

## Carrack Field Development 49/9a, 49/14b & 49/15a

**ES Title:** Carrack Field Development  
**Operator:** Shell U.K. Exploration and Production (Shell Expro)  
**ES Report No:** D/1534/2002  
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**Block Nos:** 49/9a, 49/14b & 49/15a  
**Development Type:** Gas Field Development & Pipeline

### Synopsis:

The project will develop a Southern North Sea gas field and involves:

- The installation of a normally unattended installation (NUI) in the Carrack field 120 km north-east of Bacton, north Norfolk.
- Laying 82 km of 20" self-burying production pipeline from the Carrack NUI to the Clipper PM platform in the Southern North Sea. A 4" MEG line will be piggybacked on the 20" production line.
- The drilling of seven wells at the Carrack field using a jack-up.
- The installation of a bridge-linked platform at Clipper.

Pipeline installation will commence during the first quarter of 2003 and last for approximately 40 days. Jacket and topside installation is planned for the 3Q of 2003 followed by commissioning and drilling the first three wells. Additional wells will be drilled during 2005 and 2006.

The location of the Carrack field is not thought to be in a particularly sensitive area and the drilling of the six wells is not thought to have a significant environmental impact.

The use of an NUI, with no processing facilities greatly reduces offshore emissions and discharges at the field location. However, there will be modifications made at clipper that include installing a bridge-linked platform to contain the pumps, pig receivers and, in the future, compressors. This additional equipment will cause an increase in emissions arising from Clipper. These were addressed in the ES and are unlikely to have a significant environmental impact.

Questions were asked of the developer concerning the laying of a 20" pipeline and piggybacked 4" MEG line. There were three main issues raised:

1. The pipeline to be installed is a self-burying pipeline and concerns were raised as to whether the line would remain buried.
2. The pipeline is to be laid through the Swarte Bank which is a shallow sandbank and a habitat included in Annex 1 of the EC Habitats Directive
3. To the north of the Indefatigable Bank *Sabellaria spinulosa* were found to occur after a project specific benthic survey was undertaken by Shell in November 2003. *Sabellaria spinulosa* is a tube building polychaete that, in certain areas, is known to form biogenic reefs. Biogenic reefs are included in Annex 1 of the EC Habitats Directive.

### Self-burying pipeline

Shell has previously laid approximately 200km of similar pipeline elsewhere in the SNS. There appear to be a number of environmental advantages for using self-burying lines as they do not need to be trenched nor is there any requirement for rock dumping. In addition, there is no requirement to treat the line with biocide or oxygen scavenger chemicals. The use of self-burying lines is limited to areas of soft sediments in which the line can sink; on harder substrates the lines stay on the surface.

However, concerns were raised that Shell had not conclusively demonstrated that the self-burying pipeline may remain self-buried, in particular along the section on the Swarte Bank, and that this re-exposure of the line may affect the integrity of the sandbank.

In response to this Shell produced a *Technical note on self-burial and sandwaves* which concluded that the pipelines would remain self-buried and the whole of the pipe would only become exposed as a result of large scale seabed lowering and this may occur in areas of mobile sandwaves. If the tops of the lines do become exposed then the natural processes occurring will cause the line to rebury itself. In addition to this document,

Shell presented *pipeline stability and span analysis* studies for the Carrack project and three other already existing lines. Following this additional information it was concluded that where the sediments along the pipeline route are suitable the line would remain self-buried.

#### **Environmental impacts of laying a pipeline on the Swarte Bank.**

The JNCC were particularly concerned about the potential environmental impacts arising from laying the line over the Swarte Bank. The potential area that could be impacted in waters of less than 20 metres was identified within the ES as 7.2 km<sup>2</sup>.

In response to the initial request to provide a fuller assessment of the potential impacts upon the sandbank Shell undertook a benthic sampling survey along parts of the pipeline route and along an already existing self-burying line on the nearby Well Bank. The results of the survey indicated that there was no difference between where an existing line was in place and a control site. The JNCC were not satisfied that this was conclusive and requested further samples from the Well Bank be worked up. This was undertaken by Shell and a report indicating that there is no significant difference between benthic communities sampled along the Well Bank and the control sites. Therefore concluding that the laying of self-burying line along a sandbank has no detectable effect on the infaunal communities present.

#### **Environmental impacts of laying pipeline on *Sabellaria spinulosa***

One of the discoveries made during the benthic survey was the presence of *Sabellaria spinulosa* to the north of the Indefatigable Bank. This tube building polychaete occurs widely around the British Isles in varying densities. Where suitable conditions a rise biogenic reefs may form.

The preliminary survey report identified *Sabellaria* as a species of interest and stated that none of the samples were of fragments of a larger reef structure.

The JNCC were concerned that the individual *Sabellaria* found may constitute a reef, although they admitted they did not have a definition of a reef and were working on it. Based on this they asked that Shell demonstrate that there were no reef type structures along the pipeline route. In response, Shell produced an assessment on *Sabellaria* with respect to the project. This assessment states that several thousand per m<sup>2</sup> are required to form a surface crust let alone a reef. The survey data identified a maximum of 50 in any one 0.1m<sup>2</sup> and therefore significantly higher densities are required for a reef to form.

All the evidence presented indicates that there is unlikely to be a reef present along the pipeline route.

The ES covers in detail the option selection process and presents a case for not using existing infrastructure or selecting a different pipeline option.

The impact assessment identified the following as issues to potentially impact the environment:

- Pipeline construction and physical presence,
- Installation of the Carrack and Bridge linked platform at Clipper
- Accidental Hydrocarbon spillage/release
- Pipeline failure
- Ship collision

Cumulative effects, transboundary, impacts and IPPC regulations were also addressed.

Prevention, control and mitigation measures to minimise the environmental impact are clearly presented with the impact assessment.

Both DEFRA and the JNCC commented on the ES and after extensive discussions both DEFRA and JNCC were satisfied.

#### **Recommendation**

Based on the information presented in the environmental statement and further information provided, it is recommended that project consent should be given.