

**EnQuest Heather Limited
Alma Field Development
Environmental Statement (ES) Summary**

Title:	Alma Field Development Environmental Statement
Operator:	EnQuest Heather Limited (EnQuest)
Consultants:	Intertek METOC Limited
Report No:	D/4110/2011
Submission Date	July 2011
Quad/Block:	30/24 and 30/25
Project Type:	Development
Reviewer:	Anna Buckingham
Date:	09 January 2012

Project Description

The Alma Field is located in Blocks 30/24 and 30/25, approximately 274 kilometres (km) east of the nearest UK coastline and 18.5 km west of the UK / Norway median line, in a water depth of approximately 80 metres (m). The field has a maximum estimated recovery of 32.45 million standard barrels (MMstb) or 4.295 million tonnes (MMt) of oil and 229.6 million cubic metres (MMm³) of gas.

The proposed development will consist of two drill centres (northern and southern) tied-back via oil production or water injection flowlines to the Uisge Gorm Floating Production Storage and Offloading (FPSO) vessel. There will be six production wells at the northern drill centre and two water injection wells at the southern drill centre. The proposed wells will be drilled using the *Ocean Princess* semi-submersible Mobile Drilling Unit (MoDU). Drilling of the production wells is scheduled to commence in January 2012, with completion in Q3 2012. Drilling of the water injection wells will follow, with all drilling operations scheduled to be completed in Q2 2013. It is anticipated that the drilling and completion of each well will take approximately three months.

Pipeline and umbilical installation operations are scheduled to commence in January 2013, using a dynamically positioned (DP) pipelay vessel, with completion in Q3 2013. It is anticipated that the pipelines and umbilicals will be trenched and backfilled, but rock dumping may be necessary to provide protection if adequate trenching is not achieved. Any exposed lengths of the pipeline and umbilical systems will be protected by rock dumping or flexible concrete mattresses.

The FPSO will be located in the field in January 2013, with hook-up, commissioning and first oil scheduled for Q3 2012. Oil will be exported via a shuttle tanker on a fortnightly basis. Based on the projected P₁₀ (highest) recovery rate, it is estimated that oil production will be approximately 700 tonnes per day (t/d) in the first year of production, gradually decreasing to approximately 550 t/d by 2023.

Key Environmental Sensitivities

The EIA identified the following environmental sensitivities:

Fish Stocks: The development is in an area where there are fish spawning and/or nursery areas for haddock, whiting, mackerel, lemon sole and sprat (April to May), and juveniles are likely to be present throughout the year.

Seabirds: Seabird vulnerability in the area is high in January and October and moderate to low for the rest of the year.

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, white-beaked dolphin, white-sided dolphin, bottlenose dolphin and minke whale.

Protected sites: The nearest protected site is the Dogger Bank potential Special Area for Conservation (pSAC), located approximately 78 km south of the southern drill centre. A Net Gain Zone has been identified approximately 7.8 km to the west of the development area, which is under consideration as a potential Marine Conservation Zone (MCZ).

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

Key Potential Environmental Impacts

The EIA 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. 500m exclusion zone around the MoDU and FPSO, the use of standby vessels, and the issue of Kingfisher Bulletins and Notices to Mariners. Due to the low fishing and shipping activity in the area, the impact of the proposed development is considered to be insignificant.

Seabed disturbance: The drilling of the wells and installation of subsea infrastructure, including the contingency deposit of 5,000 tonnes of rock to protect the infrastructure, 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 within a fairly short period of time.

Noise: A number of noise sources will be associated with the proposed operations, including noise from drilling, piling operations, production operations, standby vessels and helicopters. The only significant noise source is anticipated to be the piling operations, where the sound pressure level (SPL) is calculated to be approximately 189dB at one metre from the source. The proposals will involve the driving of 15 piles during a 48 hour period, and the JNCC guidelines will be followed, including the implementation of a soft-start procedure to allow any marine mammals to migrate away from the sound source. The risk to marine mammals is therefore considered to be low.

Marine discharges: The wells 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 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 EnQuest 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 environmental impact assessment.

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. However, 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 Centre for Environment, Fisheries and Aquaculture Science (CEFAS), the Maritime and Coastguard Agency (MCA), the Ministry of Defence (MoD) and the Northern Lighthouse Board (NLB) were consulted on the proposals. The ES was also subject to Public Notice.

JNCC: JNCC welcomed the commitment to limit bunkering to daylight hours, and recommended that, where possible, flaring should also be limited to daylight hours (the latter is not feasible as it will depend on process requirements). JNCC further recommended that marine mammal searches should be undertaken for a minimum of 30 minutes prior to each piling operation (by a Marine Mammal Observer or using Passive Acoustic Monitoring).

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

CEFAS: CEFAS Environment confirmed that they had no objections. CEFAS Chemicals confirmed they had no objections to the generic assessment of chemical use and discharge, but noted that the risk assessment would have to be re-evaluated when chemical selection was finalized and full details were provided in the relevant chemical permit applications.

MCA: MCA confirmed that they had no objections subject to inclusion of the normal navigational conditions in the relevant Consents to Locate.

MoD: MOD confirmed that they had no objections.

NLB: NLB confirmed that the standard marking requirements for offshore installations would apply to the MoDU and the FPSO, and requested details of the installed remote wellhead locations to determine whether surface marking was appropriate.

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

Further Information

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

Conclusion

Following its review of the ES, the comments received from consultees and the additional information provided by EnQuest, DECC OED is content that the Alma Development is unlikely to have a significant adverse environmental impact, and that it will not have a significant adverse 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 Alma Development being granted consent to proceed, 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

...*Jim Campbell*.....

Date...13/01/2012.....

Jim Campbell

Head of Energy Development Unit