

**ENI HEWETT LIMITED**  
**DEBORAH GAS STORAGE PROJECT**  
**Environmental Statement Summary**

**To: Sarah Pritchard, Head of Offshore Environment Unit**

**From: Angus Laurie, Environmental Manager**

**Date: 1 March 2011**

<b>ES Title:</b>	Deborah Gas Storage Project
<b>Operator:</b>	Eni Hewett Limited
<b>Field Group (DECC):</b>	SNS - Ivor Newman/Alison D'Arcy
<b>ES Report No:</b>	D/4086/2010
<b>ES Date:</b>	July 2010
<b>Block Nos:</b>	48/30, 48/29, 48/28 and 52/03
<b>Development Type:</b>	Gas storage complex and pipeline system

### **(1) Project Description**

The Deborah Gas Storage Project involves the transport of treated gas from the National Transmission System (NTS) through the Eni Hewett Ltd (ENI) onshore terminal and then offshore to be injected and stored in the Deborah reservoir. Gas injection would typically take place during the summer months. During winter months, the operations will reverse and gas would be withdrawn from the Deborah reservoir for processing at the onshore terminal and onward transport into the NTS.

The main offshore elements of the project consist of two pipelines that would run from the ENI onshore terminal to two new platforms at the Deborah reservoir, located in the southern North Sea approximately 40 kilometres (km) from the north Norfolk coast, and a connecting pipeline between the two platforms.

The proposed pipeline route will cross areas of sandy seabed and sandbanks. It will cross a small area adjacent to the western perimeter of the Haisborough, Hammond and Winterton (HHW) candidate Special Area of Conservation (cSAC), and the platforms will be located approximately 3 km from the North Norfolk Sandbanks and Saturn Reef pSAC.

The key elements comprise:

- Two unmanned platforms, approximately 2 km apart, at the Deborah reservoir.
- Two 41 km long, 32" diameter, injection/production pipelines connecting the onshore terminal to the offshore platforms, for injection and withdrawal of gas;
- 41 km glycol injection pipeline (piggybacked to one of the 32" pipelines);
- 41 km power and fibre optic communication cables connecting the onshore terminal to the control and monitoring systems on the platforms;
- 2 km long, 32" diameter, pipeline between the two platforms;
- 2 km power and fibre optic cables connecting the platforms;
- Drilling of 33 wells for injection and withdrawal of gas, and two monitoring wells, spread between the two platforms (total of 35 wells);
- Hydrostatic pressure testing of the installed pipeline systems; and
- A potential requirement to undertake well testing with flaring.

Construction works are scheduled to take place between June 2011 and March 2013.

Two identical platforms will be installed, commencing in August 2011. The platforms will be piled structures, consisting of a four-legged steel frame supporting the platform topsides. The installation of each platform jacket is anticipated to take approximately 10 to 12 days. The two offshore platforms will be Normally Unattended Installations (NUIs) and have no gas treatment or processing facilities. Power will be supplied to the offshore installations by sub-sea cable. Stand-by generators will be installed on the platforms to cater for interruptions to the electricity supply.

The pipelines will be installed between September 2011 and March 2013, starting from the shore and moving out into deeper offshore waters. Part of the pipeline route will require seabed levelling, and the pipelines will be installed in a dredged trench. Some sections will require gravel backfilling and some will be left to self-bury.

Drilling operations will commence in August 2011, and continue until August 2015

## **(2) Key Environmental Sensitivities**

The Environmental Statement (ES) identified the following environmental sensitivities:

- Annex 1 Habitats: although the pipeline route and platforms do not encroach on any SACs, areas colonised by the Ross Worm (*Sabellaria spinulosa*) were noted along the proposed pipeline route.
- Seabird vulnerability in the development area is deemed to be 'moderate' to 'low' except for October to December when seabird vulnerability increases to 'high'.
- Fish spawning area for plaice, whiting, *Nephrops*, sprat, lemon sole, sole, and sandeels. Fish nursery area for lemon sole and sandeels.
- Cetacean abundance is relatively low in the southern North Sea but the harbour porpoise, Minke Whale, Killer Whale and White-beaked Dolphin are found in the development area.
- Fishing effort in ICES Area IV c (Southern North Sea) is low in comparison with adjacent areas. Shellfisheries are the most important in terms of catch and value, and the brown shrimp is a key species in this area
- The Deborah gas storage development is in an area of relatively high shipping density.

## **(3) Key Potential Environmental Impacts**

Potential impacts and mitigation were discussed in the ES and the Hazard Risk Assessment (HRA), and in related correspondence between ENI, DECC and the Joint Nature Conservation Committee (JNCC). The key potential impacts are largely related to the direct physical impacts of the drilling activities and the installation of the platforms and pipelines.

### **a. Rig Stabilisation**

Rock dumping is required around each rig leg spud can (three per rig) to stabilise the rig during drilling, and this will result in localised disturbance of the sea bed. The worst-case scenario indicates that the rock dumping could impact an area of 3,900 m<sup>2</sup> at each rig location. Some habitat loss will occur, but the habitat is extremely common and widespread around the UK and no significant impact is anticipated.

### **b. Drilling Mud and Cuttings Discharge**

Drilling operations will require the use of both Water Based Mud (WBM) and Oil Based Mud (OBM). The WBM and associated cuttings will be discharged at the drilling locations, and the worst-case estimate is that a total of 32,400 tonnes of WBM and cuttings may be discharged at the platform locations. All OBM and associated cuttings will be shipped to shore for treatment and/or disposal.

WBMs are low toxicity, and most of the components are on the OSPAR PLONOR List (Posing Little Or NO Risk to the environment), and the hydrographic regime will ensure that discharges are rapidly dispersed. Dispersal modelling indicates that 50% of the cuttings will settle within 40 metres (m) of the drilling locations, with deposition of finer materials extending out to within 5.5 km of the drilling locations. The estimated total area affected by cuttings dispersion around each platform is approximately 17 km<sup>2</sup>. The subtidal sand and gravel habitats in this area are widespread around the UK, and the overall impact of the mud and cuttings disposal is considered to be insignificant, with fairly rapid re-colonisation of the disturbed areas.

#### **c. Installation of Platforms**

Each platform will be secured to the seabed using four piles, and installation of each pile will take approximately one day (24 hours). Mitigation measures are proposed to prevent adverse effects on marine mammal species. The safety zones around the platforms will lead to a decrease in the area available for commercial fishing, but effects are considered to be insignificant because of the relatively low level of fishing activity and the small size of the affected areas. As there are a comparatively large number of gas platforms and associated subsea infrastructure in the southern North Sea, potential cumulative and in-combination impacts of developments within 80 km of the Deborah development were considered, and the impact of the two additional platforms in Block 48/30 were concluded to be insignificant.

#### **d. Installation of Pipelines and Cables**

Pre-lay dredging will take place within 1.5 km of the shore, and at five other locations, to prevent pipeline freespans. The pipelines will be laid on the seabed, ploughed into a trench and allowed to 'self bury'. Post-lay ploughing will also be used for the cables. Self burial is designed to reduce permanent sediment disturbance and impacts on the benthic habitats. There will be twenty six crossings for the pipelines and the cables, constructed and protected using concrete mattresses, plus additional concrete mattress deposits to protect the pipelines at specific locations. Emplacement of the mattresses will result in limited disturbance of the seabed along the pipeline route, but the overall impact is likely to be minimal because of the mobile sandy substrate and rapid re-colonisation of benthic communities. Backfilling of the trenched pipelines with gravel will be necessary over some short sections of the pipeline, to prevent upheaval buckling. It is estimated that approximately 40,000 m<sup>3</sup> of gravel will be deposited on the seabed. Gravel backfilling will result in the temporary alteration of substrate, but it will eventually be covered by the surrounding mobile sands and be available for re-colonisation by benthic species.

#### **e. Operational Phase**

The two platforms will not normally be manned and will have no gas treatment or processing facilities. Power will be supplied by cable from onshore (although there is a small emergency generator). Gas flaring during the operational phase would only occur in emergency situations, and the atmospheric emissions during normal operations are considered to be minor and insignificant.

#### **f. Decommissioning Phase**

The design life of the development is estimated to be 40 years. Decommissioning requirements have been considered in the design of the facilities and during project planning, and the facilities will be decommissioned in accordance with requirements at the end of the life of the development.

### **(4) Consultee Comments**

#### **a. Joint Nature Conservation Committee (JNCC) and Natural England (NE)**

JNCC/Natural England initially considered that the proposed Deborah pipelines could significantly affect populations of the Annex 1 reef species *Sabellaria spinulosa* (medium and high level reef), but

subsequent examination of video footage indicated that any reefs present were low level and the development would not have a significant adverse effect.

**b. Centre for Environment, Fisheries and Aquaculture Science (CEFAS)**

CEFAS noted that, although there were no drilling restrictions on Blocks 48 and 30, there were seismic survey restrictions on Blocks 48 and 52 from March to May, and this was pointed out to ENI.

**c. Marine Management Organisation (MMO)**

The MMO had no significant comments.

**d. Environment Agency (EA)**

The EA had no significant comments.

**e. Maritime and Coastguard Agency (MCA)**

The MCA had no significant comments.

**f. Ministry of Defence (MoD)**

The MOD had no significant comments.

**(5) Public Notice**

**a. Wells and District Fisherman's Association**

The Association pointed out that incorrect coordinates had been published in the EIA notification, and was concerned that there should be dialogue between the fishermen and ENI to discuss the potential conflict of interests. The error was acknowledged and the correct coordinates provided, and ENI was requested to initiate dialogue with the fishermen and provided with copies of the relevant correspondence..

**Conclusion**

Following review of the ES and the comments provided by consultees, and review of the additional information provided by ENI, DECC is satisfied that the project is unlikely to have a significant impact on the receiving environment, or on any protected habitats and species.

**Recommendation**

On the basis of the information presented within the ES and the advice received from consultees, it is recommended that the Deborah Gas Storage Project should be approved.

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**Sarah Pritchard**  
**Head of Offshore Environment Unit**

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**Date**