# SERICAENERGY ENVIRONMENTAL STATEMENT 2021

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### Letter from the Chief Executive Officer

"Serica will provide the necessary resources to support the implementation of our policy commitments and will ensure that its HSE performance and procedures are subject to audit and review."



#### Serica is committed to continuous improvement of our HSE performance, providing a safe working environment for our valued staff.

With the support of our partners, Serica's goal is to uphold and continuously improve the health, safety and environmental (HSE) performance exemplified at Bruce, Keith & Rhum and to extend this approach to any assets we may acquire in the future.

Serica has created an approved Safety Case for its operatorship of the assets.

The Safety Case is a standard document produced by the Operator of a facility which:

- · Identifies hazards and risks;
- Describes how the risks are controlled;
- Describes the safety management system in place to ensure the controls are effectively and consistently applied.

#### Serica's HSE Policy

Serica's Operations Management System (OMS) provides an integrated and systematic approach to Health, Safety, Environmental and Quality management and demonstrates how we:

- comply with all applicable legislation, industry standards and good practice;
- promote a positive HSEQ culture through visible leadership commitment, personal accountability, communication and engagement with key stakeholders;
- understand our risk profiles and apply a risk management process that reduces this risk to As Low As Reasonably Practicable (ALARP)
- ensure that HSEQ remains integral to the planning, design, construction, operation, maintenance and disposal of our assets;
- promote environmental sustainability and the reduction of our carbon footprint;
- provide staff with suitable information, instruction and training relevant to their duties and responsibilities;
- maintain emergency response plans and the organisational capability to respond effectively to incidents and emergencies;
- continually improve our HSEQ performance by defining performance objectives, monitoring and measuring results, and completing a programme of audit and assurance activities.

Serica expects everyone involved in our activities to take responsibility and be accountable for compliance with this policy, our OMS, current legislation and all applicable regulatory requirements. The Chief Executive Officer, supported by the Board of Directors, is accountable for the HSEQ performance of the Company and shall ensure that sufficient resources are in place to implement this policy.

Mitch Flegg Chief Executive Officer

#### Serica Energy's North Sea Portfolio

## Serica's main focus is on production and development in the UK North Sea, complemented by a portfolio of oil and gas exploration opportunities, including interests in offshore licence blocks in the UK North Sea

Serica Energy focuses the skills of its 150+ strong team on adding value to existing producing assets as well as developing and exploring new opportunities.

In the North Sea, Serica Energy produced an average of 21,000 boe/d (net) from four fields in 2020 and, via Bruce facilities, handled up to 40,000 boe/d gross gas and liquids in 2020 on behalf of the Company and its partners.

Serica Energy (UK) Limited is Duty Holder and Well Operator for the Bruce, Keith and Rhum (BKR) assets as defined by the Offshore Installations (Offshore Safety Directive), (Safety Case etc.) Regulations 2015 (SCR 2015) and the Offshore Petroleum Licensing (Offshore Safety Directive) Regulations 2015.

Serica promotes a culture of safety, reliability and responsibility across all aspects of its business and is committed to minimising the impact of its activities on the environment.



## Health, safety and environmental protection are responsibilities shared by everyone working for Serica Energy

The Serica Energy Operations Management System (OMS) provides the framework for the systematic management of HSEQ across the Serica Energy organisation and aims to ensure the delivery of safe, environmentally responsible and reliable operations in accordance with defined policies, practices, processes and standards.

The Environmental Management System (EMS) contained within the OMS was successfully verified against the requirements of OSPAR 2003/5 in May 2021 and will continue to be re-verified every two years.

The structure and content of the OMS recognises the principles of HSG65 (Managing for health and safety), ISO 45001 (Occupational Health and Safety Management Systems) and ISO 14001 (Environmental Management Systems) and ensures that risks to Health and Safety of personnel and to the environment are reduced to As Low as Reasonably Practicable (ALARP). The purpose of the OMS is to ensure that, as far as reasonably practicable, all activities are undertaken in accordance with Serica's commitment to HSEQ and in compliance with all relevant statutory provisions applicable to operations across the UKCS and at its supporting onshore locations.

At the core of Serica Energy's OMS is the Serica HSEQ Policy. The HSEQ Policy articulates Serica Energy's commitment to:

- provide a safe, reliable and responsible operating environment for the well-being of staff and contractors,
- comply with, or strive to surpass, all applicable legislation and industry best practices.

The HSEQ Policy also states an expectation that all personnel and third-party organisations working for Serica Energy share the values of protecting the environment and one another.

The HSEQ Policy is signed and dated by the Chief Executive Officer (CEO) and is reviewed at defined intervals as part of the Management Review process.

#### **Serica Energy Operated Assets**

# **OPERATED PRODUCING FIELDS**

### Bruce, Keith and Rhum



The Bruce Platform is located in the United Kingdom Continental Shelf (UKCS) 148km east of Shetland and 17km west of the UK/Norway median line in water depths of 122m.

The Bruce facilities, operated by Serica Energy (UK) Limited, consist of the Bruce and adjacent Keith and Western Area Development fields in UKCS Blocks 9/8a, 9/9a and 9/9b in the Northern North Sea. In addition, the Rhum gas field is also part of the BKR asset, with a subsea manifold tied back to the platform, which is situated 44km north of the Bruce Platform in Block 3/29.

Produced hydrocarbons (crude, condensate and gas) are exported to shore by separate pipelines. Oil is exported via the Forties Pipeline System to Cruden Bay and on to the Kinneil Terminal. Gas is exported to St Fergus via the Frigg pipeline. The BKR assets predominantly produce gas/ condensate, with only two crude oil producing wells.

BKR daily production in 2020 averaged in excess of 21,000 boe/d of exported oil and gas net to Serica.

#### The Rhum Field Well Intervention

The Rhum field consists of three wells, which were drilled in 2005; however, only R1 and R2 were fully commissioned. The third well, R3, was never bought into production due to technical difficulties. Given the significant gas production potential of R3, Serica assessed and concluded there was a strong business case for further intervention works to bring the well on-line.

Realised production increases from a successful intervention will see daily gas production from the Rhum field in excess of >6 million m<sup>3</sup> per day peaking in 2022. In collaboration with the Rhum partners, Serica mobilised the Awilco WilPhoenix semi-submersible drilling rig to site in September 2020 and despite a challenging campaign the well is expected to be brought on-line in 3Q 2021 once all sub sea work scopes are complete.

The successful completion of the project will provide a significant boost to production through the Bruce platform.

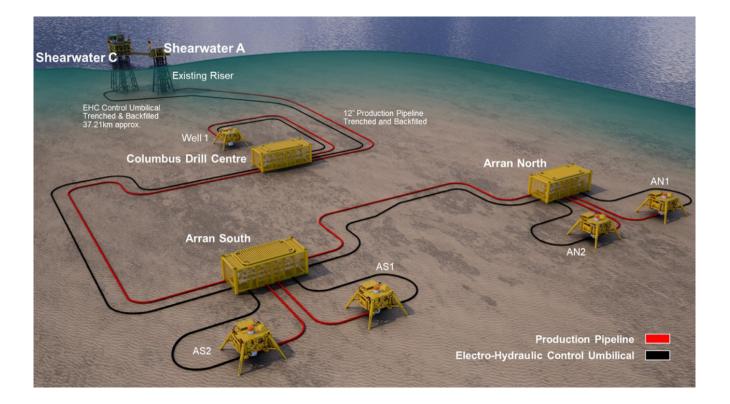
#### **Serica Energy Operated Assets**

# **OPERATED DEVELOPMENT**

## Columbus

The Columbus Development is a gas condensate accumulation in the Forties Sandstone Formation that has been fully appraised by four wells. In 2018, the Columbus Field Development Plan was approved by the Oil & Gas Authority (OGA). Serica Energy (UK) Limited are currently in the process of drilling the Columbus well which will tieback to the Shearwater platform, 35km to the South West via a tie-in manifold and then be co-mingled with Arran field production in the Arran export pipeline. The well is anticipated to add 7,000 boe gross per day, 75% of which is anticipated to be gas.





# **NON-OPERATED PRODUCTION**

## **Erskine**

Serica Energy holds an 18% non-operating interest in the Erskine field, located in the UK Central North Sea.

The field, operated by Ithaca Energy, is a High Pressure High Temperature (HPHT) gas condensate field and was originally discovered in 1981. Main reserves lie in three separate, but generally overlying, Jurassic sandstone producing horizons. The field has been developed with five producing wells.

The production facilities comprise a normally unattended installation located at Erskine with production handled and controlled from the Harbour Energy (previously Chrysaor) operated Lomond platform, 30km to the north and 269km east of Aberdeen. In 2020 the Erskine well contributed approximately 2,000 boe/day to Serica's overall production volumes. Gas from Lomond is exported to a terminal at Teeside. The condensate from Lomond is exported to Cruden Bay.

# **EXPLORATION**

## **North Eigg**

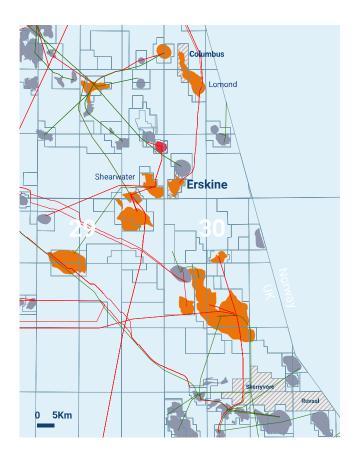
The North and South Eigg prospects are located in the Northern North Sea, adjacent to the Serica operated Rhum Field in Block 3/29a.

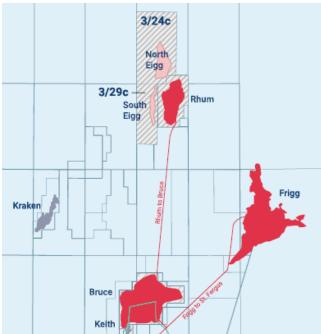
The prospects are High Pressure and High Temperature (HPHT) and interpreted to share many geological similarities with the Rhum Field. North Eigg is the primary target and is clearly defined on 3D seismic data and forms a structural trap sealed against the East Shetland bounding fault.

Serica has committed to drilling an exploration well within three years of license award, and in the event of a commercial discovery intends to develop the field via a subsea tie-back to the Serica operated and 98% owned Bruce facilities. As well as providing Serica with potentially significant additional reserves, a tie-back to the Bruce platform would reduce unit operating costs and extend the economic life of this strategic North Sea infrastructure.

## Skerryvore

The Skerryvore prospect lies in the Central North Sea, 60km south of the Erskine field. The asset is operated by Parkmead and Serica holds a 20% equity position. The proposed work programme for the Skerryvore area includes acquiring and reprocessing 3D seismic data, followed by a contingent well decision.





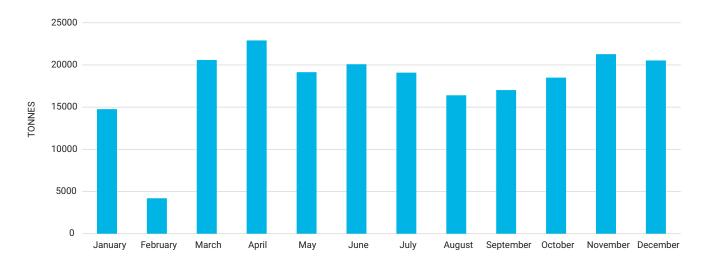
#### **Environmental Performance**

### **Atmospherics**

2020 was another progressive year for Serica with regards to decreasing atmospheric emissions from the Bruce Platform. Flaring volumes were reduced significantly from 10,309 tonnes of gas volume flared in 2019 to 5,696 tonnes flared in 2020. Overall CO<sub>2</sub> emissions also dropped from 241,498 tonnes of CO<sub>2</sub> in 2019 to 214,425 tonnes\* in 2020. A further 162.60 tonnes was accounted for as a data gap as a result of flare metering maintenance works.

Atmospheric emissions such as carbon dioxide (CO<sub>2</sub>), nitrogen oxides (NOx), sulphur dioxide (SO<sub>2</sub>), carbon monoxide (CO), methane (CH<sub>4</sub>) and non-volatile organic compounds (VOCs) have the potential to adversely impact the environment. Total emissions of non-CO<sub>2</sub> gases, as calculated for the annual BEIS Environmental and Emissions Monitoring System (EEMS) from combustion activities on Bruce in 2020 were: N<sub>2</sub>O 16.44 tonnes, NOx 498.33 tonnes, SO<sub>2</sub> 6.42 tonnes, CO 452.19 tonnes, CH<sub>4</sub> 132.04 tonnes and VOCs 42.69 tonnes (Figure 1).

Power generation using fuel gas on Bruce is the leading source of  $CO_2$  emissions accounting for 187,638 tonnes of  $CO_2$ . Flaring accounted for 16,978 tonnes of  $CO_2$  and diesel usage accounted for 9,763 tonnes, giving a total of 214,425 tonnes\* of  $CO_2$  emitted at Bruce for 2020 (Figure 1).



#### Figure 1 CO<sub>2</sub> Emissions from Bruce in 2020

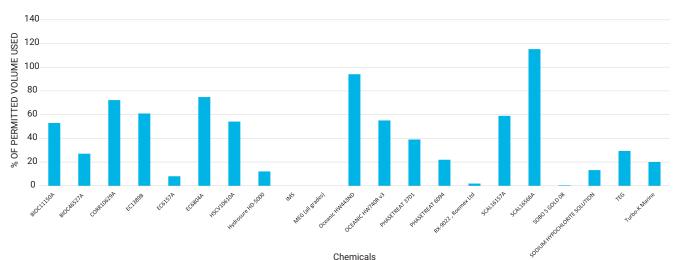
\* 2020 CO2 emissions totals are currently undergoing external re-verification. The overall tonnage may reduce.

### Chemical use and discharge

The offshore use and discharge of chemicals on the UKCS is closely regulated by the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED). This is managed through the Offshore Chemical Regulations (OCR) (2002) as amended in 2011. The majority of chemicals used offshore are regulated, requiring a risk assessment and approval for their use and discharge. All chemicals that are regulated under OCR have been tested to evaluate their toxicity, bio accumulation and bio degradation, and are ranked according to their potential to cause harm to the receiving environment. The most hazardous chemicals carry a substitution (SUB) warning label, and Operators are required to continually reduce their usage of SUB chemicals. It is hoped that the use of substitution chemicals will be eradicated on the Bruce Platform during 2021.

Operations at BKR in 2020 were permitted to use 797,340kg

of chemicals with 617,890kg permitted for discharge to sea. In 2020 a total of 359,177kg of chemicals were used on the Bruce Platform. By far the most used chemical was SCAL16157, a scale inhibitor designed to prevent down hole scaling in the produced water re-injection well, 86,339kg of this chemical was used in 2020 with <1% calculated to be discharged overboard in produced water. Serica Energy (UK) Limited had 1 x Offshore Chemical Regulation Noncompliance Report (NCR) on the Bruce platform in 2020. This resulted from exceeding the quantity of use and discharge on a single chemical by 15%, 5% above the limited when a NCR needs to be submitted.



#### Figure 2 Chemical usage vs permitted allowance on during Bruce operations (2020)

## **Discharges to Sea**

Bruce wells produce a mixture of crude oil, condensate and gas. Following separation, produced water is either re-injected underground via a dedicated well or cleaned to low OiW concentrations, typically 5-10mg/l, using a de-oiler package, known as a CETCO skid prior to its discharge overboard. In December 2020 a failure of the Produced Water Re-injection Pump (PWRI) resulted in a produced water being discharged to sea without treatment between the 11th and the 31st of December.

Routine discharge and re-injection of produced water is closely monitored and monthly concentrations of oil in produced water (OiPW), and mass of dispersed oil discharged, are recorded and reported to OPRED, as per the conditions of the Oil Discharge Permit under the Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 (as amended 2011) (OPPC permit).

Serica applies for and operates under an OPPC permit. In 2020 this permit forbade the discharge of any produced water with an OiW concentration of 100mg/l to sea, the permit also forbade monthly average OiW concentrations

from exceeding 30mg/I. Finally the permit set an overall limit of 0.52 tonnes of OiW that can be discharged within the reporting year. On the Bruce platform, produced water is only routed to sea when the Produced Water Re-injection (PWRI) system becomes unavailable for maintenance reasons or there is an unanticipated fault with the system.

In 2020, 72,200m<sup>3</sup> of produced water was re-injected with an average oil in water concentration of 61.1mg/l resulting in the re-injection of 4.41 tonnes of oil. During PWRI downtime however 3.72m<sup>3</sup> of produced water was discharged to sea at an average concentration of 56.53mg/l resulting in 0.21 tonnes of OiW being discharged overboard.

Serica reported 2 x OPPC NCRs in 2020 both from monthly exceedances of the overboard monthly average (30 mg/l) These NCRs resulted in a combined overboard OiW volume of 0.21 tonnes.

Serica also submitted five Petroleum Operation Notifications 1s (PON1s) in 2020. In total in 2020 0.7 tonnes of oil and 0.039 tonnes of chemicals were released from the Bruce platform.

### Environmental Performance continued

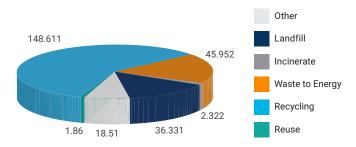
### Waste

As with all industrial processes, waste is generated offshore during oil and gas operations. These can be categorised as either being liquid or solid wastes. Liquid waste streams include produced water and chemical residues which are either injected down-hole or discharged to sea. These waste streams are strictly regulated and covered separately under permits for authorised disposal.

Solid waste streams require to be shipped onshore for appropriate treatment, recycling or disposal, in line with The Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008 which prohibit the disposal of solid waste at sea. These waste items can include, scrap metal, barrels, wood, plastics, cardboard, aluminum cans, medical waste and WEEE (Waste Electrical and Electronic Equipment).

The volume of waste generated, and its type is entirely dependent on the activities being conducted. Serica has robust arrangements in place for the management and segregation of waste materials generated by its BKR operations, through application of its 'Waste Management'

Figure 3 Solid waste produced on the Bruce platform and destination - tonnes (2020)  $\,$ 



procedures. Serica Energy's waste policy, is that where possible waste should be eliminated and minimised according to the waste hierarchy.

Serica were the first company in the North Sea to sign up to the Zero Waste to Landfill initiative that aims to eliminate all general waste going to landfill. Serica have also been working closely with our supply chain to minimise waste from the source. An example of this in 2020 was replacing some packaging with pods when transporting goods offshore, as part of our "Pointless Plastics" campaign.

In 2020, Bruce generated 253.586 tonnes of solid waste, which was managed as shown in Figure 3. In 2020 Serica reduced the overall volume of waste it produced by 61.4 tonnes and reduced the overall volume of waste sent to landfill by 69.3 tonnes.

### Acronyms

	As Low as Deservably Drasticable
ALARP	As Low as Reasonably Practicable
bbl	barrel of 42 US gallons
bcf	billion standard cubic feet
boe/d	barrels of oil equivalent (barrels of oil, condensate and LPG plus the heating equivalent of gas converted into barrels at the appropriate rate) produced per day
BKR	Bruce, Keith and Rhum fields
CH₄	Methane
СО	Carbon Monoxide
CO2	Carbon Dioxide
EMS	Environmental Management System
ESG	Environment, Social & Governance
FPS	Forties Pipeline System
GRI	Global Reporting Initiative
НРНТ	High Pressure High Temperature
HSEQ	Health, Safety, Environment & Quality
mg/l	milligrams per litre
mmbbl	million barrels
mmboe	million barrels of oil equivalent
mmscf	million standard cubic feet
mmscfd	million standard cubic feet per day
mscf	thousand standard cubic feet
NOx	Nitrogen Oxides
OCR	Offshore Chemicals Regulator
OGA	Oil and Gas Authority
OiPW	Oil in Produced Water
OMS	Operations Management System
OPPC	Oil Pollution Prevention & Control
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	Oslo Paris Convention
PON	Petroleum Operations Notification
ppb	parts per billion
PWRI	Produced Water Re-injected
<b>SO</b> <sub>2</sub>	Sulphur Dioxide
SUB	Substitution
Tcf	trillion standard cubic feet
UKCS	United Kingdom Continental Shelf
VOC	Volatile Organic Compound
WEEE	Waste, Electrical & Electronic Equipment





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