoping exercise.
- 5 out of 6 key substitution listed chemicals have been changed out with the green chemistry alternatives.
- Significant waste reduction (12% in comparison to 2013).

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 platform was conducted by an independent certification body in March 2014. The assessment outcome communicated that Britannia's EMS is seen to be maintained and developed in accordance with ISO14001:2004 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 2014 goals.

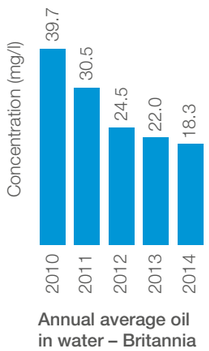
The re-certification assessment was followed up by a surveillance visit in September 2014. During this visit the system again was seen to have been maintained and developed in line with ISO14001:2004 requirements.

A Regulatory Environmental Inspection was conducted in September 2014 by the Department of Energy and Climate Change (DECC). Inspection findings were communicated to both the Asset Management Team (AMT) and the Offshore Installation Manager (OIM). Britannia have since responded to the inspection findings and continue to close out actions in line with appropriate timeframes.

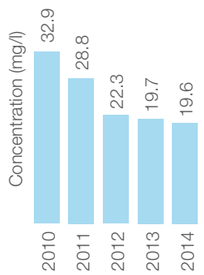
BOL completed two internal audits comprising of offshore environmental management systems controls (activities registers, objectives and targets) and OPPC, OCR and OPEP reviews. Also a parent company high level HSE audit took place in 2014.

Future Focus

This year we plan to complete a number of audits (regulatory, vendor and internal) and those which are currently in the plan include the DECC annual offshore inspection, two EMS surveillance visits, an offshore internal audit and an onshore internal audit. Internal audits include a review of permits, procedures, processes, objectives and targets.



Annual average oil in water – Britannia



Annual average oil in water – BLP

2014 Emissions and Discharges

Oil in Water

Key Challenge: Ensure that Britannia and BLP facilities produced water is compliant with permit conditions.

Target: OIW <26mg/l for the year.

Achievement: The annual average oil in water concentration for 2014 was 18.3mg/l for Britannia and 19.6mg/l for the BLP.

Further reduction in dispersed oil in produced water discharges from 2013 levels was a key goal for 2014. The Britannia Process Team continue to monitor performance and optimise the process.

In 2014 the Britannia and BLP combined hydrocarbon discharge to sea via the produced water stream was 27.29 tonnes which was below the OPPC permit forecast of 44.68 tonnes.

Improvements in OIW discharges were achieved in 2014 through the following:

Britannia Produced Water System

New de-olier and demulsifier chemicals have been successfully trialled on the Britannia separation and produced water systems to replace the incumbent sub-listed chemicals.

First gas from the Britannia Long Term Compression project was achieved in 2014 reducing the operating pressure of the separation system. The MP separator operating pressure has been reduced resulting in a more stable control of flow through the MP hydrocyclones thereby improving the overall separation performance of the Britannia Produced Water System.

BLP Produced Water System

Engineering changes were implemented to improve and simplify the level control logic on the produced water degasser to ensure continuous skimming of oil based on a bulk level control of the liquid level upstream of the skimming weir.

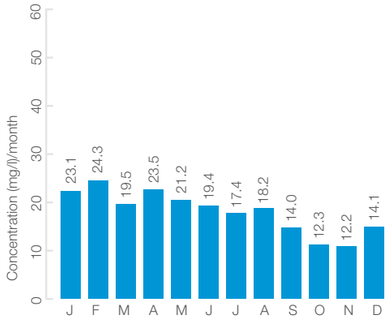
Parallel operation of the BLP hydrocyclones implemented providing enhanced slug handling capability. The number of liners in each hydrocyclone were also optimised.

Study to increase weir height on Callanish separator confirmed feasibility, however the implementation has been postponed due to recent improvement achieved in the system with the hydrocyclones parallel operation and chemical management.

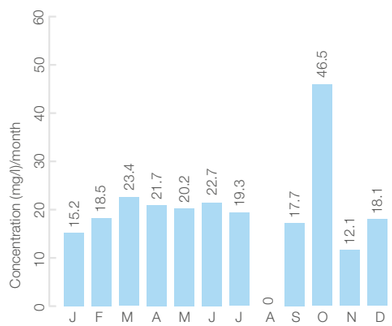
Demulsifier injection optimised (i.e. found that subsea injection was excessively efficient leading to further phase separation in the pipeline which deteriorated the slug generation in the pipeline).

New de-oiler and demulsifier have been successfully trialled on the BLP Produced Water System to replace the incumbent chemicals which were sub-listed.

First gas from the Britannia Long Term Compression project was achieved in 2014. The gas from the Callanish separator is now preferably routed to the new compressor. Since then a more stable flow regime has been observed in the Callanish pipeline resulting in enhanced slug management improving the separation performance of the BLP produced water system.



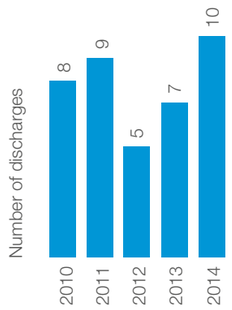
Monthly average oil in water 2014 – Britannia



Monthly average oil in water 2014 – BLP

Future Focus

Maintain the reduction in dispersed concentration of oil in overboard discharges through chemical management and process management.



Number of unplanned discharges (PON1s)

PON1s and OPPC Non-compliances

Ten PON1s were reported in 2014 as a result of unplanned releases from the Britannia facilities. The products comprised of cooling/heating medium, hydraulic fluid, scale inhibitor, methanol and one event where hydrocarbons were released. The events stemmed from varying failures including joint/equipment failure.

No. of PON1 events	Mass of products discharged to sea (tonnes)	
	Hydrocarbon	Chemical
10	1.44	8.27

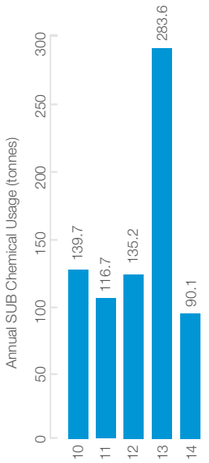
As a consequence of a number of these releases Britannia implemented a TEG Leak Prevention Strategy which takes a proactive approach to reducing our number of cooling/heating medium spills. The prevention strategy includes actions in regards to maintenance, integrity and Environmentally Critical Elements.

An Enforcement Notice was served in 2014 as a result of unplanned release of TEG into the sea. The release occurred as a result of the rupture of bursting discs on the inlet gas coolers. A number of actions have been undertaken to close out the investigation.

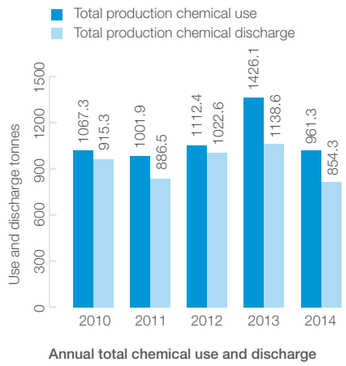
Britannia submitted a total of six OPPC non-conformances during 2014. Three submissions were the result of individual produced water samples containing a concentration of dispersed oil in water in excess of 100mg/l. One non-conformance was submitted due to the OIW monthly average in excess of 30 mg/l. Two non-conformances were submitted due to meter uncertainty being in contravention of permit conditions.

Future Focus

- Aim to reduce loss of containment incidents by 25% from the 2014 figure.
- The further implementation of an Environmentally Critical Element Management System.



Annual SUB Chemical Usage Britannia and Britsats



Annual total chemical use and discharge

Chemical Use

Key Challenge: Continue to work towards reducing the usage and phasing out of SUB-listed chemicals, enhance separation and reduce the dispersed concentration of oil in overboard discharges.

Target: 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 2014 required the use of 961 tonnes of production chemicals, of which 854 tonnes were ultimately discharged to the marine environment in produced water. This is a significant reduction in comparison to 2013, where 1462 tonnes of chemicals were used and 1139 tonnes were discharged in to the sea.

Of the total of 961 tonnes of chemicals used in 2014, 90 tonnes of SUB-listed chemicals were used and discharged on the Britannia facilities compared with 284 tonnes in 2013. Replacements were identified for five key sub-listed chemical applications with green chemistry alternatives. All of the applications are planned to be swapped out by Q2 2015.

Britannia's sub-listed foamer has been replaced by green foamer that will also have the potential to reduce the foamer discharge by 50% per treatment. Britannia's new defoamers' performance testing suggests a 2-5% decrease in previous application treatments.

The de-oiler for the BLP has been swapped out and there is the potential for chemical usage reduction.

Callanish demulsifier has been changed out. The lab performance testing suggests that the treat rate can be reduced by 20-30% and it will also optimise the produced water carryover to Britannia topsides. This will increase the efficiency of Britannia topside process.

Britannia subsea/topside and Brodgar corrosion inhibitor usage volumes were reduced in 2014 by approximately 35%.

Power generation package exhaust stacks

Waste containers on the deck

Offshore Chemical Regulations (OCR) 2002 Non-Compliance

Chemical use and discharge is closely monitored to ensure that the applications do not give rise to excessive use and unnecessary discharge of products. Out with the unplanned release of permitted chemical products as detailed within the PON1 summary, one OCR non-conformance was submitted in 2014. This non-conformance was related to the error in EEMS submission in 2013 which wasn't recognised until September 2014.

Future Focus

The focus for 2015 is to continue to work on safely implementing all of the performance testing that has been completed over the year into 2015. Trials and monitoring will be key to replacing all of the sub-listed chemical applications. The de-oilers for Britannia are sub listed and will need to be replaced.

Waste Disposal

Key Challenge: Strict management activities to segregate waste at source and minimise the quantity of waste disposed of via landfill and reuse opportunities.

Target: Monitor and minimise waste.

Achievement:

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 and general waste all fall under the category of hazardous waste. The segregation of both onshore and offshore waste is strictly managed by BOL. Throughout 2014 a total of 1632 tonnes of operational waste was shipped ashore from the Britannia installation for reuse, recycling and disposal.

Annual Waste Summary	
Installation Wastes	**Units gross tonnes in 2014**
Hazardous Waste	217.35
Non-hazardous Waste	142.848
Recycled Materials	1,271.62
Drilling Oil and Grease in Cuttings Discharged Onshore	0

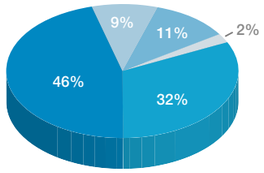
The total waste generated was 200 tonnes less than in 2013. This can be partly attributed to reduction of the scrap metal wastes and increase of the waste awareness.

77% of all operational waste generated in 2014 was recycled or treated. 22.5% of operational waste was disposed of to landfill. The remaining waste was disposed of via alternate methods, this includes Waste to Energy.

The annual tonnage of waste that can be recycled is dependent on the operational activities during that year.

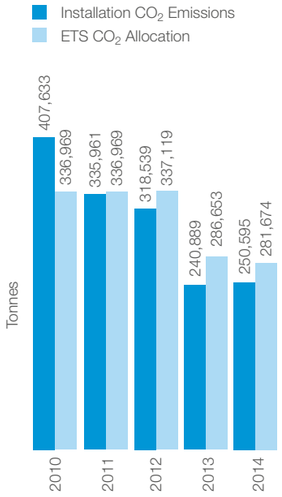
Future Focus

Continue to monitor and minimise waste.



LM5000 Gas Compressors
Solar Mars 100 dual fuel turbines
Flaring
LM2500 DLE (new generator installed in 2014)
Auxiliary Combustion Equipment

CO_2 emissions per source 2014



Annual Installation CO_2 emissions

Atmospherics Emissions

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

Target: Provision of platform power and compression requirements whilst managing the atmospheric emissions to comply with allowances and limits.

Achievement:

In 2014 all platform atmospheric emissions did not exceed either the allowances or limits. This is mainly due to lower production, reduced running of the export compressors, LTC start up and good maintenance practices.

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

Concerns related to CO_2 emissions have brought the European Union Emissions Trading Scheme (EUETS) to the industry and with it a level of focus regarding the accurate measurements of fuel usage and the accurate determination of associated CO_2 emissions.

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

There are six main combustion sources on the Britannia installation comprising of three dual fuel turbine driven electricity generators and three gas turbine driven gas export compressors (new gas turbine LM2500 was installed on Britannia in 2014). In addition there are three diesel driven power generation packages installed to provide emergency power only.

On the platform the greatest CO_2 emissions arise from the combustion of fuel gas in the two LM5000 export compressor packages. In 2014 the compressor packages accounted for 115,122 tonnes of CO_2 emitted to atmosphere which represented 46% of the total platform CO_2 emissions. The newly installed LM2500 emitted 21,514 tonnes of CO_2 which was 9% of the total CO_2 emissions. The combustion of both fuel gas and diesel in the three dual fuel turbine driven electricity generators resulted in the emission of 81,392 tonnes of CO_2 to the atmosphere accounting for 32% of the total installation CO_2 emissions. The diesel fuelled auxiliary combustion equipment and emergency power generation packages emitted 5,884 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 platform. This contributed 26,685 tonnes emission of CO_2 which was 11% of the platform total.

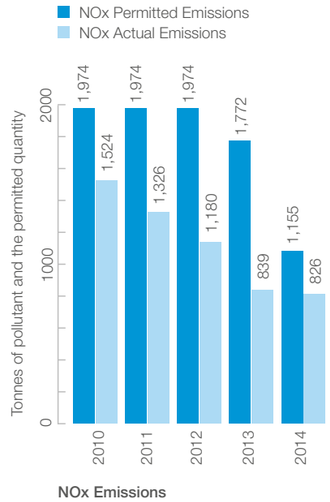
Other gases emitted from the platform combustion processes are also monitored and managed. These are Nitrogen Oxide (NOx), Sulphur Oxide (SOx), Carbon Monoxide (CO), Methane (CH_4) and Non-Methane Volatile Organic Compound (VOCs). The tonnages of these gases emitted against previous years and the permitted limits are shown on the graphs opposite.

Future Focus

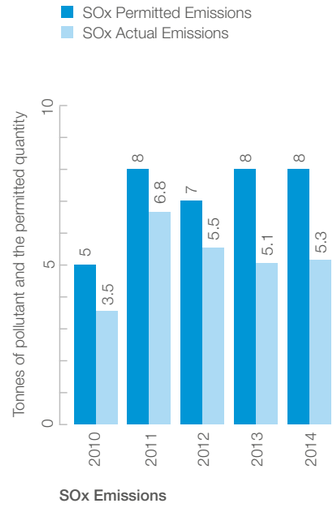
> Energy profiles for Britannia platform combustion equipment will be developed.

> Review performance of new LM2500 DLE (emission reduction type) turbine with regards to NOx reduction.

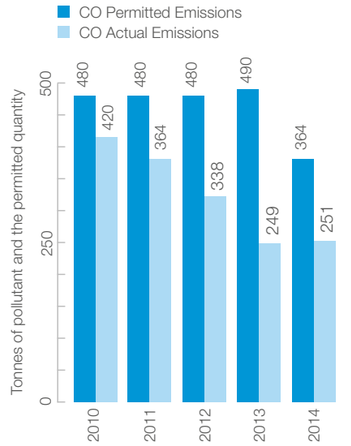
Atmospherics Emissions



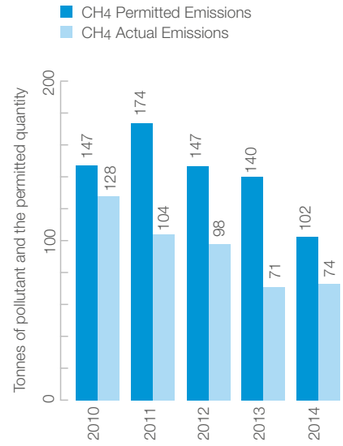
NOx Emissions



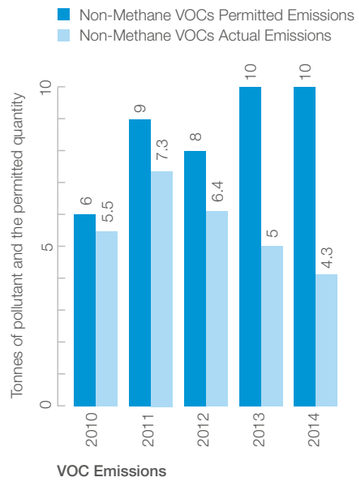
SOx Emissions



CO Emissions



CH_4 Emissions



VOC Emissions

Looking ahead – Environmental focus 2015

Britannia's 2015 environmental critical goals support the overlying objective to create an environment to deliver sustainable improvements.

Focus will be assigned to the continual improvement of Britannia's environmental performance.