

**Nexen Petroleum U.K. Limited
Solitaire Field Development
Environmental Statement (ES) Summary**

Title:	Solitaire Field Development Environmental Statement
Operator:	Nexen Petroleum U.K. Limited (Nexen)
Consultants:	BMT Cordah Limited
Report No:	W/4147/2012
Submission Date	20 July 2012
Quad/Block:	14/26a and 20/01N
Project Type:	Development
Reviewer:	Anna Buckingham
Date:	17 December 2012

Project Description

Nexen propose to develop the Solitaire Field located in Block 14/26 in the central North Sea, approximately 67 kilometres (km) east of the nearest UK coastline and 150 km west of the UK/Norway median line. The field is located in a water depth of approximately 112 metres (m).

The proposed development will consist of: a single production well, that will be tied back to the Golden Eagle Area Development (GEAD) processing facilities located in Block 20/01N. The tie-back will involve installing an 8” diameter production flowline; a 4” diameter gas lift line and a power and utility umbilical to connect to the GEAD northern subsea manifold located approximately 50 m from the Solitaire production well. The production flowline, gas lift line and power and utility umbilical will be surface laid using a Dive Support Vessel (DSV) in Q1 2013, and protected with flexible concrete mattresses. Drilling of the production well is scheduled to be undertaken using the Noble Ton van Langeveld Mobile Drilling Unit (MoDU) in Q4 2014, and first oil is expected in late Q4 2014 or early Q1 2015..

The field has an estimated life of 15 years, and maximum estimated recoverable reserves of 1.644 million tonnes (MMt) of oil and 84.2 million cubic metres (MMm³) of gas.

Key Environmental Sensitivities

The Environmental Statement (ES) identified the following environmental sensitivities:

Fish Stocks: The development is in an area where there are fish / shellfish spawning and/or nursery areas for cod, whiting, haddock, ling, European hake, blue whiting, Norway pout, plaice, lemon sole, sandeel, sprat, mackerel, herring, angler fish, spurdog, spotted ray and *Nephrops*.

Seabirds: Seabird vulnerability in the area is assessed as very high between June and October, high between February and May and in November, and moderate in January and December.

Annex I Habitats: No Annex I habitats have been identified in the immediate vicinity of the proposed development.

Annex II Species: A number of marine mammal species have been recorded in the area,

including harbour porpoise, bottlenose dolphin, white-beaked dolphin, white-sided dolphin, Risso's dolphin, common dolphin, minke whale, killer whale and fin whale. The occurrence of all species is low, with the exception of harbour porpoise. The numbers of harbor porpoise recorded are very high in July and December, and high between February and June and between August and October.

Protected sites: The nearest protected sites are the Scanner Pockmark (cSAC) located in Block 15/25 and the Braemar Pockmarks (cSAC) located in Block 16/3, which are approximately 109 km and 173 km respectively from the Solitaire field. The nearest proposed Marine Conservation Zones (MCZ) are 131 km and 129 km from the Solitaire field.

Other Users of the Sea: The level of fishing activity in the development area is low, and the level of shipping traffic is moderate.

Key Potential Environmental Impacts

The ES identified the following potential impacts and related mitigation measures:

Physical interference: Appropriate mitigation measures will be put in place to ensure that other users of the sea are aware of the proposed activities, e.g. 500 m exclusion zone around the MoDU and completed well, the use of standby vessels, and the dissemination of information via the Kingfisher Bulletin and Notices to Mariners. Due to the low fishing and moderate shipping activity in the area, the impact of the proposed development is considered to be insignificant.

Seabed disturbance: The drilling of the well and installation of the subsea infrastructure, including the worst case scenario of 68 concrete mattresses to protect the pipelines and umbilical, will have a direct impact on the benthic community. However, the species composition and habitat is typical of the area, and only a very small proportion of the local habitat will be impacted by the proposed operations. The benthic community and habitat are also expected to recover from the disturbance relating to the installation operations within a fairly short period of time.

Noise: A number of noise sources will be associated with the proposed operations, including noise from the drilling and infrastructure installation operations, and the production operations, standby vessels and helicopters at the Golden Eagle complex. No piling operations will be carried out and the risk to marine mammals is therefore considered to be low.

Marine discharges: The well will be drilled using a combination of Water Based Mud (WBM) and Low Toxicity Oil Based Mud (LTOBM), with WBM cuttings discharged to sea and LTOBM cuttings shipped ashore for disposal. All the chemicals used in the course of the drilling and production operations will be selected on the basis of technical compatibility and environmental performance, and all produced water will be re-injected. The marine environment in the development area is sufficiently dynamic to facilitate rapid dispersion and dispersion of the proposed discharges, and potential environmental impacts are considered to be insignificant.

Atmospheric emissions: The main source of atmospheric emissions will be fuel use during the drilling, production and support operations, and flaring relating to the production operations. Considering the highly dispersive nature of the environment, potential impacts are considered to be insignificant.

Accidental events: A number of control measures will be in place to minimise the risk of accidental events, and Nexen will develop an Oil Pollution Emergency Plan (OPEP) and Emergency Procedures Plan (EPP) for the proposed drilling and production activities. Modelling

of worst-case blow-out and diesel spills has been undertaken, and related impact assessments included in the ES.

Cumulative Impacts: The proposed development is in an area where there are a range of oil and gas operations, in addition to the limited commercial fishing and shipping operations, but it is not anticipated that there will be any significant in-combination effects.

Transboundary Impacts: The proposed drilling and production activities are not anticipated to result in any significant transboundary effects. In the event of an oil spill entering the waters of an adjacent State, it may be necessary to implement international contingency arrangements, e.g. the NORBRIT Agreement (the Norway-UK Joint Contingency Plan).

Consultation

The Joint Nature Conservation Committee (JNCC), Marine Scotland (MS), the Maritime and Coastguard Agency (MCA) and the Ministry of Defence (MoD) were consulted on the proposals. The ES was also subject to Public Notice.

JNCC: JNCC confirmed that adequate measures have been put in place to minimise the potential impacts of the activities on the marine environment.

MS: MS confirmed that there were no objections to the proposed development, but deferred a final risk assessment for chemical use and discharge until they were consulted on the relevant chemical permit applications.

MCA: MCA confirmed that there were no objections, subject to inclusion of the normal navigational conditions in the relevant Consents to Locate for the drilling operations, the well and the seabed infrastructure.

MoD: MOD confirmed that there were no objections.

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

Further Information

Further information was requested to address issues raised by the consultees and identified during the DECC OED review of the ES. The response received from Nexen adequately addressed the issues raised.

Conclusion

Following its review of the ES, the comments received from consultees and the additional information provided by Nexen, DECC OED is content that the Solitaire development is unlikely to have a significant adverse environmental effect on the marine environment in general, any protected sites or species or other users of the sea.

Recommendation

DECC OED has no objection to the grant of consent for the Solitaire development, but reserves the right to request supplementary information and review its decision if there are any significant changes to the Field Development Plan that have a material effect on the information provided in the ES.

Approved

Wendy Kennedy.....Date 19/12/2012.....

Wendy Kennedy

Head of Offshore Oil and Gas Environment and Decommissioning