

5 IDENTIFICATION AND SCREENING OF POTENTIAL ENVIRONMENTAL ISSUES

5.1 Introduction

Activities associated with the proposed decommissioning programmes of the Athena field have the potential to affect the environment in a number of ways. These include physical and other disturbance, emissions and discharges, and waste generation. This section describes the process used to identify and screen the relative significance of the potential environmental issues associated with the proposed development.

5.2 Method

Activities associated with the proposed Athena decommissioning programmes in Block 14/18 including the drilling P and A of production and water injection wells, the removal of STP Buoy and anchors and risers, the removal and decommissioning of the seabed manifold, riser base and clump weight base, flexible flowlines, risers and associated stabilisation features were considered together with their potential interactions with the environment and legislative and policy requirements.

The activity/environment interactions were identified using a range of sources, in particular:

- Regional and site specific environmental data
- Reservoir information
- Engineering descriptions and drawings
- Typical mobile drilling unit specifications
- Vessel specifications
- Experience of FPSO decommissioning in the North Sea and elsewhere
- Reviews and assessments of the environmental effects of oil and gas operations
- Scientific papers describing the effects of specific interactions e.g. Neff *et al.* 1989
- DECC UK Offshore Energy SEA Environmental Report and previous DECC SEA reports, underpinning studies and appropriate assessments
- Consultation feedback

These were then systematically screened against the defined consequence and likelihood criteria in Table 5.1. The results of this screening are given in Section 5.3.

Table 5.1 – Screening Criteria for Potential Environmental Effects from the Athena Decommissioning

Effect	Consequences
None Foreseen	No detectable effects
Positive	Activity may contribute to recovery of habitats Positive benefits to local, regional or national economy
Negligible	Change is within scope of existing variability but potentially detectable
Moderate	Change in ecosystem leading to short term damage with likelihood for recovery within 2 years to an offshore area less than 100 hectares or less than 2 hectares of a benthic fish spawning ground Possible but unlikely effect on human health Possible transboundary effects Possible contribution to cumulative effects Issue of limited public concern May cause nuisance Possible short term minor loss to private users or public finance
Major	Change in ecosystem leading to medium term (2+ year) damage with recovery likely within 2 - 10 years to an offshore area 100 hectares or more or 2 hectares of a benthic fish spawning ground or coastal habitat, or to internationally or nationally protected populations, habitats or sites Transboundary effects expected Moderate contribution to cumulative effects Issue of public concern Possible effect on human health Possible medium term loss to private users or public finance
Severe	Change in ecosystem leading to long term (10+ year) damage with poor potential for recovery to an offshore area 100 hectares or more or 2 hectares of a benthic fish spawning ground or coastal habitat, or to internationally or nationally protected populations, habitats or sites Major transboundary effects expected Major contribution to cumulative effects Issue of acute public concern Likely effect on human health Long term, substantial loss to private users or public finance

Frequency with which activity or event might occur	Likelihood
Unlikely to occur during the lifetime of operation	Unlikely
Once in the life of the rig or facility	Low
Once a year	Medium
Once a month or regular short term events	High
Continuous or regular planned activity	Very High

	Likelihood				
Consequences	Very High	High	Medium	Low	Unlikely
Severe					
Major					
Moderate					
Negligible					
Positive					
None foreseen					

	Issues requiring detailed consideration in the ES	See Section 6
	Positive or minor or negligible issues	
	No effects expected	

Notes:

1. The criteria to the left include consideration of issues of known public concern.
2. In addition to screening on the basis of these criteria, issues/interactions raised during stakeholder consultation (see Section 1) are normally treated as requiring detailed consideration in the ES. These issues/interactions are indicated in Section 5.3 by C (= raised in stakeholder consultation).

5.3 Sources of Potential Environmental Effects

Activity/Source of Potential Impact	Environment Receptors												
	Climate/air quality	Water Quality	Seabed ¹	Benthic Fauna	Plankton	Fish and Shellfish	Marine Mammals	Water & Seabirds	Fisheries	Other Offshore Users ²	Shipping	Onshore/Land Use and Seascape	Internationally Important Sites
Schedule													
Drilling P&A operations													
Drilling unit tow in and out													
Well location													
Rig anchoring			C	C									C
Physical presence of drilling unit & support vessels													
Drilling discharges – cementing operations			C	C					C				C
Well completion & clean-up discharges													
Power generation on drilling unit & support vessels													
Fugitive emissions from fuel and chemical storage													
Drainage, sewage and other discharges													
Solid and liquid wastes to shore													
Underwater noise from drilling P&A													
Surface noise and light													
Subsea facilities, removal and decommissioning													
Physical presence of vessels													
Physical disturbance of seabed during removal			C	C					C				
Underwater noise during decommissioning activities							C						
Surface noise and light													
Machinery space and other drainage													
Deck drainage and washings													
Support vessels sewage discharges													
Dissolution of corrosion and antifouling protection													
Solid and liquid wastes to shore													
Power generation – removal vessels													
Fugitive emissions from fuel and chemical storage													
Decommissioning													

Potential for significance

Minor issue

C = issues from consultation

Activity/Source of Potential Impact	Environment Receptors												
	Climate/air quality	Water Quality	Seabed ¹	Benthic Fauna	Plankton	Fish and Shellfish	Marine Mammals	Water & Seabirds	Fisheries	Other Offshore Users ²	Shipping	Onshore/Land Use and Seascapes	Internationally Important Sites
Physical presence of 500m safety zones													
Surface noise & light													
Chemical use & discharge													
Hydraulic fluid discharges													
Produced water & drains													
Machinery space, deck sewage & other drainage													
Solid and liquid wastes to shore													
Dissolution of corrosion & antifouling protection													
Fugitive emissions - crude, fuel & chemical storage													
Accidental events													
Potential for spills, releases & dropped objects													

Notes: ¹ Includes, both natural seabed features and underwater archaeological remains. ² Includes cables, oil and gas, aggregate and other dredging, military, yachting etc.

From the screening process, a number of environmental interactions were identified as being of potential significance (i.e. those raised in consultation, see Section 1, and/or with potentially moderate or more severe effects), these are identified in Table 5.2 and described in detail in Section 6.

Table 5.2 - Environmental interactions considered further in Section 6

Atmospheric emissions	<ul style="list-style-type: none"> Combustion emissions from mobile units power generation, e.g. presence of ERRV and vessel operations 	Section 6.1
Physical presence and disturbance	<ul style="list-style-type: none"> Rig and vessel presence Drilling rig positioning – anchors Disturbance of seabed during manifold, riser base and flowline removal 	Section 6.2
Discharges	<ul style="list-style-type: none"> Drill P&A cementing and other chemicals associated with casing removal operations 	Sections 6.3 & 6.4
Noise	<ul style="list-style-type: none"> Underwater noise from pile cutting and drilling P&A related activities 	Section 6.5
Wastes to shore	<ul style="list-style-type: none"> Solid and liquid wastes 	Section 6.3
Accidental events	<ul style="list-style-type: none"> Hydrocarbon and other spills (including risk of collision) Chemical spills Dropped objects 	Section 6.6

In addition, Section 6 also considers sources of cumulative and synergistic effects and potential transboundary effects (Sections 6.7 and 6.8).

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