Consents given under the Petroleum Act 1998 and Reviews under the Assessment of Environmental Effects Regulations 1999

BHP

LENNOX FIELD

Pursuant to Regulation 5(8) of the above Regulations, the Secretary of State for Trade and Industry gives notice that, being content that the requirements of the above Regulations have been satisfied, he has, pursuant to Licence P791, granted a consent to BHP Petroleum Limited to the getting of petroleum and the construction of installations in relation to the development of the Lennox field. The consent for the Lennox field took effect from 01/01/02 and shall last until 21/12/16.

Background

BHP Billiton Petroleum Limited propose the drilling of 2 development wells in the Lennox field in Liverpool Bay to maintain the current production plateau. Operations are due to commence in 3rd quarter 2000 with the drilling operation taking in total approximately 105 days. The wells (110/15LL and LR) will be drilled from the mobile jack up rig the *Santa Fe Monitor*. BHP propose drilling the top hole sections of both wells then the rig is expected to move to drill a development well at the Douglas platform. The rig will then move back to the Lennox location towards the end of November to complete the wells. The development wells will be drilled using a water-based mud (WBM) as the drilling fluid. All drill cuttings will be discharged to the marine environment. There will be no well testing or flaring of hydrocarbons during the drilling of the development wells.

Drilling

The *Santa Fe Monitor* is a mobile offshore jack-up drilling rig similar in design to previous rigs used for the original development drilling programme at the Liverpool Bay Asset (LBA). Development well 110/15-LL is designed to drain the south-eastern area of the Lennox field. The well will be directionally drilled to reach horizontal at a depth of 3,257 feet TVDSS (True Vertical Depth Sub Sea). The well bore will maintain a pseudo horizontal aspect (LLA) through the reservoir. The well will be sidetracked (LLB) at approximately 7,154 feet MDRT (Measured Depth from the Rotary Table) and drilled to a terminal depth of 9618 feet MDRT (3,353 feet TVDSS). All sections of the well will be drilled using water based drilling fluids. Development well 110/15-LR is a multi-lateral well designed to drain both the north-western and south-western area of Lennox field. The well has four planned toes LRAA, LRAB, LRBA and LRBB. The well bore will maintain a pseudo horizontal aspect through the reservoir. The well will be side-tracked at approximately 7,000 ft MDRT and drilled (LRBA) to a depth of 9,704 feet MDRT (3,355 TVDSS). The well will be again side-tracked at approximately 4,300 feet MDRT (3,365 feet TVDSS) just below the 9 5/8" casing shoe, and drilled to TD (LRAB) at 9,685 feet MDRT (3,355 feet TVDSS). The well bore will be further side-tracked (LRAA) at an approximate depth of 7,000 feet MDRT to a terminal depth of 10,097 feet MDRT (3,355 feet TVDSS). All sections of the well will be drilled using water based drilling fluids. All drilling, cementing and contingency chemicals are OCNS classified. The trigger level for group C chemicals is likely to be exceeded and BHPP have committed to consultation with DTI and CEFAS on this matter. Most drilling chemicals (99.5% by weight) are OCNS group E. The chemicals listed within the ES take into account unexpected side-tracks should this be necessary for mechanical or geological reasons.

Well Clean-Up

There will be no well testing or flaring of hydrocarbons during the drilling of the development wells

Environmental Sensitivities

The ES focuses on what BHP terms '*concerns*' regarding interactions between activities and the environment, defined only loosely as " *based on our understanding of environmental issues and other people's views with respect to these*". It would have seemed at least prudent to have presented a more definitive description of such selection criteria. The ES then develops a four-step approach to considering each concern:

its description;

quantification of the impact
identification of gaps in understanding and how BHP deals with these;
discussion of BHP measures in place to mitigate the impacts of each concern.

The ES recognises both key and 'other' concerns. Four key concerns were identified:

cumulative effects;
accidental spillage of hydrocarbons;
discharge of drilling cuttings and chemicals;
atmospheric emissions from power generation.

Cumulative effects

The ES briefly addresses cumulative effects of drilling operations, particularly relating to cuttings discharges, atmospheric emissions and hydrocarbon spillage. It identifies the many gaps in our understanding, but claims that with mitigating measures in place, residual environmental impact is not likely to cause 'unacceptable' cumulative impacts.

Hydrocarbon Spillage

This represents the major issue in terms of considering the approval of this proposal to drill the development wells. The ES states that whilst a hydrocarbon spill is unlikely BHP recognise the sensitivity of the operating environment – the close proximity to a number of internationally important sites for both waders and wildfowl. Potential risks of loss of well control and consequent oil spillage are addressed, including modelling of probability scenarios for oil reaching the shore, particularly reaching sensitive estuarine habitats, and the nationally and internationally important bird populations in the area. Rather than only emphasising probabilistic modelling it might have been important to show worse case scenarios and their use in developing contingency / response measures, e.g. for oil reaching specific sensitive estuaries. (This has been addressed by BHP through the provision of additional information). The ES gives a general overview of oil spill response strategies. BHP recognises that potential impacts from oil spillage will be affected by temporal changes in sensitivity, most notably from seabirds, shore birds and the tourist season. Drilling will be undertaken by water-based mud, therefore, the only other significant spillage risk would normally be from fuel transfer at the rig. For oil spill response planning purposes, modelling studies indicate that with a worse case scenario, with an onshore wind of 15 metres per second (30 knot) towards the English coast, a diesel slick would not reach the shore. BHP will ensure that re-fuelling is only undertaken during daylight hours and in good weather conditions, under strict loading controls. A copy of the procedures for bunkering was submitted by BHP as additional information. In line with OPRC, an approved Contingency Plan is in place and has been approved by the DTI.

Drilling Muds/Cuttings Discharge

Mitigative measures to minimise environmental impact include the use of water-based mud for all drilling, use of OCNS category E or D chemicals and procedures in place to ensure the efficient use of mud and chemicals. Ship to shore cuttings disposal was reviewed as an option for cuttings disposal. Additional information detailing the option selection process was supplied by BHP. Modelling studies suggest that cuttings would initially spread over an area of about 300,000 square metres at a concentration between 25 kg per square metre near the point of discharge and 400 grams per square metre further afield. This will result in smothering of benthic fauna in this very localised area, but both US and North Sea studies indicate that the impact from such WBM-cuttings will be short-lived, following re-colonisation of the impacted area. In general the description of the impact of WBM was of a high standard. One minor point is that some mention might have been made of possible cumulative issues, with other drilling operations nearby.

Atmospheric Emissions

These are expected to be within routine drilling rig operational standards, with estimated emissions presented in the ES for drilling and support operations. No well testing or venting will occur.

Environmental Management

The ES presents a brief overview of company environmental management policy and implementation. It is noted that the system in place is not externally accredited. In such a position the Company should give more information in appendix form, and/or make a detailed publication available for general consultation.

Recommendations

Overall the environmental statement is satisfactory and adequately assesses the potential environmental impacts of the proposed development. Recommend that consent be given.