

## Environmental Statement (ES) Summary and Sign-Off

<b>Title:</b>	FRAM Environmental Statement
<b>Operator:</b>	Shell U.K, Limited (Shell)
<b>Report No:</b>	D/4137/2012
<b>Submission Date:</b>	March 2012
<b>Block No:</b>	29/3c, 29/4c, 29/8a and 29/9c
<b>Development Type:</b>	Field Development
<b>Reviewer:</b>	Saravanan Marappan
<b>Date:</b>	September 2012

### A) Project Description:

Shell is planning to develop the FRAM Field using a new Floating Production Storage Offloading (FPSO) facility. The field development will consist of two drill centre each located 2.2 kilometre (km) from the FPSO, drilling of 10 wells; nine production (five oil & four gas) wells and a Produced Water Re-Injection (PWRI) well. An integrated 4.4 km, 44” surface laid flowline bundle will link the two drill centres and flexible risers will connect the flowline bundle to the FPSO. The FPSO will receive and process fluids from FRAM reservoir with the oil exported by shuttle tanker, gas exported via a new 18 km, 14” pipeline to tie-in to the Fulmar Gas Pipeline, and produced water re-injected via a dedicated 3 km flexible flowline and associated control umbilical.

Situated within Blocks 29/3c, 29/4c, 29/8a and 29/9c, the FRAM Field lies approximately 220 km southeast of Aberdeen and 50 km west of the UK / Norway median line, in a water depth of approximately 100 metres. The FRAM Field has a maximum estimated recovery of 25 million barrels of oil and 12 billion cubic meter of gas..

The wells will be drilled using a conventional semi-submersible drilling rig anchored over the well location, with the top hole sections being drilled riserless with seawater and high viscosity sweeps. The lower sections will be drilled with low toxicity oil based mud (LTOBM). Each well will generate approximately 1,086 tonnes of water based mud and cuttings which will be discharged to sea, and 561 tonnes of LTOBM cuttings which will be skipped and shipped ashore for treatment and disposal. No extended well test will be carried out, but there will be limited flaring during well clean-up limited to approximately 48 hours for each well.

Pipelay operations to install the gas export pipeline, PWRI pipeline and umbilical will be conducted using a dynamically positioned (DP) reel-lay vessel. The pipelines will be trenched and buried using either a jet trenching tool or a mechanical plough. An estimated 4,300 tonnes of rock and concrete mattresses will be required to mitigate against upheaval buckling, and to protect pipeline crossings and subsea infrastructure.

Drilling is scheduled from Q3 2012 to 2014, installation of gas export pipeline scheduled for Q3 2013, installation of integrated flowline bundle scheduled for Q2 2014, mobilisation of the FPSO scheduled for Q3 2014 and commissioning scheduled for Q4 2014. First production is expected in Q4 2014. All activities will be subject of an Oil Pollution Emergency Plan (OPEP) that will need to be approved prior to commencement of operations.

## **B) Key Environmental Impacts:**

The EIA identified and discussed the following key activities as having the potential to cause an environmental impact:

- Drilling – combustion emissions, well clean-up emissions, drill rig anchors, rig and vessel noise, accidental hydrocarbon spills.
- Sub-sea installation – combustion emissions, subsea infrastructure and pipelines installation, rock dumping, subsea infrastructure installation noise, hydrotest discharges, accidental spills.
- Production – atmospheric emissions, accidental hydrocarbon spills.
- Wider concerns – accidental events, transboundary issues, cumulative effects

## **C) Key Environmental Sensitivities:**

The EIA identified the following environmental sensitivities:

- Fish: The area is recognised as a spawning area for Cod, Norway pout, Lemon Sole, Mackerel and Sandeel, and as a nursery area for Cod, Haddock, Whiting, Plaice, Norway pout, Blue Whiting, Mackerel, Herring, Sandeel, Ling, Anglerfish, Spurdog and European Hake. The spawning and nursery areas are extensive and the area of impact would be localised and temporary. Therefore the drilling of wells and pipelay is unlikely to impact these species.
- Seabirds: Seabird vulnerability is high in January, July, September, October and November and moderate to low in months throughout the remainder of the year. It has been assessed that there are sufficient mitigation measures in place to prevent accidental spills that could have a significant impact on seabirds and this will also be covered by the OPEP.
- Protected habitats: The proposed development considered two gas export pipeline route options. The northern gas export pipeline route survey identified evidence of active methane derived authigenic carbonate structures, formed by leaking gases (pockmarks), resulting in the southern export pipeline route being selected. The closest identified Annex I habitats are the Scanner Pockmark, Special Area of Conservation (cSAC), located 160 km north, and the Dogger Bank, cSAC, located 150 km south of the proposed development. The development proposals are not expected to have any significant impact on the protected habitat.
- Protected species: Harbour porpoise, White-beaked dolphin, Minke whale, Atlantic white-sided dolphin and common dolphin whale have been recorded in this general area with highest numbers recorded during the period of May to October. Grey and Common Seals inhabit the coastal waters around the North Sea and have occasionally been observed to travel long distances when foraging, both species are unlikely to be present in large numbers at the well location. Any disturbance of marine mammals is expected to be limited to the drilling period and during installation of subsea infrastructure, and the localised disturbance is considered unlikely to have any significant impact.
- Other users of the sea: The proposed development is situated within ICES rectangle 42F1, and relative fishing effort in the area is low. Shipping density in the vicinity of the proposed development is low to moderate. Appropriate navigational controls will be put in place, and it is not anticipated that there will be any significant impact on other users of the sea. The closest renewable energy zone is located 160 km south of the proposed development.

**D) Consultation:**

Comments were received from the Joint Nature Conservation Committee (JNCC), Marine Scotland (MS), Maritime and Coastguard Agency (MCA), Ministry of Defence (MoD) and Northern Lighthouse Board (NLB). The ES was also subject to public notice.

**JNCC:** JNCC requested for additional information on the noise assessment. Following the provision of additional information, JNCC had no further comments.

**MS:** MS confirmed that they were content for the ES to be accepted.

**MCA:** MCA confirmed that they have no objections.

**MoD:** MoD confirmed that they have no objections.

**NLB:** NLB advised that the permanent infrastructure on the seabed must be communicated to UK Hydrographic Office to ensure updating of all relevant admiralty charts.

**Public Notice:** No comments were received in response to the public notice.

**E) Further Information:**

Further information was requested from Shell which addressed the issues raised by JNCC and the internal DECC review, which included clarification in relation to the noise assessment, installation of subsea infrastructure and drilling discharges. Additional information including a supplement addressing revised production profile was provided by Shell on 10 July 2012, 20 August 2012 and 27 August 2012, which adequately addressed the issues raised.

**F) Conclusion:**

Following consultation, DECC OGED is satisfied that this project will not have a significant adverse impact on the receiving environment or the living resources it supports, or on any protected sites or species or other users of the sea.

**G) Recommendation:**

On the basis of the information presented within the ES and advice received from consultees, DECC OGED is content that there are no environmental or navigational objections to approval of the proposals, and has advised DECC LED that there are no objections to the grant of the relevant consents.

**Approved :** Wendy Kennedy  
Head of Oil & Gas Environment and Decommissioning Unit

*Wendy J Kennedy...*  
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**Date:** ...11 September 2012.....