



Nautical Petroleum Limited

(wholly owned subsidiary of Cairn Energy PLC)

Environmental Performance Report 2018

Offshore Operations on the United Kingdom Continental Shelf



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1. Introduction

Nautical Petroleum Ltd (Nautical) drilled exploration well 22/18c-E3 within License block P2184 commencing in July 2018. The well location lies in the Central North Sea 227km (approx. 120 NM) north east of Aberdeen. The water depth on the location is around 90 meters.

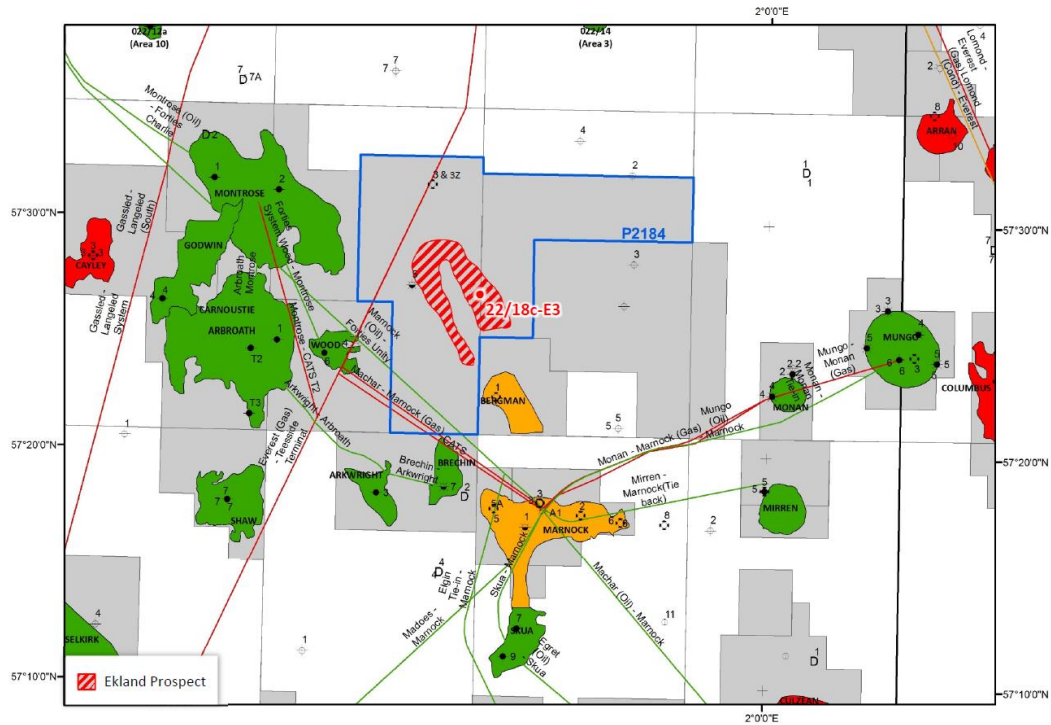


Figure 1-1: License Block P2184, Eklund Prospect and Well Location

Nautical used the heavy duty jack up drilling rig ENSCO 101 for drilling operations.

Nautical is a wholly owned subsidiary of Cairn Energy PLC (Cairn). Nautical, as License Holder and Approved Well Operator operates under all the policies and management systems of Cairn Energy PLC. In addition, it has fully adopted the Cairn Operating Standards (COS) and Cairn Corporate Responsibility Management System (CRMS), including elements relating to crisis and emergency response, and the Cairn Well Engineering and Construction Management System (WECMS).

All references to Nautical can be read to encompass both entities for the purposes Eklund project.

Nautical holds 45% working interest and has the following partners in relation to License block P2184 and the Eklund exploration well 22/18c-E3:


- Zennor 30%
- Petrogas 25%

2. Description of the Environmental Management System

Cairn operates an integrated health, safety, environment and corporate responsibility management system. Collectively known as the Cairn Corporate Responsibility Management System (CRMS), this applies to all Group activities, including activities of subsidiaries such as Nautical. Nautical's activities are concentrated on oil and gas exploration, development, and production. The Cairn CRMS is referenced against the Cairn Business Principles which are applicable to all Group activities and all disciplines within the business. The Cairn CRMS has been verified against the OSPAR requirement 2003/5 since 2014 and was last reverified by ERM CVS in June 2018. It was verified with comments, and these comments were addressed and reported on in accordance with the OSPAR 2003/5 DECC Guidance: Revised Issue 5: May 2014 as part of the Ekland submissions.

All offshore operations undertaken by Nautical during the Ekland project, were undertaken in full compliance with the Cairn CRMS.

3. Environmental Policy, Goals and Objectives




CORPORATE ENVIRONMENT POLICY (CEP)

Cairn is committed to protecting and sustaining the environments in which we operate. We aspire to high standards of practice through a process of continual improvement of our management systems and performance including the adoption of international codes and standards where practicable. To meet this commitment, we will implement management systems in our operations that accord with the requirements of our environmental standards and:

- Comply with applicable environmental laws and regulations
- Adopt a precautionary approach to avoid and, where this is not feasible, reduce negative impacts, to the environment and biodiversity to as low as reasonably practicable (ALARP)
- Ensure climate change risks are integrated into our business decisions and report transparently on risks and opportunities over the short, medium and long-term
- Conduct impact and risk assessments in the planning stage and put in place site specific Environmental Management Plans and, where necessary, Biodiversity Action Plans before commencing operations
- Engage with local or affected communities to utilise their knowledge of the local environment to assist in protecting and conserving biodiversity and environmental resources
- Encourage the development and sharing of environmental knowledge and technologies and seek to apply the best available techniques to reduce the impact of our activities
- Promote efficiency in our use of energy and water with the aim of conserving natural resources, reducing atmospheric emissions and helping to mitigate impacts
- Minimise Greenhouse Gas emissions in project design and in operations without compromising the safety of people and communities
- Set objectives and targets for improving our environmental management and performance including monitoring and reporting openly on our performance
- Provide environmental training to our employees and actively promote awareness of environmental and biodiversity issues
- Ensure that contractors are aware of and comply with our environmental policies and standards and where necessary, work with our contractors to raise their standards to meet our requirements
- Monitor our own and contractor performance, competence and capabilities, and conduct regular audits to ensure our controls are effective and that our environmental objectives and targets are being achieved
- Ensure that environmental accidents, incidents, near misses and non-compliances with procedures are reported and investigated and the lessons learned are shared
- Prevent pollution and ensure that an appropriate response capability is in place and regularly tested, so that environmental incidents can be responded to in a timely and effective manner should they occur
- Work with regulatory and industry bodies in the formulation or improvement of laws, policies, regulations and good practices aimed at protecting the environment and biodiversity
- Use our leverage and influence with business partners to promote high standards of environmental management
- Consult with and respond to the concerns of other stakeholders on our environmental and biodiversity performance
- Consult and involve our employees and their representatives regarding our environmental management system and performance

Responsibility for compliance with Cairn's Group Environment Policy and standards lies with the Chief Executive, Directors, Managers and their staff.



Simon Thomson
Chief Executive

Effective Date: October 2018

Cairn set group KPIs and functional objectives annually which apply to all subsidiary organisations, including Nautical. The Corporate Responsibility Objectives cover the areas of Business Relationships, Society and Community, People, Environment and Lagging Indicators.

From an environment perspective, the following targets were agreed with the Cairn Board under the Cairn Group Corporate Responsibility Objectives for 2018:

Environment	
Objectives	Targets
12. Climate Change, Emissions, Discharges & Noise	
12.1 Update Company position on Climate Change/GHG	<ol style="list-style-type: none"> 1. Revise climate change risk assessment and develop portfolio resilience review 2. Provide GHG verification statement suitable for inclusion on web pages
12.2 Attend IOGP Environment Committee	<ol style="list-style-type: none"> 1. Track proposals on chemicals including CHARM and impacts for chemical use and discharge 2. Follow development so of Abidjan convention and implications for Senegal.
12.3 Develop guidance on underwater noise	<ol style="list-style-type: none"> 1. Develop concise guidance note on mechanisms for mitigating impact of underwater noise on cetaceans and other marine life based on IOGP guidance.
13. Biodiversity	
13.1 Maintain support for New Venture environmental risks	<ol style="list-style-type: none"> 1. All New Venture Investment Proposals to have sections on environmental and biodiversity risk, maintaining no-go position on World Heritage sites
13.2 Provide operational environmental support	<ol style="list-style-type: none"> 1. UKN: Complete timely submission Environmental Statement or exemption documentation in support of Ekland in line with agreed schedule 2. Senegal: Complete timely submission ESIA to DEEC in Senegal for the Rufisque/Sangomar Offshore (contingent) in line with agreed schedule and support JV approved submission of ESIA for development (15 May) (see Senegal KPI). 3. Mexico: Ensure Mexico baseline environmental works are completed and submitted in line with PSC requirements and initial preparation for operations in 2019.
14. Resource Use	
14.1 Monitor requirements for ESOS	<ol style="list-style-type: none"> 1. Ensure monitoring of energy use and GHG emissions conform with data requirements of ESOS. 2. Assess need for verification audit, taking into account all UK and related operations 3. Implement audit and submit report to regulator if required

Table 1-1: Environment CR Objectives 2018

In addition to these leading indicators, Cairn and Nautical align and report lagging performance data to the International Association of Oil and Gas Producers (IOGP) which includes targets for Lost Time Injury Frequency, Total Recordable Injury Rate and Oil Spills. No recordable safety or environmental incidents were reported in 2018 worldwide by the group or on the UKCS during Nautical's operations. These goals and objectives are set over and above regional (including UKCS) commitments for reporting set by regulation and permit conditions.

A full report of Cairn performance including environmental data can be found in the Cairn Corporate Responsibility Report and Data Appendix for 2018 at the following links:

<https://www.cairnenergy.com/media/2394/cr-report-2018.pdf>

4. Summary of Environmental Performance

This section details the environmental performance as reported during the drilling of the single Ekland well by Nautical using the Ensco 101 jack-up rig on the UKCS in 2018 including support services. The data used in this section is derived from direct reporting by Nautical and its contractors and is taken from the European Emissions Monitoring System (EEMS).

4.1 Oil and Chemical Spills

There were no accidental oil or chemical spills during the Ekland well operations and no Petroleum Operations Notice No.1 notifications were submitted during the drilling of the Ekland well or its associated operations.

4.2 Permitted Discharges of Oil to Sea

An application for the discharge of reservoir drill cuttings was successfully applied for and approved, however no discharge was undertaken and a zero return was submitted through the EEMS system. This was due to a change from a water based to an oil-based drilling mud system for the drilling of the lower section of the well. All cuttings associated with these hole sections were returned to shore for treatment and disposal without discharge or spill to the sea.

4.3 Chemical Use and Discharge

Chemical use and discharge associated with the Ekland well on the Ensco 101 was undertaken in full compliance with the Offshore Chemical Regulations 2002. A total of 4,335.5 tonnes of chemicals were used in the drilling of the Ekland well, of which 2,425.1 tonnes were discharged to the marine environment. Of this discharge, approximately 92.9% or 2,254.0 tonnes were chemicals designated as posing little or no hazard to the marine environment (PLONAR).

Seventeen of the chemicals had substitution warnings. These were only selected where no viable alternative was available to ensure the safety and integrity of the well design. Of these only 4 kg of one (Antifoam Agent D175A) was discharged to the marine environment. This represents only 0.0002% of the mass of chemicals discharged during the Ekland well.

4.4 Waste

During the drilling of the Ekland well on the Ensco 101, 1,109.7 tonnes of waste were produced and returned to shore for appropriate treatment and disposal at licensed facilities under the Environment Act and associated regulations including the Environmental Protection (Duty of Care) (Scotland) Regulations and the Special Waste Regulations.

Of this special waste, 114.6 tonnes were oil-based and the oil was recovered and recycled. A total of 313.9 tonnes were non-hazardous solid waste which was sent to licensed landfill and 681.2 tonnes was wastewater treated at a licensed wastewater facility.

4.5 Atmospheric Emissions

The primary air emission derived from the project was carbon dioxide (CO₂). A total of 2,401.6 tonnes of CO₂ were emitted by Nautical during the drilling of the Ekland well. The emitted CO₂ was associated with the combustion of 750.5 tonnes of marine diesel by the Ensco 10 drilling rig during drilling operations and the platform supply and standby vessels which supported the operation. There were no other significant quantities of emissions to air from the project, very low emissions of other combustion gases occurred in-line with consumption of marine diesel.

5. Conclusion

This report summarises Nautical's environmental performance for the Ekland well drilled on the UKCS in 2018.

Nautical is a wholly owned subsidiary of Cairn Energy PLC (Cairn) and adopts Cairn CRMS. Cairn has explored, discovered, developed and produced oil and gas in a variety of locations throughout the world with more than 20 years' experience as operator and partner in all stages of the oil and gas lifecycle. Cairn's CRMS is verified as being aligned with the principles of ISO 14001 as per the OSPAR recommendation 2003/5.

Submission of this report by Nautical is made in compliance with the Environmental Management System Requirements in relation to OSPAR Recommendation 2003/5 to Promote the Use and Implementation of Environmental Management Systems by the Offshore Industry.