

Corrib Gas Field

Plan of Development

Addendum, dated 31st May 2010

**Petroleum Affairs Division Technical Section Recommendation
Department of Communications, Energy & Natural Resources**

24th January 2011

PURPOSE

This report summarises an engineering integrity assessment of the Corrib Plan of Development Addendum, as submitted by Shell E & P Ireland Limited (SEPIL), to ensure that the infrastructure can deliver the volumes of gas produced throughout the life of the project, so as to optimise the return to the State.

Separate assessments have been made by the Department with respect to safety and environmental compliance in accordance with Section 40 of the Gas Act, 1976, as amended, and the requirements of the Corrib Petroleum Lease granted pursuant to Section 13 of the Petroleum and Other Minerals Development Act, 1960, as amended.

RECOMMENDATION

It is the opinion of Petroleum Affairs Division Technical Section (PAD TecSec) that the Corrib Field Plan of Development Addendum, as submitted by SEPIL on 31st May 2010, will be appropriate for ensuring maximised economic recovery of gas in accordance with the terms of the Corrib Petroleum Lease, and is to a design generally in accordance with the best national and international industry practice.

PAD TecSec recommends the Corrib Field Plan of Development Addendum, dated 31st May 2010, is approved.

This recommendation is made on the understanding that:

- All the conditions to approval of the Corrib Field Plan of Development, granted on 15th April 2002, remain in place subject to any amendments since approved.
- An “Exclusion Zone”, of at least 500m radius, will be established around the subsea installations in the field.

ISSUES CONSIDERED

1. Application

An 11-page document entitled “Corrib Field Development – Plan of Development Addendum” and dated 31st May 2010 was received from Shell E&P Ireland Limited (SEPIL) on 31st May 2010. It addresses changes to the Plan of Development (PoD) resulting from the modified pipeline design detailed in the Section 40 Application for Consent to Construct and EIS also received on 31st May 2010.

2. History

A draft PoD for the Corrib field was initially received from Enterprise Oil on 5th December 2000 and, following the granting of the Corrib Petroleum Lease on 15th November 2001, the PoD was formally submitted for consideration on 21st November 2001 with the addition of a Plan of Development Addendum providing updated information. The Corrib PoD was approved by the Minister on 15th April 2002.

A new PoD Addendum was first submitted in April 2008 to accompany the Section 40 application for Consent to Construct a pipeline, but this application was withdrawn in January 2009 and a new Section 40 application and the accompanying PoD Addendum were submitted in February 2009. This application has also now been withdrawn and a new Section 40 application and the PoD Addendum now under consideration were submitted on 31st May 2010.

3. Plan of Development Addendum

In the context of this PoD Addendum, PAD Technical Section has sought to be assured that the document reflects the changes to the pipeline design currently proposed in the Section 40 Application, the EIS and the other accompanying documents submitted by SEPIL on 31st May 2010.

4. Consideration

The main issues addressed in the PoD addendum are as follows:

4.1 Modified Pipeline Route The details of the onshore pipeline route in the original PoD were limited to a rough map in Figure 4.6 and a slightly more detailed map in Figure 2 of the 21st November 2001 Addendum. A more detailed description of the route and brief statements on how it is proposed to install the pipeline in different types of terrain are provided in the proposed addendum. As part of its review of the Section 40 application and EIS, PAD TecSec asked SEPIL for additional information regarding the proposed diameter of the tunnel through Sruwaddacon bay and the effect on the construction schedule resulting from the proposal to fill the tunnel with grout after the pipeline and other services have been installed in it. Satisfactory responses were received regarding these matters.

4.2 Pipeline System The major components of the pipeline system are listed in Section 2.3; the significant changes since the original PoD are: (i) use of two cores in both the onshore and offshore umbilicals for discharge of produced water at the manifold, (ii) the much more comprehensive landfall valve installation and (iii) fibre optic and electrical control cables installed alongside the pipeline between the terminal and the landfall valve installation.

4.3 Landfall Valve Installation It was stated in Section 4.1.6.4 of the original PoD that “consideration will be given to installation of a pipeline isolation valve at the landfall” and subsequently a manual valve was proposed. However, this was never fully accepted by PAD TecSec and the 2005 draft recommendation for Consent to Install and Commission the onshore pipeline section included a condition to the effect that further work was to be done on making the landfall valve remotely controlled from the terminal.

Following the Advantica recommendation to reduce the design factor of the onshore pipeline section to 0.3, an automatic, fail-safe, pressure-limiting Landfall Valve Installation (LVI) is now proposed to ensure that the pressure in the onshore section of the pipeline will not exceed the Maximum Allowable Operating Pressure (MAOP) of 100 barg; the design follows good oilfield practice and is technically acceptable. However, PAD TecSec raised questions regarding how the gas tightness of the bypass valve in the LVI is to be maintained and the minimum bend radius within the LVI. These questions were satisfactorily answered by SEPIL.

4.4 Umbilical and Landfall Valve Installation Controls The overall design of the onshore and offshore umbilicals is unchanged, other than the proposal to use two spare cores for discharge of treated produced water at the manifold (see 4.5 below). In order to be able to control the LVI from the terminal, the design requires the installation of a fibre optic cable and an electrical control cable from the terminal and it is proposed to install these separately in the same trench as the pipeline and the three onshore umbilicals. These new LVI control cables look vulnerable to third party interference (whether deliberate or accidental); but, since the system is failsafe, the proposed design is considered acceptable.

4.5 Water Discharges It is now proposed to use two spare cores in the umbilical to discharge treated produced water at the manifold in the field. There is nothing inherently wrong with this as an engineering solution, except that the throughput capacity of the umbilical cores is unlikely to be sufficient throughout the life of the field and the excess will have to be disposed of using road tankers to transport it to a licensed water treatment facility.

4.6 Project Schedule

The anticipated start of commercial production is now stated to be the end of Q3, 2013, subject to any further delays in permitting. This is over 10 years later than the January 2003 date originally forecast and very nearly 10 years later than the October 2003 date included in the 21st November 2001 Addendum.