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

AMERADA HESS

BLOCK 47/3a-K

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 P16, granted a consent to Amerada Hess Limited to the getting of petroleum and the drilling of an exploration well in Block 47/3a-K (hereafter referred to as "the project") subject to Amerada Hess Limited conducting operations in respect of the project in accordance with the relevant environmental statement. The consent for the well was given on 13/12/00.

Background

Amerada Hess Limited (AHL) proposes drilling an exploration well in block 49/21-H, in a water depth of approximately 40 metres, 30km off Flamborough Head. The expected hydrocarbon is gas.

Drilling

The AHL proposal is to drill the appraisal well to a depth of approximately 3200 metres, using water based mud systems as specified below.

Well Design and Cuttings Discharge Proposed

| Hole Section | Section Depth (metres) | Mud System | Discharge Location | Cuttings Weight (tonnes) |
|------------------|------------------------|------------------------------|--------------------|--------------------------|
| 36" | 74 | Seawater with viscous sweeps | direct to seabed | 112 |
| 26" | 212 | Seawater with viscous sweeps | from rig | 169 |
| 17"◆" | 781 | KCL polymer | from rig | 251.4 |
| 12"◆" | 1,265 | Soludrill-N | from rig | 224.2 |
| 8"◆" | 609 | Soludrill-N | from rig | 52 |
| 6"(contingency)* | 259 | Baradrill-N | from rig | 11 |
| Total | 3200 | | Total | 819.6 * |

* if an 8"◆" hole is drilled to 3200 feet a further 11 tonnes of Soludrill based cuttings would be discharged. AHL also indicate that an unplanned mechanical sidetrack would increase the cuttings produced, and "might double the quantities of chemicals used".

Proposed chemical use is shown in the table below, against trigger levels.

| Category | Annual Usage (trigger levels) Cumulative tonnes | Proposed Discharge at York (tonnes) |
|----------|--|-------------------------------------|
| A | all use to be notified | 0 |
| B | 3 | 0.29 |
| C | 15 | 0.041 |
| D | 350 | 5.8 |
| E | 4,750 | 1,024.51 |

Well Testing

AHL is relatively confident that commercial quantities of gas will be found therefore well testing will be required.

Diesel may be used (13.5 tonnes) to 'cushion' the well flow. Length of testing period is unknown at present, dependent upon reservoir size, but it is estimated that 1-200 million standard cubic feet will be burned during testing, generating the following atmospheric emissions:

| Emission Component | Tonnes |
|--------------------|-----------|
| CO ₂ | 14,352.35 |

| | |
|-----------------|------------------|
| CO | 46.01 |
| NO _x | 7.94 |
| SO _x | 0.15 |
| CH ₄ | 237.07 |
| VOCs | 26.64 |
| Total | 14,670.16 |

Well Abandonment/Suspension

AHL indicate that this would follow industry practice. The well bore would be plugged, isolated and abandoned by cutting and removing the well casing just below the level of the seabed. After removal an ROV inspection would be undertaken to check for any residual obstructions.

Environmental Sensitivities

The ES presents a general description of the environment and activities of other users (see later) of the area. It indicates that an ENVID (Environmental Issue Identification) process was undertaken to identify potential environmental risks and possible mitigation. After considering 11 aspects that could result in significant impacts under the ENVID process, four were identified as having the most potential to produce an environmental impact:

- o physical presence of the rig and associated vessels and helicopters;
- o discharge of drill cuttings and drilling muds;
- o combustion emissions from well testing;
- o exhaust emissions from drilling rig.

Drilling Muds/Cuttings

The ES presents the results of a cuttings dispersion study commissioned by AHL. It predicts that cuttings will settle over an elliptical area of the seabed, some 1500 metres long and 300 metres wide, aligned with the main axis of the tidal movement. In the submitted ES the major tidal current axis was given as 245 degrees, but this was an error and a revised major current axis of 155 degrees i.e. aligned WNW to ESE was submitted on 5 Oct 2000. There is no significant difference in projected impacts from the revised axis.

Cuttings densities would range from 6.4 kg/m² (5.4 mm thick) at the centre of the cuttings pile to 0.1 kg/m² (layer 1.3 mm thick) at the edge of the zone of heaviest settlement, falling to less than 0.05mm at the outer edges of the 1500 x 300 metre area. AHL state that it is unlikely that any impacts on benthic fauna would be detected outwith 50 metres of the drill site, considered in the ES as insignificant.

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. Worst case CO₂ emissions from testing of the anticipated gas well are estimated at 14352 tonnes; whilst routine exhaust emissions from the rig are estimated at 2304 tonnes CO₂, (and 28.58 and 4.32 tonnes of No_x and SO_x respectively). AHL present the CO₂ emission from the programme as 0.06% of UKCS offshore CO₂ emissions (see later note).

Oil Spillage

Reservoir hydrocarbons are expected to be gaseous in nature, and drilling will use WBMs; therefore, AHL only consider diesel spillage from the drilling rig the most probable source of any hydrocarbon spillage. Using the OSIS model, AHL estimated trajectory/ persistence times for different diesel spill volumes. With the worst case of 500 tonnes (rig maximum storage is 415 tonnes) with a wind of 15m/sec (error in ES - it states 15 knots) a slick would travel 25 km but all the oil would be expected to evaporate in 18 hours. With the shore only 30 km from the well site it is almost conceivable for some oil to reach the shore but only with extremely unlikely 18-25 hour strong onshore wind. However, with the main risk being from bunkering, a potential spill is likely to be relatively small (generally less than 25 tonnes, from UKCS experience) thence it would disperse in a few hours at most.

In line with regulations, the AHL well will be expected to have a supplemental Oil Spill Contingency Plan for use offshore, interfaced its wider company oil spill response capability.

Cumulative Impacts

The ES briefly addresses cumulative effects of drilling operations, indicating that discharges and emissions from this proposed operation are considered insignificant. With proposed mitigating measures in place and through its EMS, AHL states that it " will look to minimise the potential for cumulative effects".

Non-Technical Summary

AHL has produced a concise and easily read non-technical summary,

Recommendation

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