

RockRose UKCS8 LLC

2019 Environmental Performance Report



ROCKROSE
ENERGY

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1 PREFACE

RockRose Energy plc announced on 25th February 2019 that it had signed a Sales and Purchase Agreement to acquire the entire share capital of Marathon Oil UK LLC; the sale being conditional on a number of conditions. The completion of the acquisition was announced on 1st July 2019 with an effective economic date of 1st January 2019. The acquisition included the Greater Brae Area and the teams based in Aberdeen and Peterhead. On completion of the acquisition, the name of Marathon Oil UK LLC was changed to RockRose UKCS8 LLC (referred to as UKCS8 throughout this document).

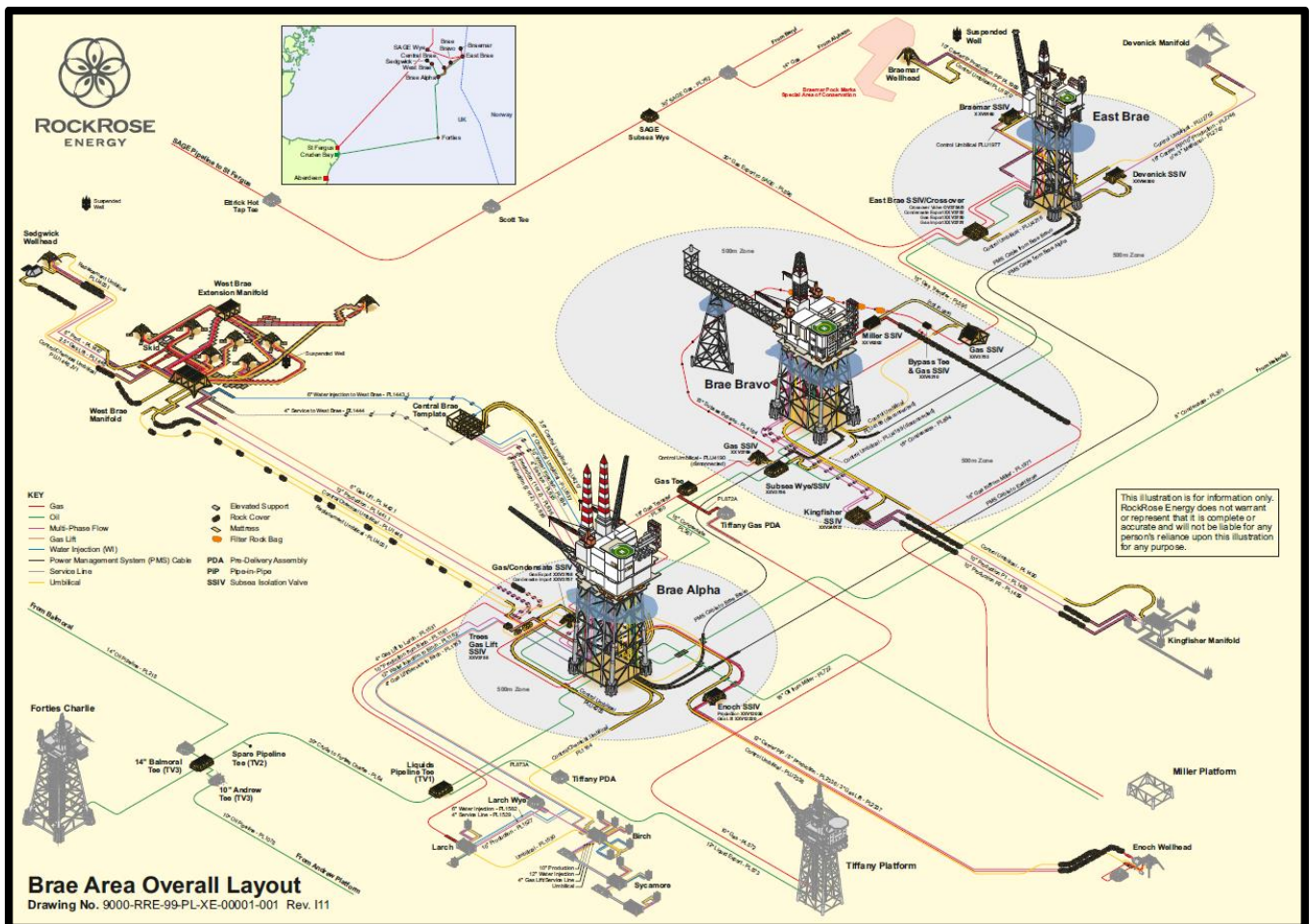
UKCS8 is committed to environmental protection and places significant emphasis and resources on minimising wastes, emissions and other releases through its operations. Environmental performance indicators are a key part of UKCS8's operational performance commitments with targets designed to drive continuous improvement. UKCS8 are focussed on developing a strategy to work towards Net Zero, reducing emissions and driving reliability. This report summarises the 2019 environmental performance for UKCS8's Brae operations.

2 OVERVIEW OF OFFSHORE INSTALLATIONS

UKCS8 operates three interconnected platforms in the UK sector of the central North Sea - Brae Alpha, Brae Bravo and East Brae. Brae Bravo was permanently down manned in July 2019 following cessation of production in 2018. The Brae platforms lie some 220 km from the UK coast and 8 km west of the median line with Norway. These installations act as a regional hub for oil and gas production and export from various UKCS8 operated and third party operated fields and subsea tiebacks as illustrated in the figure below. Oil (and natural gas liquids) from these fields is exported through the UKCS8 operated Brae to Forties pipeline and onwards via the Forties Pipeline System to the Kinneil reception terminal on the Firth of Forth. Gas from the Brae area is piped to the St Fergus gas terminal via a tie-in to the Scottish Area Gas Evacuation (SAGE) pipeline system.

Power for the two manned Brae platforms is distributed via a field ring main and controlled by a Power Management System (PMS). The PMS controls the power generated on the Brae Alpha platform, and enables electricity to be supplied to the East Brae platform which has no main power generation facilities of its own.

Overview of the Brae Area



2.1 BRAE ALPHA

The Brae Alpha platform located in Block 16/7a, is a single, integrated platform consisting of drilling rig, production, utility and accommodation facilities. Production commenced in July 1983. Brae Alpha topside facilities process produced fluids from the UKCS8 operated South, Central and West Brae (including Sedgewick) Field reservoirs plus fluids from the Spirit Energy operated Birch, Larch and Sycamore (Trees) Field reservoirs. In 2007 Enoch, operated by Repsol Sinopec, was tied back to the Brae Alpha platform and brought online.

2.2 BRAE BRAVO

The Brae Bravo platform is a single, integrated platform consisting of drilling rig, production, utility and accommodation facilities and is also located in Block 16/7a, 10km north of Brae Alpha. The Brae Bravo commenced production in 1987 and processed fluids from the North Brae, Central Brae, Beinn and Bracken Fields plus fluids from the Shell operated Kingfisher Field. Production at Brae Bravo ceased in December 2018 and the platform was disembarked in July 2019.

2.3 EAST BRAE

East Brae is a single integrated platform consisting of drilling rig, production, utility and accommodation facilities located in Block 16/3a to the north of Brae Bravo. Production from East Brae commenced in December 1993. East Brae topside facilities process produced fluids from the UKCS8 operated East Brae and Braemar Field reservoirs. In October 2012, Devenick, operated by TAQA, was tied back to the East Brae platform and brought online.

2.4 DRILLING

Late in 2019 a West Brae development well was drilled from a MODU. The new sub-sea well was side-tracked to a new geological target from a donor well that was producing low oil rates. The reservoir of the donor well was permanently isolated, before the new well was drilled, completed and produced fluids flowed back to the Brae Alpha host platform via the existing infrastructure servicing West Brae.

2.5 DECOMMISSIONING

The decommissioning programme for the removal of the west drilling rig on Brae Alpha was approved in September 2019. This will allow access to be able to plug and abandon the wells prior to decommissioning in the future.

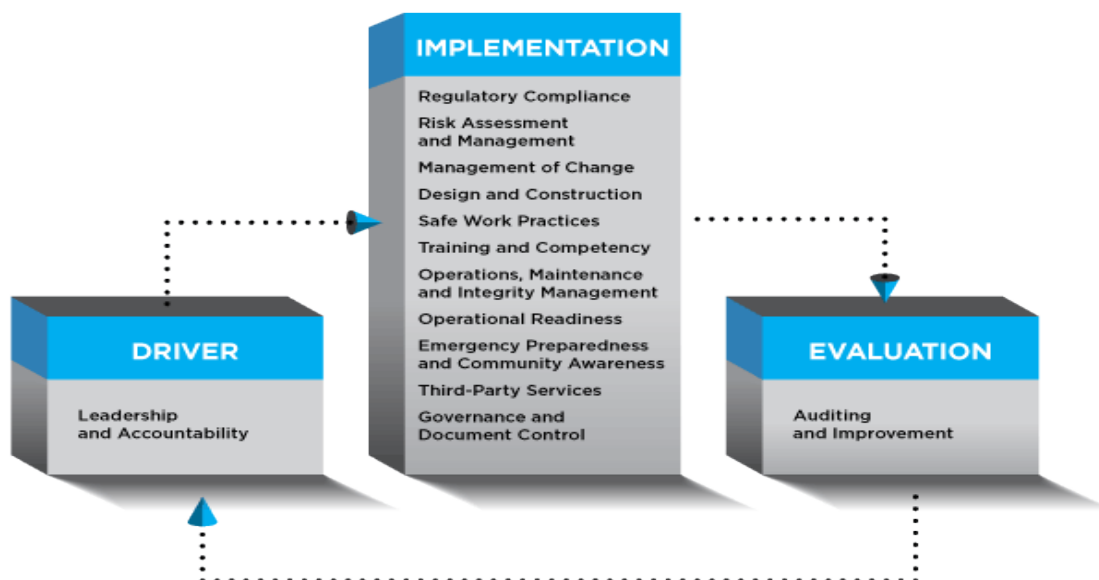
Following cessation of production at the end of 2018, Brae Bravo underwent an extensive cleaning and de-energisation programme before being declared hydrocarbon free at the end of Q1 2019. The final disembarkation occurred in July 2019 and the platform remains an unmanned platform awaiting removal of the topsides in 2021.

3 ENVIRONMENTAL MANAGEMENT AT ROCKROSE UKCS8 LLC

UKCS8 is committed to excellence in the areas of Health, Environment, Safety and Security (HES&S) performance and is supported by the “Responsible Operations Management System” (ROMS) as the framework to drive continuous improvement and reduce operational risk.

ROMS is structured around 14 core elements that specify the expectations required to consistently manage Health, Environment, Safety and Security (HES&S) risks, ensure operational integrity and drive continuous improvement across UKCS8’s operations. The ROMS Standards set the minimum requirements to meet the expectations and ROMS supporting documentation incorporates any critical and regulatory requirements unique to the Business Unit or function. The 14 elements are aligned with the basic continuous improvement cycle of Plan-Do-Check/Correct-Review. Each element of ROMS is assigned to a member of UKCS8’s Senior Management Team, with an annual review conducted to measure the effectiveness of the element.

ROMS Review Cycle



UKCS8’s environmental management system (EMS) which sits under ROMS has been externally verified and aligns to the principals of the ISO 14001 standard for environmental management systems. The most recent external verification report was submitted to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) in March 2020.

Overall environmental performance is continuously monitored and is subject to regular review at all levels within the organisation. On the Brae Platforms, the responsibility for day to day environmental performance lies with the respective Platform Managers.

Environmental objectives and targets are developed as part of the annual business review and planning cycle for the Brae Area. UKCS8 sets key environmental performance indicators at the beginning of each year and progress against these is reviewed regularly, to ensure that no significant deviations from these indicators occur.



3.1 LIFE CRITICAL EXPECTATIONS AND HES BELIEFS

LIFE CRITICAL EXPECTATIONS



ROCKROSE ENERGY



DRIVING

Follow safe driving practices when operating on-road vehicles

- ✓ I always wear a seat belt
- ✓ I never use a phone or mobile device when driving
- ✓ I am fit to operate my vehicle
- ✓ I drive in a safe manner, respecting motor vehicle laws



HOT WORK

Control flammables and ignition sources

- ✓ I confirm 0% LEL at the location of the work
- ✓ I confirm combustibles and flammables are protected or at a safe distance from the work
- ✓ I confirm that energy sources are isolated and the work environment is prepared for hot work
- ✓ I utilise a Fire Watch when performing spark producing hot work outside of designated safe welding or burning areas



CONFINED SPACE ENTRY

Obtain authorisation before entering a confined space

- ✓ I never enter a confined space without authorisation
- ✓ I confirm that energy sources are isolated prior to entry
- ✓ I confirm that initial and recurring atmospheric monitoring is conducted
- ✓ I confirm that an attendant is standing by and rescue provisions are in place



EXCAVATION

Obtain authorisation before initiating or entering an excavation

- ✓ I never excavate without a valid line locate
- ✓ I never enter an excavation until an Excavation Competent Person has performed an on-site review & protective measures are in place
- ✓ I confirm rescue provisions are in place when entering an excavation which;
 - Exceeds 4' in depth, has limited means of access or egress, and has potential to contain a hazardous atmosphere



WORK AT HEIGHTS

Protect yourself from falls when working unprotected at height

- ✓ I use appropriate fall protection equipment
- ✓ I use sufficient anchor points
- ✓ I maintain 100% tie-off



ENERGY ISOLATION

Verify isolation and zero energy before work begins

- ✓ I identify all hazardous energy sources associated with the task
- ✓ I confirm that hazardous energy sources have been isolated, locked, and tagged; following lock and key control requirements during the task
- ✓ I confirm that there is no residual or stored energy prior to starting the task



MECHANICAL LIFTING

Plan lifting operations and control the area

- ✓ I confirm that lift equipment and rigging have been inspected and are fit for purpose
- ✓ I only operate equipment that I am qualified to use
- ✓ I establish and obey buffer and exclusion zones
- ✓ I never walk under a suspended load or lift loads over personnel



LINE OF FIRE

Keep yourself and others out of the line of fire

- ✓ I establish and obey buffer and exclusion zones
- ✓ I secure tools and work materials to prevent dropped objects
- ✓ I position myself to avoid known hazards related to:
 - Dropped Objects
 - Pressure Releases
 - Vehicles and Heavy Equipment



SAFETY SYSTEM OVERRIDE

Obtain authorisation before overriding or bypassing safety systems

- ✓ I use safety systems which apply to the task
- ✓ I obtain authorisation before overriding or bypassing safety systems



WORK AUTHORISATION

Work with a valid Work Permit when required

- ✓ I identify activities necessitating a Work Permit including Hot Work, Confined Space Entry, and Excavation Entry where required
- ✓ I never begin an activity requiring a Work Permit before confirming with the Permit issuer that all conditions of the permit are in place

LIFE CRITICAL EXPECTATIONS



DRIVING



ENERGY ISOLATION



HOT WORK



MECHANICAL LIFTING



CONFINED SPACE ENTRY



LINE OF FIRE



EXCAVATION



SAFETY SYSTEM OVERRIDE



WORK AT HEIGHTS




WORK AUTHORISATION

HES BELIEFS

- ① Every worker has the right and obligation to **stop the job**
- ② By carefully **planning each activity**, we will identify and mitigate risk on the job site
- ③ Through transparent **reporting, investigation, and sharing of events**, we can prevent recurrence
- ④ With **open, honest communication** we can drive continuous improvement throughout our operations
- ⑤ The **worker is more important than the work**; this will be obvious in our decisions and actions



3.2 HES&S POLICY DOCUMENT

ROCKROSE ENERGY GROUP		
POLICY No : RRE-POL-002	Document No: 0000-RRE-95-AA-PS-00002-000	 ROCKROSE ENERGY
	Revision No: I01	

(Health, Environment, Safety & Security)

The RockRose Energy (RRE) group of companies produces and markets crude oil and gas. RRE is committed to being a responsible operator running a safe, clean and secure business. Our commitment to a high standard of Health, Environment, Safety and Security (HES&S) performance is supported by a Responsible Operations Management System (ROMS), which is the framework to drive continuous improvement and reduce operational risk. The goals of this framework are to promote safety and environmental protection and to ensure reliable operations and asset integrity.

RRE has high expectations of, and recognises the contributions made by, our team members, employees, contractors and Joint Venture (JV) partners, at all levels of the organisation to the continuous improvement and delivery of our HES&S culture and performance.

RRE will engage with stakeholders, proactively communicating and addressing concerns raised and to ensure Business Partners meet RRE policy requirements.

This policy applies to the entirety of the UK business. To minimise risks to HES&S, RRE shall:

- Comply with all applicable HES&S laws, regulations, Corporate Standards and other requirement, fully co-operating with regulators and other stakeholders
- Maintain a risk assessment process that serves as a basis for determining appropriate operational controls to reduce HES&S risks and for developing priorities for management attention and action.
- Ensure environmental protection including pollution prevention.
- Ensure training and competency processes are in place that ensure work activities are performed and resourced competently.
- Plan and prepare to ensure that, in the event of an incident, all necessary actions are taken for the protection of the community, personnel, the environment, and assets.
- Report and investigate events to address underlying causes and prevent the likelihood of recurrence.
- Continually improve the management system to enhance the Company's overall HES performance and provide a framework for setting objectives and targets and measuring performance.
- Proactively address HES&S risks associated with permanent and temporary process and non-process changes that impact the subsea, wellhead or surface facilities.
- Follow Safe Work Practices to conduct all operations in a safe and environmentally sound manner.
- Encourage a security positive culture that promotes security as everyone's responsibility to minimise risk to/from employees, business functions, projects, contractors, suppliers, stakeholders, JV partners and other third parties.
- Ensure awareness and good practice for the processing of personal and electronic data and the integrity of our systems.

ATTENTION: Printed copies should be used with caution.
The user of this document must ensure the current approved version is being used.



Vision & Values

OUR VISION

To deliver strong asset growth and shareholder returns in a competitive oil price environment in a responsible, safe and ethical manner, differentiated by our approach to asset stewardship and capital efficiency.

OUR VALUES

The values that guide RockRose's approach to achieving its Vision are:



WE ARE RESPONSIBLE, SAFE AND ETHICAL

We value and respect our people, our environment and the communities in which we work – that's why we put integrity, ethics and safety above all else.



WE SEIZE OPPORTUNITIES

We act decisively when we see opportunities and we have the confidence and agility to change direction when needed.



WE TAKE OWNERSHIP

Everyone is a part of the progression and success of the company, being a part of this gives strength to how we operate, think, and take pride in RockRose and what it's achieving.



WE ARE ONE TEAM

We respect, listen to, challenge, support and learn from each other, with everyone bringing unique skills and views to bear on a situation that when incorporated as part of a team strengthens the way we do business.



WE DELIVER RESULTS

We are focused and driven to achieve our underlying goal – to deliver shareholder value, so we can share value with our people and our communities.

4 ENVIRONMENTAL PERFORMANCE

This section summarises UKCS8's offshore environmental performance for 2019.

4.1 OIL AND CHEMICAL SPILLS

During 2019 there were seven unplanned releases of oil totalling 0.086 tonnes and six unplanned release of chemicals totalling 1.35 tonnes.

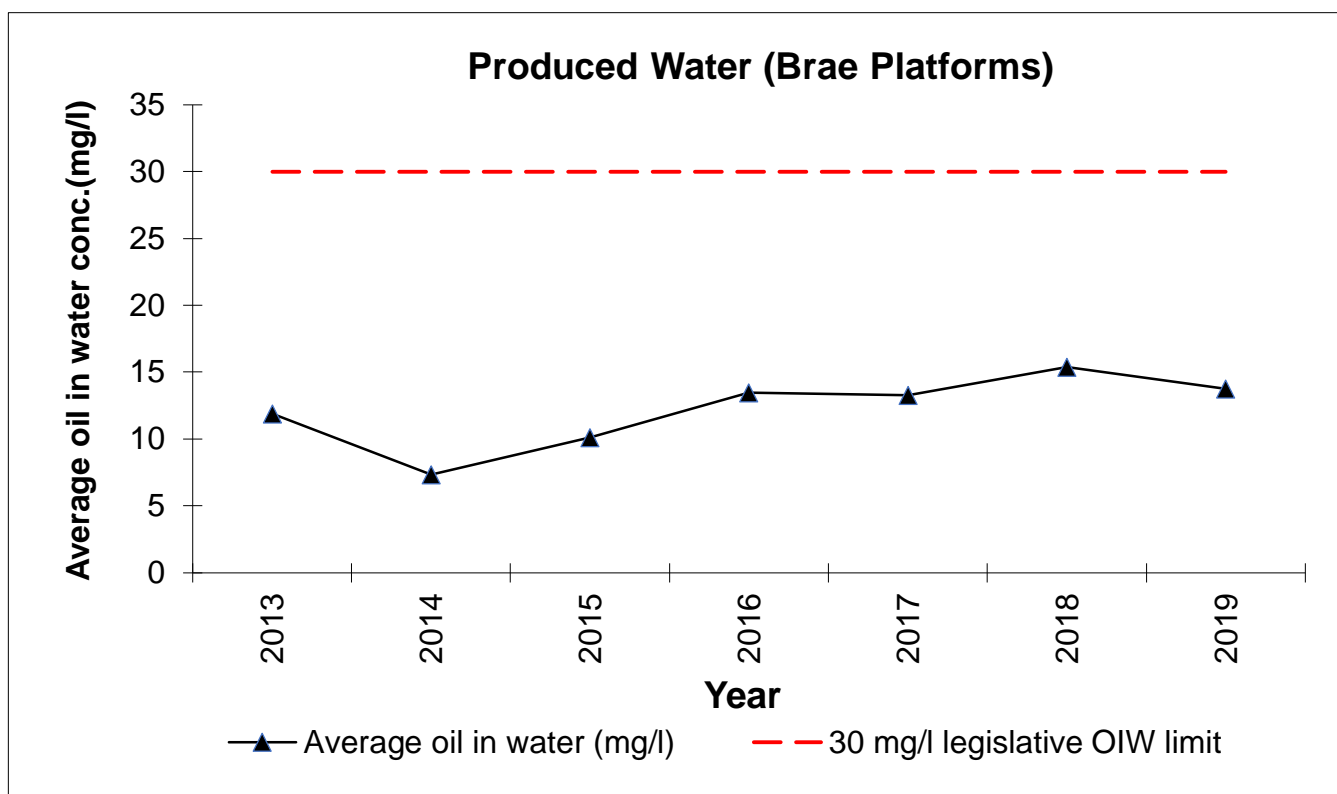
These events were tracked using the company incident management tool and investigated in line with the Event Reporting and Management Standard. It was considered that these unplanned releases did not pose a significant environmental impact.

4.2 PRODUCED WATER

The discharge of produced water in the UK is regulated by the Offshore Petroleum Activities (Oil Pollution Prevention and Control) (Amended) Regulations 2011.

UKCS8 continues to operate well below the legislative 30mg/l monthly average limit for concentration of oil in produced water discharged and has done so throughout the reporting period.

The average oil in water concentration of the discharged produced water for the Brae Field in 2019 was 13.8 mg/l. This represents a 10% decrease from 15.4 mg/l in 2018. In total, 2,049,651 m³ of produced water and 28.23 tonnes of permitted oil was discharged in 2019, the largest producer being the Brae Alpha platform. This is due to the nature of the reservoirs that are produced to Brae Alpha which bring high produced water volumes.



FACILITY	Flow Weighted Average Oil in Produced Water concentration	Total Oil Discharged	Total Produced Water Discharged
	(mg/l)	(Tonnes)	(m ³)
BRAE ALPHA	13.8	27.92	2,026,097
BRAE BRAVO	0.0	0.00	0
EAST BRAE	13.0	0.31	23,554
TOTAL BRAE	13.8	28.23	2,049,651

4.3 CHEMICAL USE AND DISCHARGE

The use and discharge of chemicals in the UK is regulated under the Offshore Chemical Regulations 2002 (amended 2011) and enforces a number of OSPAR (Oslo and Paris convention) requirements.

OSPAR recommendations require the phase out of any chemicals which carry substitution warnings, i.e. those chemicals that are considered to be harmful to the environment. UKCS8 were committed to a programme of systematic reduction/removal of all chemicals carrying a substitution warning by the end of 2016 unless their use is required on technical and/or safety grounds. Over the last six years the number of chemicals carrying a substitution warning from the Brae Field chemical permits has reduced by 35%. Only 4% of the total quantity of Production chemicals discharged from the Brae platforms during 2019 carried substitution warnings. These chemicals have been risk assessed in order to allow their continued use beyond December 2016 and efforts for replacement detailed in the annual Technical Justification Report where appropriate.

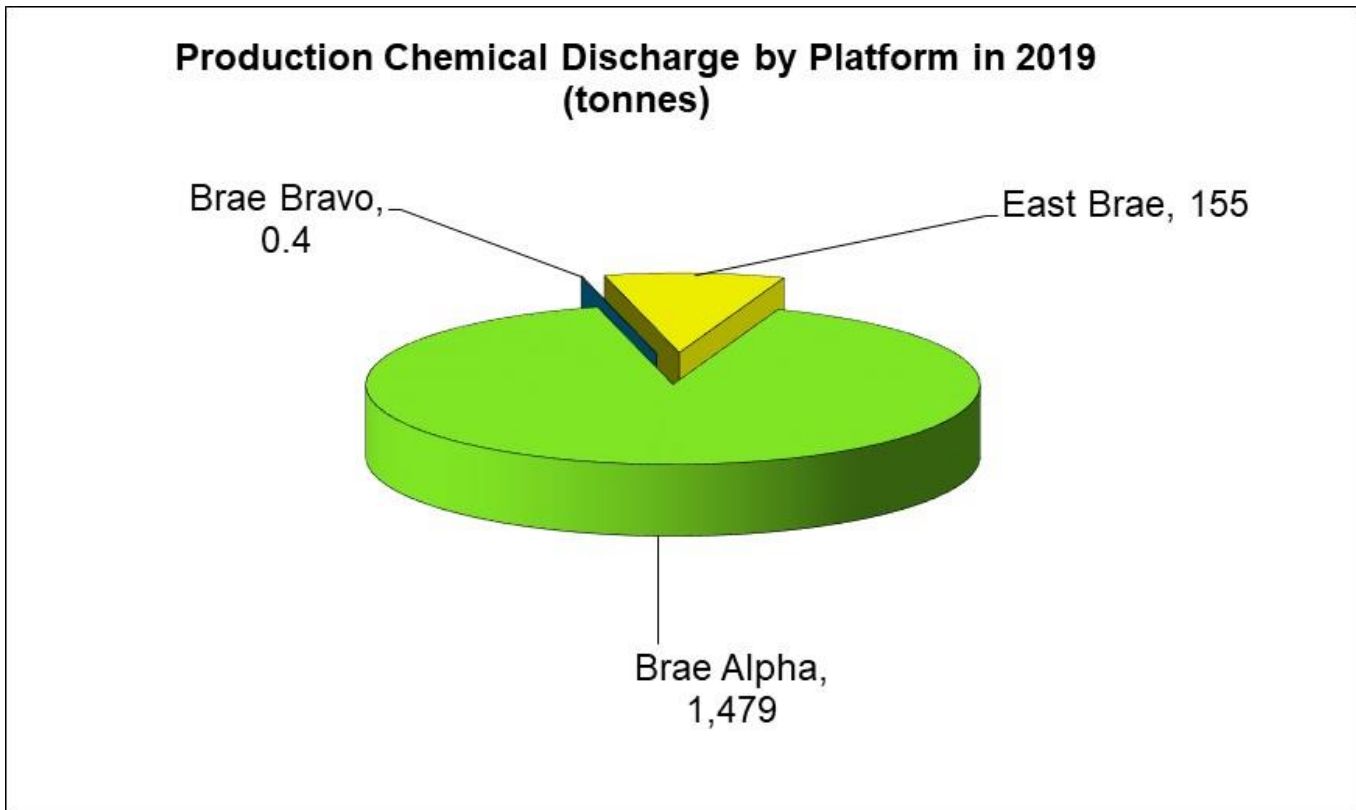
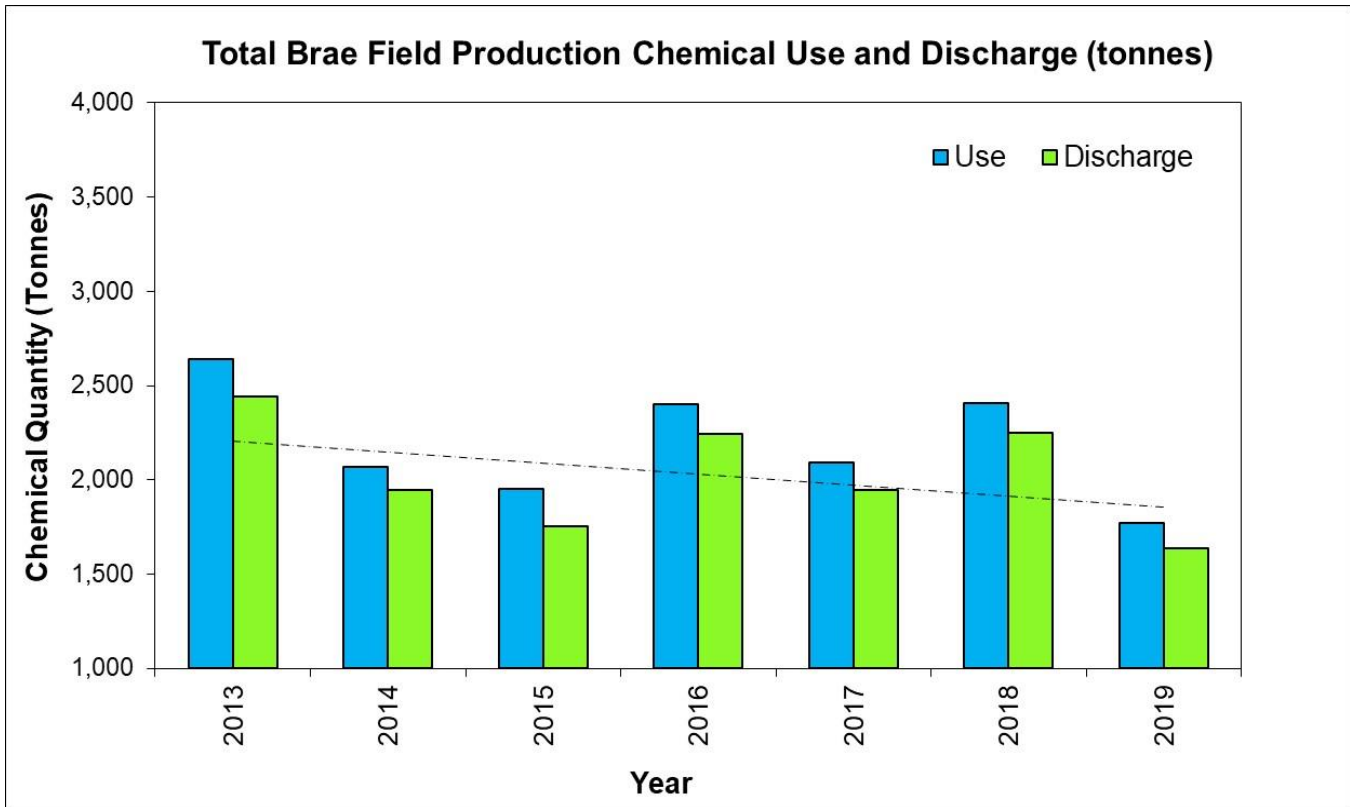
The vast majority of Production chemicals used and discharged in the Brae Field (97%) fall within Offshore Chemical Notification Scheme (OCNS) categories Gold and E which are least hazardous to the environment.

Total Production chemical discharges in the Brae Field were 1,634 tonnes in 2019 representing a decrease of 27% compared to 2018. This was due to the disembarkation of the Brae Bravo platform and a reduced well intervention campaign on the East Brae platform.

PRODUCTION CHEMICALS

FACILITY	Chemicals Used (Tonnes)	Chemicals Discharged (Tonnes)
BRAE ALPHA	1,609	1,479
BRAE BRAVO	0.1	0.4 (Note 1)
EAST BRAE	164	155
TOTAL BRAE	1,773	1,634

NOTE 1 – Quantity of chemicals discharged from the Brae Bravo platform exceeded the quantity of chemical used due to discharges of chemical during the make safe campaign on the platform



4.4 EMISSIONS TO AIR

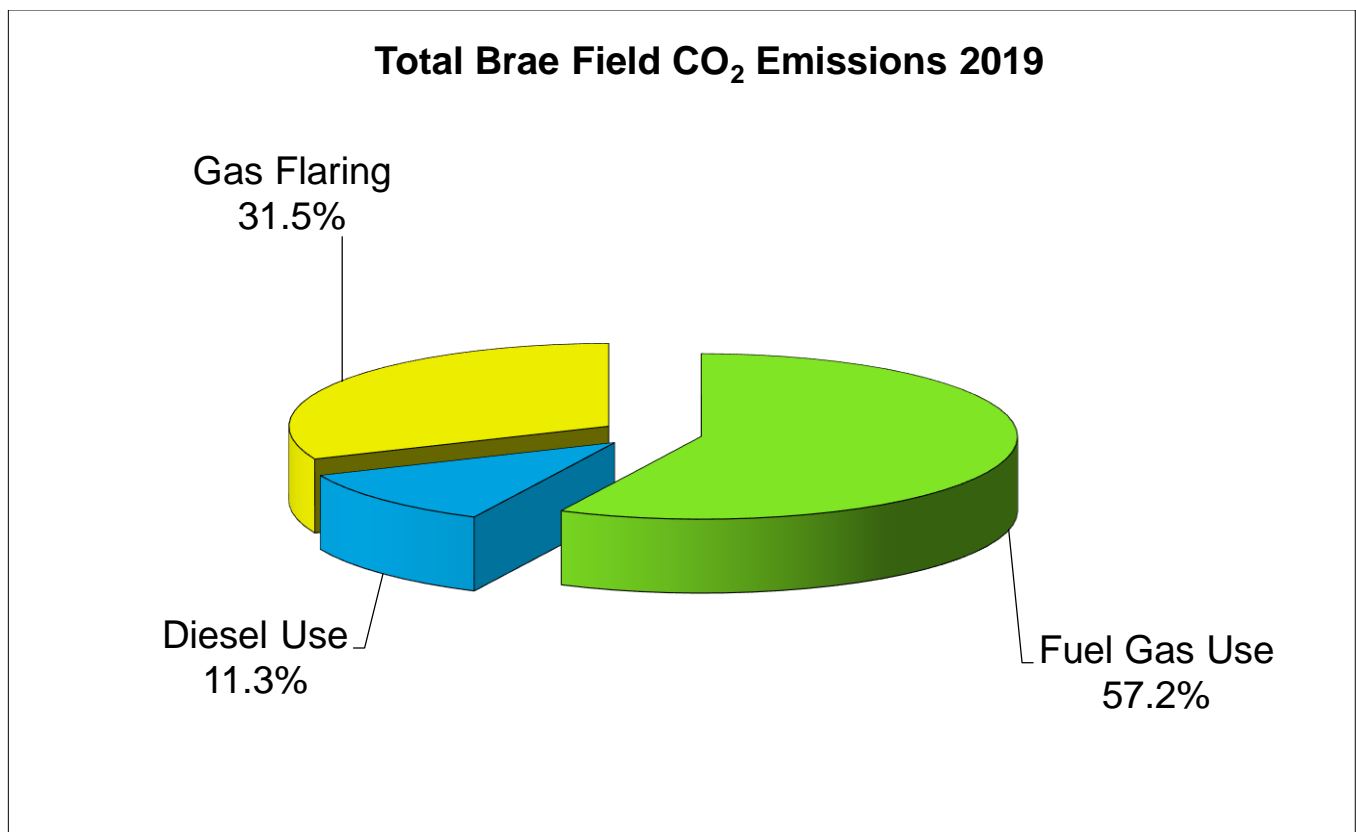
Carbon dioxide (CO₂) is produced by the combustion of natural gas and diesel and also from process gas flaring for safety purposes. The largest source of CO₂ emissions is from the gas turbines followed by the flares. These are regulated under The Greenhouse Gas Emissions Trading Scheme (ETS) Regulations 2012.

A key energy efficient feature of the Brae Field is the power sharing ring main. Brae Alpha supplies power to East Brae which allows the installation to have no energy generating facilities of its own thus improving the energy efficiency of the field overall. Gas turbines are used to drive compression on East Brae and dual fuel (gas or diesel) turbines are used to drive power generators on Brae Alpha.

In 2019 UKCS8 continued to operate in an energy efficient manner by consolidating the energy efficient changes from 2009 onwards and by continuing to minimise the power requirements within the Brae Field using the power ring main between the two operating platforms.

405,383 tonnes of CO₂ were emitted from the Brae platforms in 2019. This represents a decrease of 18% from the 2018 CO₂ emissions. This decrease in emissions was primarily due to the cessation of production from the Brae Bravo platform at the end of 2018 and the subsequent disembarkation of the platform in July 2019.

Under the Offshore combustion Installations Pollution Prevention and Control Regulations 2013 (PPC), we are also regulated for the emissions of other components, i.e. Nitrogen Oxides (NO_x), Sulphur Oxides (SO_x), Carbon Monoxide (CO), Methane (CH₄), and Non Methane Volatile Organic Compounds (VOC) from combustion equipment.



2019 CO₂ Emissions

TOTAL CO₂ EMISSIONS			
FACILITY	Fuel Gas Use (Tonnes)	Diesel Use (Tonnes)	Gas Flaring (Tonnes)
BRAE ALPHA	176,126	5,682	82,726
BRAE BRAVO	0	39,923	0
EAST BRAE	55,782	250	44,894
TOTAL BRAE	231,908	45,855	127,620

2019 NON CO₂ Emissions

TOTAL NON CO₂ EMISSIONS					
FACILITY	NO_x (Tonnes)	SO_x (Tonnes)	CO (Tonnes)	CH₄ (Tonnes)	VOC (Tonnes)
BRAE ALPHA	823	12	494	75	4
BRAE BRAVO	743	50	15	0	4
EAST BRAE	301	1	132	20	1
TOTAL BRAE	1,867	63	641	95	9

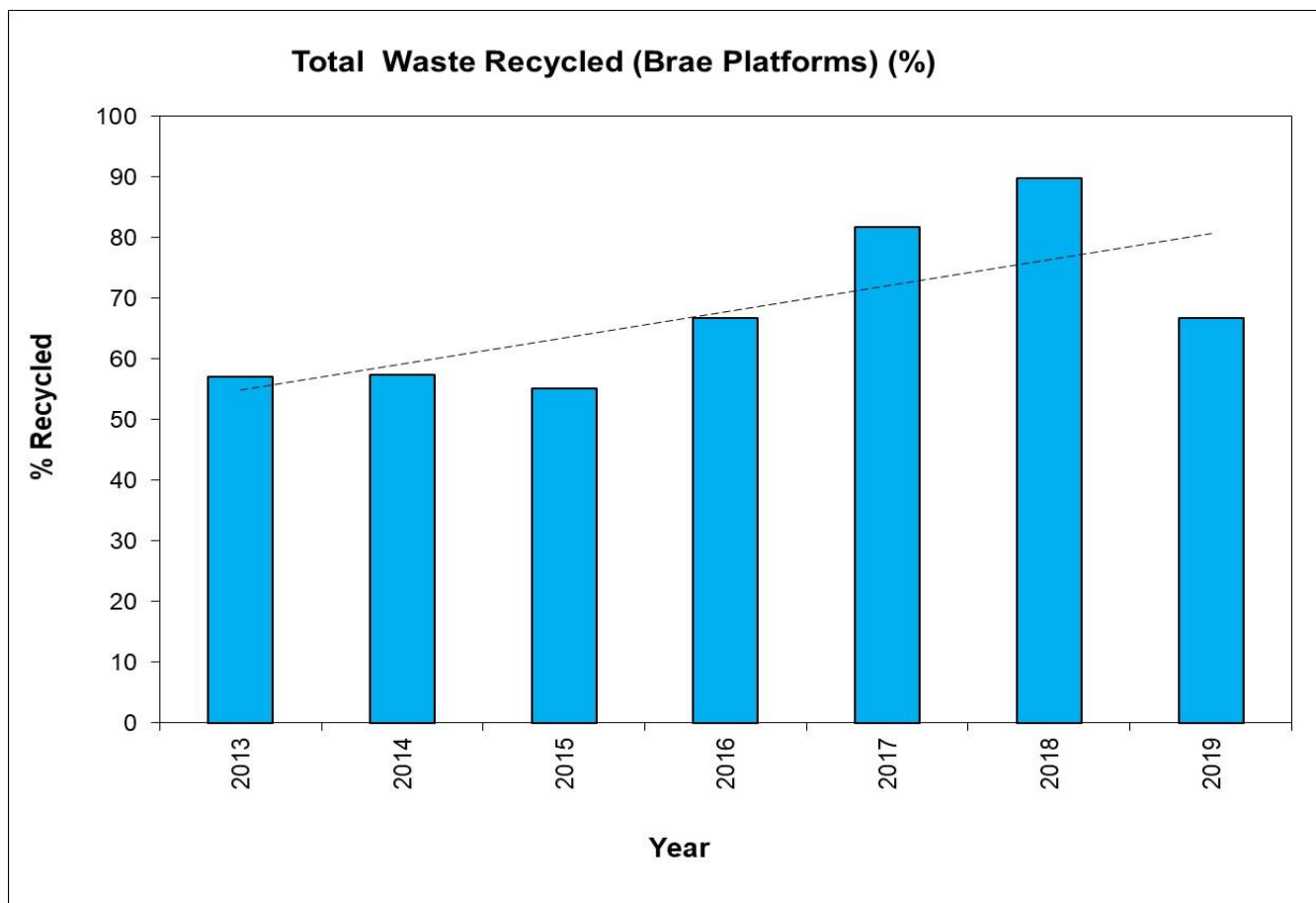


4.5 WASTE DISPOSAL

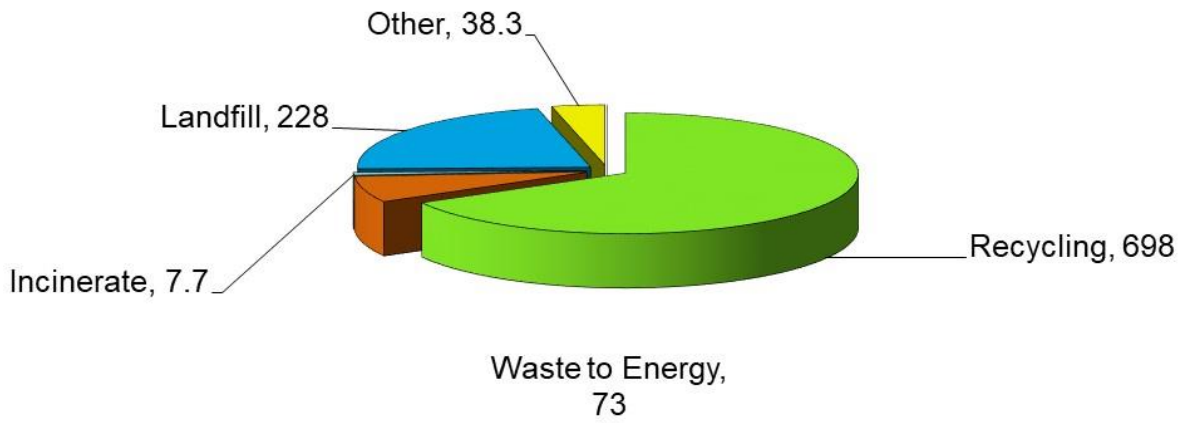
UKCS8's aim is to minimise waste produced and reduce dependence on landfill; as such there are robust arrangements in place for the segregation and management of these wastes. Waste is disposed of in line with the waste hierarchy.

The total quantity of waste generated across the Brae platforms in 2019 was 1,045 tonnes. This represented a significant decrease of 1,973 tonnes from the 2018 figure which had included a substantial quantity (approx. 2000 tonnes) of metal conductors recovered from the Brae Bravo wells during the pre-decommissioning works which was recycled. Recycled waste in 2019 accounted for 67% of the total waste generated.

During 2019 UKCS8 undertook onshore skip audits at the waste management contractor's yard to assess how well offshore personnel segregate waste to be sent to landfill. Brae Alpha and East Brae showed an overall performance of 98.9% of the waste correctly segregated. This shows ongoing improvement from 97% in 2018 and 95% in 2017. These audits give a breakdown of the general waste and are useful in identifying the composition of the waste produced and opportunities for minimisation.



Total Brae Field Waste Disposal Routes in 2019 (Tonnes)



WASTE STREAMS

FACILITY	Reuse	Recycling	Waste to Energy	Incinerate	Landfill	Other	Totals
	(Tonnes)	(Tonnes)	(Tonnes)	(Tonnes)	(Tonnes)	(Tonnes)	(Tonnes)
BRAE ALPHA	0.0	262.8	15.6	7.1	124.8	0.4	410.7
BRAE BRAVO	0.0	230.5	45.4	0.1	36.7	29.2	342.0
EAST BRAE	0.0	205.0	11.7	0.5	66.1	8.7	291.9
TOTAL BRAE	0.0	698.3	72.7	7.7	227.6	38.3	1044.6