

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

<b>Title:</b>	CARRACK (SWEEP) Increase in Production Environmental Statement
<b>Operator:</b>	Shell UK Limited (Shell)
<b>Report No:</b>	D/4132/2011
<b>Submission Date:</b>	December 2011
<b>Block No:</b>	49/14b and 49/15a
<b>Development Type:</b>	Increase in Production
<b>Reviewer:</b>	Saravanan Marappan
<b>Date:</b>	July 2012

### A) Project Description:

Shell is planning to further develop the Carrack Field by drilling Carrack East and West wells and tying back to Carrack QA Platform. The development will consist of drilling two wells (Carrack East and West wells), the installation of subsea infrastructure, two 6.44 km 8” production flowline and control umbilical to transport reservoir fluids from Carrack West and East wells to Carrack QA Platform.

Situated within Block 49/14 and 49/15, the Carrack Field lies approximately 110 km north-east of the Norfolk coastline and 6 km west of the UK / Netherlands median line, in a water depth of 27 metres. The Carrack East and West wells together has a maximum estimated recovery of 3.79 billion cubic metres of gas.

The Carrack East and West wells will be drilled using the *SWIFT BV* jack-up drilling rig / barge. The top hole sections will be drilled riserless with Water Based Mud (WBM) and the lower sections will be drilled with Low Toxicity Oil Based Mud (LTOBM). Each well will generate approximately 440 tonnes of WBM cuttings which will be discharged to the sea and 290 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 over approximately 96 hours.

Pipelay operations will be conducted using a dynamically positioned (DP) reel-lay vessel. The production flowlines and the umbilicals will be trenched using a conventional subsea pipeline plough. The trench left by ploughing would be mechanically backfilled. An estimated 27,000 tonnes of rock and approximately 200 concrete mattresses will be required to protect the production flowline to mitigate against upheaval buckling and to protect pipeline crossings and the subsea infrastructure.

Drilling is scheduled for Q3 – Q4 2012, subsea installation scheduled for Q2 – Q3 2013 and commissioning scheduled for Q3 2013. First production is expected in Q3 2013. All activities will be the subject of an approved Oil Pollution Emergency Plan (OPEP).

### 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 spud cans, rig and vessel noise, accidental hydrocarbon spills.
- Sub-sea installation – combustion emissions, subsea infrastructure and pipelines installation, rock dumping, pipelay vessel noise, 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, Plaice, Sprat, Mackerel, Nephrops, Whiting and Sandeels and nursery area for Cod, Sprat, Mackerel, Nephrops, Whiting, Anglerfish, Herring, Sandeel and Spurdog. 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, March and November and moderate to low 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: There are no designated protected sites in the vicinity of the proposed development, including Annex I habitats as defined by the Habitats Directive. The North Norfolk Sandbanks, cSAC is located approximately 7 km to the south west of the proposed development.
- Protected species: Harbour porpoise, Pilot whale, Minke whale, Bottlenose dolphin, Common dolphin, White-sided dolphin and White-beaked dolphin have been recorded in this general area. Low to high numbers of Harbour porpoise and White-beaked dolphin has been recorded throughout the year. Grey and Common Seals inhabit the coastal waters and Common seals have occasionally been observed to travel long distances when foraging. It is likely that Common seals may be present in the area of the proposed development. Any disturbance of marine mammals is expected to be limited to the drilling period, and the short duration and localised disturbance is considered unlikely to have any significant impact.
- Other users of the sea: The proposed development is situated within ICES rectangle 36F2 and relative fishing effort in the area during 2010 was very low in comparison to the other areas of the North Sea. Shipping density in the vicinity of the proposed development is considered to be high.

### **D) Consultation:**

Comments were received from the Joint Nature Conservation Committee (JNCC), The Centre for Environment, Fisheries and Aquaculture Science (CEFAS), Maritime and Coastguard Agency (MCA), Ministry of Defence (MoD) and Trinity House Lighthouse (THL). The ES was also subject to public notice.

**JNCC:** JNCC requested additional information on the seabed features and habitat investigation. Following the provision of additional information, JNCC confirmed that they had no further comments.

**CEFAS - Chemicals:** CEFAS Chemicals confirmed that they have no concerns and have noted to make an informed assessment in the PON15B and PON15C application stage.

**CEFAS - Environment:** CEFAS Environment confirmed that they have no concerns.

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

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

**THL:** THL 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 to address issues raised by JNCC and the internal DECC review, which included clarification in relation to the seabed features and habitat investigation, pipeline and umbilical installation and accidental events. Additional information was provided by Shell on 18 May 2012 and 27 July 2012, which adequately addressed the issues raised.

**F) Conclusion:**

Following consultation and the provision of further information, DECC OED 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 OED 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 :** Sarah Pritchard - Head of Environmental Operations Unit

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**Date:** ...30/07/2012.....