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

### BHP

#### HAMILTON EAST 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 P710, granted a consent to BHP Petroleum Limited to the getting of petroleum and the construction of installations in relation to the development of the Hamilton East Field. The consent for the Hamilton East field took effect from 09/05/01 and shall last until 31/12/01.

#### Background

BHP Petroleum and its partners Lasmo (ULX) Ltd, and Centrica Resources Ltd wish to bring forward the development of the Hamilton East gas field. This is in order to delay increase gas production from the nearby Lennox oil/gas field and still provide the additional gas which will be required for the development to fulfil this need will help to maintain pressure in the Lennox reservoir which will allow oil production from the field to be extended by one year. The field will be developed by a single production well with the gas exported to the Hamilton North installation via a 6.6 km flexible 8" (ID) pipeline. From there the combined East and North gas will pass to the Douglas field and mix with gas from the Hamilton field. It will then be compressed and exported to the BHP Point of Ayr gas terminal on the North Wales coast and thence to the Connah's Quay Gas Turbine Combined Cycle Power Station. Also laid alongside the pipeline will be a 6.7 km control umbilical carrying the electric power cables, hydraulic control lines, methanol pipeline and corrosion inhibitor pipeline. The lines will be trenched and allowed to back-fill naturally.

The technical activities of the development with the potential to have environmental impact are:

- Drilling the well, including completion and testing.
  - Installation of the subsea facilities.
- Laying and trenching the pipeline and umbilical.
  - Pipeline commissioning.

These are considered under the following aspects:

- Oil spills and contingency planning.
- Discharge of cuttings and drilling fluids.
- Interactions with other users of the sea.
  - Pipeline integrity and stability.
  - Production of additional gas.
  - Cumulative impacts.

#### Project Options

The relatively small size of the reservoir dictated that it would be developed by a single producer well.

The options therefore considered:

- The timing of the development,
  - Well location,
- The type of wellhead structure – fixed platform or subsea,
- Extended reach drilling from the Hamilton Platform
  - Re-entry of existing well,
- Tying back to Hamilton or Hamilton North.

The selected option of a subsea well tied back to Hamilton North is a logical outcome of the assessment process. The reason for the timing has been noted above. There is no operational advantage for a fixed structure, which would increase costs and potentially collision risk. Extended reach drilling from Hamilton

was rejected for economic and technical risk reasons and re-entry of the existing well would not allow full exploitation of the reservoir. Tying back to Hamilton would have required a longer pipeline and pipeline crossings. BHP indicates that the selection of the well location did take into account the existence of the dredge spoil dumping grounds, which MAFF has contested. (Amendment 26 April 2001) BHP has held three meetings with MAFF to resolve the outstanding issues. These meetings covered:

The five development options originally investigated by BHP and the process of selection of the final well location.

The geotechnical work and seabed surveys undertaken by BHP to assess the suitability of the proposed wellhead location and pipeline route.

The assessment conducted by BHP into the suitability of the proposed site for a jack-up rig drilling operation.

The re-suspension and re-distribution of dredged material when the pipeline is trenched.

Empirical data relating to the absence of any significant scour within the LBDA and resultant confidence in the stability of the wellhead and pipeline.

The effects of dredge spoil being dumped on the pipeline and subsea installation.

The activities BHP was prepared to undertake to help MAFF determine whether an extension to the existing facility was possible to compensate for the creation of a 500 m exclusion zone around the subsea installation.

BHP's discussions with existing spoil ground licence holders.

As consequence of these discussions MAFF was satisfied that the issues had been addressed and that a satisfactory outcome had been achieved. MAFF has consequently raised its objections to the development and the creation of the safety zone and is content for the project to go ahead.

### **Description of the Receiving Environment**

The local environment was competently described and presented and the implications for working there generally well understood. The principal sensitivities identified are mostly the risk of coastal impacts of on seabirds at sea from oil spillage during drilling. The marine environment is not assessed as sensitive in the immediate area of the development although it is extensively fished in the surrounding areas for both shellfish and round fish. There are extensive shipping movements in and out of the Port of Liverpool and there are 14 spoil disposal sites (not all now operational) in Liverpool Bay.

### **Assessment of Impacts and Consequent Mitigation Measures**

The ES describes two principal methods for environmental issue identification, an activities/interaction matrix and consultation with a wide range of local stakeholders. Much stress is placed on the latter. The issues identified by these methods are then assessed in light of the proposed development and operations and management methods designed to minimise the potential impacts. The concerns identified have been listed above.

**Oil spills and Contingency Planning:** Hamilton East is a gas field so the risk of oil spillage arises during the drilling phase only where diesel oil is used as a fuel for all the drilling operations. The main areas of risk are fuel transfers during rig bunkering. These risks are discussed, have been modelled and the mitigation measures identified. The legislation is understood and information is available to implement it correctly.

**Discharge of Drill Cuttings and Drilling Fluids:** The well will be drilled with WBM and all muds and cuttings will be discharged on site. A calculated 446 tonnes of cuttings and muds containing 2138 tonnes of chemicals 99% which are OCNS Group E. These include 1406 tonnes heavy NaCl brines, 434 tonnes of barytes and 42 tonnes of bentonite.

3. **Interaction with Other Users of the Sea:** This falls into three areas, interference with fishing; potential obstruction to other vessel movements and interference with the use of the spoil disposal area.

**Fishing interactions:** It is accepted that temporary, short-term interference will occur during the period of drilling the well and laying the pipeline. Discussions will take place with the local fishing organisations to minimise this. BHP believes that the creation of a safety zone around the wellhead and the use of a flexible trenched pipeline will eliminate adverse interactions during the normal operational period. The areas of operations will be surveyed for oil-related debris and if any is found it will be removed.

**Other Vessel Movements:** This is a busy marine area requiring all vessels to keep good watch and maintain accurate course. Drilling operations will last 50 days and pipeline laying 20 days. During this period BHP believes that the creation of a 500 metre safety zone, placing location information in Notices to Mariners and a full time guard vessel will ensure safe operation with minimum interference with other marine activities.

**The use of the spoil disposal sites:** This is addressed in the ES and, on the basis of the information therein contained, appears to have been closed out. MAFF does not believe this to be the case and has requested more information and, by implication, discussion between BHP, MAFF and the users of the spoil grounds (Amendment 26/04/01). These discussions have now taken place and the issues resolved, see above.

4. **Pipeline Integrity and Stability:** the pipeline, which will be of a composite flexible, construction, will be trenched and allowed to backfill naturally. The flexible, line will minimise, but not eliminate, the risk of span formation both in laying and also in the event of subsequent sediment movements. Trenching the line is intended to prevent fishing gear interaction. Where the line emerges from the trench it will be protected by concrete mattresses, which also maintain the stability of line.

**Production of Additional Gas:** BHP seeks to utilise efficiently a natural resource the development of which is time dependent within the overall supply undertaking for gas to Connah's Quay power station. The assurance

of the provision of reliable energy supplies for the UK is a key government responsibility and BHP like other offshore hydrocarbon E&P companies is licensed to find and produce oil and gas within this framework.

6. Cumulative Impacts: These are assessed as local, sub-regional, regional and global. They cover physical presence of the installations, discharges and emissions in the field and as a consequence of utilisation of the gas produced and economic benefits or penalties for BHP and others in the area. The conclusions are that there are cumulative impacts in most of these areas but they are described qualitatively and not quantified. The presence of the installations will add to the level of attention needed by other marine users when passing through the area but not significantly.

The discharges and emissions as transitory and will soon disperse and much is harmless or will biodegrade but nonetheless the remainder will add to the pollutant burden,

- The gas produced will, for the most part, replace declining supplies from other sources.

Therefore, it was noted that all these potential cumulative impacts underline the need to ensure that all residual effects are reduced to the absolute minimum.

#### **Transboundary Effects**

Given the location within Liverpool Bay and the marine currents and weather patterns significant transboundary effects are very unlikely.

#### **Decommissioning**

BHP makes no explicit commitment to remove totally the subsea installations on ceasing production. The options are identified and a statement that decommissioning will be in accordance with the law and best practice at the time.

#### **Environmental Management**

BHP bases its SHE, safety, health and environment policy, on the HSE's HS (G) 65 and the ISO 14001. It also states that an Environmental Management System ISO 14001 framework document has been produced which covers all Liverpool Bay operations (BHP 1999). No commitment to achieve ISO 14001 accreditation is made but an operation specific EMS will be developed from the ES to manage the Hamilton East environmental issues. (26 April 2001). BHP has now provided a copy of the Environmental Management Plan for the Santa Fe Monitor, the rig that will drill the well.

#### **Recommendation**

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