

**WINTERSHALL NOORDZEE B.V.  
WINGATE FIELD DEVELOPMENT  
Environmental Statement Summary**

**To: Sarah Pritchard – Head of Offshore Environmental Operations**

**From: Angus Laurie – Environmental Manager**

**Date: 7 July 2010**

<b>ES Title:</b>	Wingate Field Development
<b>Operator:</b>	Wintershall Noordzee B.V.
<b>Field Group (DECC):</b>	SNS - Ivor Newman/Alison D'Arcy
<b>ES Report No:</b>	D/4072/2010
<b>ES Date:</b>	01 March 2010
<b>Block Nos:</b>	44/24b
<b>Development Type:</b>	Gas Field

### **Project Description**

The proposed Wingate development will be located on the United Kingdom Continental Shelf (UKCS) in Block 44/24b, approximately 177km from the UK coastline and 10.5km west of the UK/Netherlands median line. Following reclassification of the boundaries of the Dogger Bank draft Special Area of Conservation (dSAC) in March 2010, the Wingate field now lies 3km within the Dogger Bank dSAC.

The development will comprise completion of the existing 44/24b-7z exploration well as a gas producer and the drilling of up to five new horizontal gas producers; the installation of the Wingate platform (a new Normally Unattended Installation, NUI); and installation of a new 20km 12-inch gas export pipeline with piggy-backed 2-inch chemical supply line. Produced gas will be exported to the Dutch D15-FA-1 platform for onward export to Uithuizen, in the Netherlands via the Noordgastransport B.V (NGT) pipeline. It is planned that construction activities will commence around August 2010 with first gas expected in October 2011.

Wells will be drilled using a combination of water and oil based muds. Cuttings from the sections drilled with water based mud will be discharged to sea from the drilling rig approximately 10m below the sea surface. Cuttings from the sections drilled with oil based mud will be shipped to shore for disposal. It is planned to test the first two wells to determine reservoir potential. This will involve a maximum of 48 hours flaring per well. No extended well tests are planned.

The Wingate platform will be a four legged, piled, steel jacket, designed to support up to six gas wells. It will be remotely operated from Den Helder. As regular maintenance visits will be scheduled the platform will have facilities to accommodate up to eight persons. There will be no gas compression on the platform but produced water will be separated and discharged. Two 65kW microturbines will provide the power requirements on the platform.

The pipeline system will be trenched and buried using a displacement plough pulled by a dynamically positioned vessel. Concrete mattresses will be used in trench transition areas to provide protection to unburied sections of the pipeline.

Current estimates are that the field will produce approximately 35.9Bscf of dry gas per annum

at its peak, declining thereafter.

### **Key Environmental Sensitivities**

The EIA identified the following environmental sensitivities:

- Annex 1 Habitats: The Dogger Bank has been selected under the EU Habitats Directive as a dSAC based on one qualifying feature – ‘sandbanks which are slightly covered by sea water all the time.’ The proposed Wingate development is located approximately 3 km within the southern boundary.
- Seabird vulnerability is very high in October to December and high overall throughout the year.
- Fish spawning area for mackerel, plaice, sprat, sole and *Nephrops*. Fish nursery for whiting, *Nephrops* and sprat.
- Cetacean abundance is relatively low in the Southern North Sea but the harbour porpoise, minke whale and white beaked dolphin are likely to be present in the project area.
- The proposed development is situated within ICES rectangle 37F2, with demersal species representing 80% of the total catch. Whilst these areas represent 22% of the average annual commercial value of fishing activity on the Dogger Bank, the value per unit effort is low indicating a considerable amount of time is spent fishing.
- An area of relatively high shipping density.

### **Key Potential Environmental Impacts**

Potential impacts and mitigation were discussed in the ES. The key areas of concern are largely related to the direct physical impacts on the dSAC site during drilling, and during the platform and pipeline construction phases.

#### **1. Physical Presence of Drilling Rig and Rig Stabilisation**

- **Spud Cans:** The placement of the spud cans of the jack-up rig on the seabed will disturb localised areas of seabed and can be expected to impact approximately 0.000316 km<sup>2</sup> of seabed to a depth of 4 to 5m. Spud can footprints are still evident from the drilling of the 2008 Dimple exploration well in this area, and the rig will therefore be re-positioned in the existing footprints at the Wingate drilling location to minimise any further impact. Any residual impact will be of comparatively short-term duration, and recovery to pre-impact levels is likely to take place through immigration into the disturbed area.
- **Rig stabilisation:** Deposits for the purpose of rig stabilisation material are not anticipated.

#### **2. Mud and Cuttings Discharge**

Drilling operations on the Wingate development will involve the discharge of water based mud (WBM) and cuttings to the water column. A worst case scenario of 369 tonnes of mud and cuttings will be discharged just below the surface. Oil based mud and cuttings will be shipped to shore for treatment and/or disposal

- **Discharge of WBM and Cuttings:** Typically WBMs have very low toxicity, and the vast majority of the chemicals proposed for use are on the OSPAR PLONOR list (Posing Little Or NO Risk. Contamination of sediments by heavier particles such as barite and bentonite is likely, and elevated levels of barite were noted within 100m of the 44/24b-7z exploration well and extending up to 200m along the axis of the prevailing current direction. However, concentrations were insignificant in terms of environmental impact. The Wingate development will involve the

discharge of greater quantities of WBM, and it is therefore likely that contamination will occur, but this is again unlikely to be significant.

- **Discharge of Cuttings:** A maximum of 0.007854 km<sup>2</sup> of seabed will be covered by the drill cuttings from the Wingate development. Cuttings will form a small pile on the seabed. Significant erosion of cuttings piles starts when the seabed current velocity exceeds 0.35ms<sup>-1</sup> (UKOOA 1999), i.e., during storm events within the project area. Sessile species within the impact footprint will be impacted, but mobile species would be expected to avoid areas of active disturbance. The benthic community in the development area is typical of the SNS, and no rare protected species have been identified. Studies in the SNS (BHP Billiton 1998; Gaz de France Britain 2004b,c; ConocoPhillips (UK) Ltd 2005b) have shown that drill cuttings mounds within this region disperse within a few months, and sometimes within days, and most of the common species in the project area are tolerant of a degree of smothering and are likely to recolonise the disturbed areas fairly quickly. Comparison of the pre-drilling and post-drilling survey at the proposed Wingate site indicates the benthic community recovered to almost pre-drilling levels within a year of disturbance.

### 3. Installation of Normally Unattended Installation

An unmanned gas platform is proposed to facilitate the processing and transmission of gas to the Netherlands. The Wingate platform would occupy 0.000254 km<sup>2</sup> of the Dogger Bank dSAC.

- **Noise:** There will be increased subsea noise levels during piling but this is not considered to be significant. For the full field development five conductors will be driven. Each conductor will take a maximum of six hours to pile. Currently the plan is to drill one well per annum so it can be assumed that piling will be separated by 12 months. Platform piling will be limited in duration to approximately six hours per pile. Four piles will be driven during one 24 hour period.
- **Fishing:** There will be a decrease in the area available for commercial fishing, but again this will be insignificant.
- **Existing Activities:** There have been a number of developments on the Dogger Bank. There are a total of 9 platforms, 5 subsea manifolds and over 250km of pipelines, including 82km that have been decommissioned and left *in-situ*. There have also been a number of exploration wells on the Dogger Bank. The Minke gas field also lies within Block 44/24, and consists of a subsea well tied-back to the D15-FA-1 platform. The wellhead lies 11km southeast of the proposed Wingate platform. There are also two Round 3 offshore wind development zones situated approximately 35km to the south (Hornsea), and 60km to the northwest (Dogger Bank) of the proposed development. The proposed Wingate development also lies within the D323C Southern MDA submarine practice area. The cumulative and in-combination impacts are also anticipated to be insignificant.

#### 4. Installation of 12 “ gas export pipeline

A gas export line is proposed to connect the platform with the processing hub located in the Dutch sector. This pipeline is 20km long but only 7km will be within the Dogger Bank dSAC.

- **Trenching and backfill operations:** It is estimated that the trenching and the installation of the 12” gas export pipeline and associated chemical supply line would impact on 0.15 km<sup>2</sup> of the Dogger Bank dSAC. Sediment particle analysis indicates that sediments are predominantly sand. The impact will occur against a background of seabed disturbance as a result of wave and tidal activity, and would be localised and very short-term (trenching and backfill are scheduled to take approximately five days to complete). As the pipeline is to be trenched, sediment will be repositioned on either side of the trench. These berms will then be pushed back into the trench by the backfill plough.
- **Positioning of concrete mattresses:** It is estimated that mattresses used to stabilise pipelines would cover 81m<sup>2</sup> of the Dogger Bank dSAC. As structures are positioned on the seabed, sediments will be displaced and suspended. Sediment particle analysis indicates that sediments are predominantly sand, which will quickly fall out of suspension. Evidence from the post-drilling survey in 2009 indicates that scour is possible around objects on the seabed, but the mattresses are small and unlikely to have a significant impact on sediment transport pathways or currents.
- **Rock dumping:** Rock dumping for the purposes of securing the pipeline is not anticipated.

#### 5. Operational Phase

- **Atmospheric Emissions** - The main sources of atmospheric emissions during operations will be through drilling as a result of power generation onboard the rig, well testing operations, emissions from standby and supply vessels, and emissions associated with production operations. Practical steps to limit atmospheric emissions that will be adopted during the drilling programme, including advance planning to ensure efficient operations, well maintained and operated power generation equipment, and regular monitoring of fuel consumption.
- **Produced Water** - It is estimated that produced water at a maximum concentration of 30mg/l will be discharged from the Wingate platform. The produced water will rapidly disperse and biodegrade in the surrounding water column. Research has shown that, due to the rapid dilution, the low concentration and the low toxicities of contaminants in produced water, discharges in the North Sea have little potential for biological impact (Wills 2000). Dilutions required for no observed effect concentration (NOEC) are estimated to be achieved within five minutes, and between 10m to 100m from the discharge point.

#### 6. Decommissioning Phase

- Field life is estimated to be 15 years. Before the end of field life, arrangements for decommissioning will be developed in accordance with UK and international legislative requirements. These have been considered in the design of the facilities and during project planning. Whilst the impacts of decommissioning activities on the environment have not been assessed, due to the high mobility of sands in the area it is not expected that the footprint of the decommissioning operations will have a permanent impact on the Dogger Bank dSAC.

## Consultee Comments

**JNCC** drew attention to:

- Dogger Bank dSAC – Recommended that DECC undertake a shadow appropriate assessment in relation to the Wingate development having a ‘significant effect [on the] sandbank feature of the Dogger Bank dSAC.’
- Pipeline trenching – request to minimise trenching and request quick backfill of trenched lines .
- Cetaceans – JNCC advise against using acoustic deterrent devices. Recommend standard mitigation measures.

**CEFAS pointed out that there were** seismic restrictions between January and May, but had no significant comments and had no objections to the chemicals selected for use.

**The Dutch Authorities** did not comment on the proposals.

**The Public Consultation** did not result in any comments.

## Further Information

- DECC was concerned to ensure that Wintershall had fully considered all possible technical options to mitigate produced water discharges, and commissioned an independent study to evaluate the options put forward by Wintershall put forward. The results of the study, and the comments received from consultees were forwarded to Wintershall for comment. The issues raised were satisfactorily addressed by Wintershall.

**Appropriate Assessment:** As the Wingate development is within the boundaries of the Dogger Bank dSAC, DECC decided that a screening assessment was necessary in order to determine whether the development was ‘likely to have a significant effect, alone or in combination with other projects upon the integrity of a potential Natura 2000 site.’ The conclusion of the screening assessment was that the development was unlikely to have a significant effect and that it would impact only 0.0013% of the Dogger Bank dSAC. The screening assessment was accepted by JNCC, and it was agreed that the development on its own or in combination would not have an adverse impact on the integrity of the dSAC.

**Conclusion**

Following consultation and the provision of additional information, DECC and its consultees are satisfied that this project is not likely to have a significant impact on the receiving environment, including any sites or species protected under the Habitats Regulations.

**Recommendation:**

**On the basis of the information presented within the ES and advice from consultees it is recommended that the Wingate Field Development ES be approved.**

*Sarah Pritchard*

07/07/2010

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**Sarah Pritchard**

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**Date**