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

BHP KEITH 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 Keith field. The consent for the Keith field took effect from 22/12/99 and shall last until 30/09/03.

Background

BHP intend to re-enter a previously drilled appraisal well and tie it back, via a 7 km pipeline to the BP Amoco WAD subsea manifold and whence to BP Amoco's Bruce platform. It is anticipated that there will be no drilling, however, contingency for sidetrack is included. Generic information provided on chemicals and muds as they say that no final decision on these has yet been made. They intend to test the well and hydrotest the pipeline with fluids from the latter discharged to sea.

Drilling

BHP do not intend to conduct any drilling activities, however, they have provided information on mud use and discharge in the event that a sidetrack or, potentially, a new well is required. The statement does not address the environmental impact from drilling, therefore they will need to submit a PON 15 or an addendum seeking direction.

Hole diameter	Casing diameter	Casing shoe	Drilling fluid	Estimated weight of cuttings (tonnes)
		TVD (m)		
8.5"	7"	2865	WBM	59
6"		2957	WBM	12
Total				71

Well Testing

Well clean-up will be conducted over a 12 hour period. They state that the contract for the vessel has not yet been awarded but they envisage that a Supergreen/Evergreen burner will be employed with associated test separators. They state that during the 12 hour period, 2040 tonnes of oil and approximately (*sic*) 354.732 tonnes of gas will be flared. The information provided in their Table 3.10 is incorrect reporting only half the total emissions during this period. In addition, if they intend to use test separators, why is oil being flared?

The emissions from well testing were modelled using ADMS, this is an unusual approach for the offshore industry and, I think, unique for well testing. It may be argued that this approach is an overkill. That aside, if we accept this approach we need more information on the data input and assumptions. In dispersion modelling, the plume rise, *inter alia*, is an important variable. This is a function of the heat and velocity of the exit gas. No information is provided on these. Additionally, in discussing the results, reference is made to air quality standards. Onshore, where ADMS is the standard air dispersion model used in IPC submissions, the test of significance is 2% of the environmental quality standard. On this basis, the emission is significant.

Production Issues

The incremental increase in emissions from Bruce as a result of the Keith development will be of the order of 0.4% in 2001 rising to 2.2% in 2005. Although the incremental increase in emissions is small, Table 6.12 is somewhat confusing in that insufficient information is provided. For instance, the first row provides information on "total emissions to air" and the second on "emissions of CO₂". The latter is greater than the former. From the text, it is assumed that the first row is total emissions of vented and fugitive gases.

Pipeline Issues

BHP intends to hydrotest the pipeline and, although the chemicals to be used have not yet been chosen, they have provided generic information based on previous experience. However, there are apparent inconsistencies in Tables 3.12, 6.2 and, therefore, 6.3.

Table 3.12 shows probable concentrations of well test chemicals (ppm), estimated quantity (kg) and estimated discharge concentration (ppm). For instance:

Chemical	Concentration	Estimated Usage	Discharge Concentration.
Biocide	200 ppm	66 kg	0.198 ppm

The estimated volume of water discharged from the pipeline is 333 m³. The 66 kg can be calculated from the concentration and the volume, however, there is no explanation as to how the 0.198 ppm discharged concentration was calculated. Indeed, later in the document it is suggested that, with the exception of oxygen scavenger, almost all of the chemicals used are discharged. The result of re-analysing the information is that, with the exception of oxygen scavenger, the predicted environmental concentrations are a factor of a 1000 too low. The environmental consequence of this cannot be determined since no information is presented on toxicity.

ENVIRONMENTAL SENSITIVITIES

Atmospheric emissions

Discussed above under well testing and production.

Hydrocarbon spills

Section 6.4.3 of the ES deals with oil spill modelling, badly. A simple statement that an approved oil spill plan will be in place before drilling commences would have sufficed, however, BHP have chosen to provide details from modelling studies that do not address the main issue and has a number of errors/omissions. Some of these are detailed below:

1. The results show that an oil spill will cross the median line into Norwegian waters, but no mention of this, nor the response, is included in the text.
2. Given that this is a subsea development tied back to BP Amoco's Bruce facility, the text should have discussed the BHP/BP interface and responsibilities - even if only to say that this will be addressed in the full plan.
3. The third paragraph refers to "stochastic water probability modelling" on Keith crude?
4. Tier 2 response is given as 10 bbls. This appears to be a small quantity and more information is required on the their tiered response.

Overboard discharge of cuttings

Not discussed as they say there will be no drilling. However, they also ask for permission to drill a sidetrack or new well, if required, without providing information on the potential impact.

Recommendations

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