



CORRIB FIELD DEVELOPMENT

PLAN OF DEVELOPMENT

ADDENDUM

31st May 2010

COMMERCIAL IN CONFIDENCE

Preface

This document is a revision to the approved Plan of Development, required under clause 6 of the Petroleum Lease dated 15 November 2001 between the Minister for the Marine and Natural Resources and the Minister for Finance and Enterprise Energy Ireland Limited and Statoil Exploration (Ireland) Limited and Marathon International Petroleum Hibernia Limited for the Corrib Gas Field Development Project. This document describes the revisions proposed.

This revision is made in conjunction with a new (revised) application to the Department of Communications, Energy and Natural Resources for consent to construct an upstream gas pipeline under Section 40 of the Gas Act 1976 (as amended).

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1.0. Introduction

On 15 November 2001, the Minister for the Marine and Natural Resources awarded the then Corrib Co-Venturers (Enterprise Energy Ireland Limited (now called Shell E & P Ireland Ltd), Marathon International Petroleum Hibernia Limited (now called Vermilion Energy Limited) and Statoil Exploration (Ireland) Ltd) a Petroleum Lease for the Corrib field development project. In accordance with the requirements of the Petroleum Lease, a draft plan of development and subsequent Addendum (together the “Plan of Development”) were submitted to the PAD and approved on 5th April 2002.

The Corrib field development project is currently in receipt of all principal consents for its development; including consent to construct (with conditions) the Corrib pipeline granted in April 2002 under Section 40 of the Gas Act 1976, as amended.

A need for modifying elements of the pipeline design has arisen out of the project impasse experienced in 2005, and the subsequent Independent Safety Review commissioned by the Minister for (then) Communications, Marine and Natural Resources resulting in reports and recommendations by Advantica and the Technical Advisory Group (TAG).

Proposed modifications of the route of the onshore section of the Corrib pipeline followed a recommendation made by independent mediator Peter Cassells, in his report: ‘Report and Recommendations from Mediation, (2006)’ to “modify the route of the pipeline in the vicinity of Rossport to address community concerns regarding proximity to housing”. A revised route was identified and set out in the Plan of Development Addendum submitted to the DCENR on 8th May 2008, later revised in the Plan of Development Addendum submitted 9th February 2009.

As the onshore element of the gas pipeline is considered to be strategic gas infrastructure under the Planning and Development Act 2002, as amended by the Planning (Strategic Infrastructure) Act 2006, an application for consent for the proposed modified onshore element of the pipeline was submitted to An Bord Pleanála for approval on 8th May 2008, and subsequently revised and resubmitted on 9th February 2009.

An Bord Pleanála in a letter dated 2nd November, 2009 requested that alterations be made to the proposed development as follows:-

“Modify the pipeline route between chainages 83+910 and 89+550 so that the route at this location would generally be in accordance with that indicated as Corridor C (that is, within Sruwaddacon Bay) in the route selection process which formed part of the Environmental Impact Statement (E.I.S.) and planning application. The revised development including this alteration shall be accompanied by a revised E.I.S. including an appropriate assessment of the impact of the development on Natura 2000 sites.”

In response, SEPIL is now proposing to modify the route of the onshore pipeline (as requested by An Bord Pleanála).

In addition to changes to the route, it is proposed to use 2 spare cores in the services umbilicals to discharge treated produced water from the Bellanaboy Bridge Gas Terminal at the subsea manifold in the Corrib field. A decision to alter the method of discharge of produced water from

the Terminal was made during 2008 as a result of concerns raised by local fishermen. Treated produced water will be discharged at the manifold in 350m water depth with any excess treated produced water potentially being removed offsite from the terminal by road tanker to a appropriately licensed facility. This modification is subject to requirements of Integrated Pollution Prevention and Control (IPPC) licensing, and a licence review application in this regard was submitted to the Environmental Protection Agency on 25th March 2010 in relation to the existing IPPC licence number P0838-01 for the Bellanaboy Bridge gas terminal.

In light of the proposed changes, Shell E&P Ireland Limited (SEPIL) is submitting a new application for consent to construct an upstream pipeline, including both offshore and onshore elements, under Section 40 of the Gas Act, 1976 (as amended) from the Minister for Communications, Energy and Natural Resources. A separate application in relation to the Foreshore Licence will be submitted to the Foreshore Unit of the Department of Environment, Heritage and Local Government.

SEPIL is also required to seek approval, from the Department of Communications, Energy and Natural Resources, of a revision to the extant Plan of Development under paragraph 6.4 and 8.3 of the Rules and Procedures Manual for Offshore Petroleum Production Operations. This Addendum sets out the proposed revisions to the extant Plan of Development.

As a result of the delays in the permitting process, SEPIL is also requesting an extension of the date for commencement of Commercial Production Operations, as referred to in the approved Plan of Development.

The Corrib Field Plan of Development provides information that is commercially sensitive and should be kept confidential with the exception of data that the Minister has the right to make public under the terms of the Petroleum Lease.

2.0 Modified Onshore Pipeline Route Description

2.1 Route Modification

The proposed modified route is shown in Figure 1 of the appendix. Figure 2 of the appendix shows both the proposed modified route and the original, currently consented route. The main differences between the currently consented route and the proposed modified route is that it is proposed to construct the onshore pipeline between Glengad and Aghoos in a tunnel, the majority of which will run underneath Sruwaddacon Bay, thus minimising potential impacts on the habitats and species of the Glenamoy Bog Complex cSAC and the Blacksod Bay / Broadhaven pSPA, as well as having a greater distance from dwellings with no currently occupied house being closer than 234 metres.

2.2 Modified Route Description

The proposed onshore route is approximately 8.3km long and follows the line of the previously approved onshore route for approximately 25% of its length. The proposed route is described below.

The pipeline comes onshore in the townland of Glengad 1.5km west of Rossport. The proposed onshore pipeline route traverses this headland, in an east-south-easterly direction, for approximately 640m. From here, the pipeline route traverses Sruwaddacon Bay in a south-easterly direction to Aghoos. This section of the route (approximately 4.9km) will be tunnelled. Approximately 4.6km of the tunnel will be underneath Sruwaddacon Bay.

At Aghoos, the pipeline route turns in an easterly direction for approximately 0.9km, traversing an area of blanket bog within which it crosses an approximately 40m wide estuarine river channel. The route then enters an area of forested bog (approximately 2.2km long) where it turns in a southerly direction, rejoins the previously approved route and enters the Bellanaboy Bridge Gas Terminal site

The onshore pipeline will be constructed through habitats including agricultural grassland, estuary and peat lands. In agricultural land the pipeline will be installed by conventional open trench method. Where the pipeline is routed through peat land, the proposal is to excavate the peat and replace it by a stone berm, which will provide a stable road to be used during construction. The pipeline and services will be installed in the stone berm. This provides a stable permanent position for the pipeline and services.

The proposed tunnel will be constructed as a concrete lined tunnel into which the pipeline and associated services are subsequently installed. The tunnel is bored using a Tunnel Boring Machine (TBM), and the tunnelling operation will be carried out on a 24hr basis from a tunnel start pit at Aghoos and follow a predetermined trajectory to a reception pit at Glengad.

The proposed tunnel will have a maximum outside diameter of approximately 4.2m. The internal diameter of the tunnel will be approximately 3.5m. This (large) size of tunnel is required to allow personnel to work within the tunnel during construction and to facilitate the installation of the onshore pipeline and associated services once the tunnel is completed.

The tunnel will be backfilled with cement grout after installation and testing of the pipeline and services.

2.3 Pipeline System

The pipeline system consists of the following elements:

- A 20-inch (outside) diameter steel upstream gas pipeline between the Corrib gas field and the inlet of the Terminal;
- A single umbilical between the Corrib gas field and the Landfall; (of which 2 cores will be used for discharges of treated produced water at the manifold location);
- 3 umbilicals between the Landfall and the Terminal. (of which 2 cores will be used for discharges of treated produced water);
- a 10 inch diameter polyethylene treated water outfall pipeline between the terminal and a discharge location located outside Broadhaven Bay cSAC;
- a landfall valve installation located near the landfall at Glengad;
- a fibre optic cable installed between the terminal and the Landfall Valve Installation; and
- an electric signal cable installed between the terminal and the Landfall Valve Installation.

2.3.1 Landfall Valve Installation

The Landfall Valve Installation (LVI) will have an automatic pressure limiting function, and comprises valves and instrumentation together with communication cables to the Bellanaboy Bridge terminal operations control room. The pressure limitation function of the LVI will be set at 100 barg, and the shut-in system at the LVI will thus ensure that the stated Maximum Allowable Operating Pressure of 100 barg is maintained under all circumstances. This LVI pressure setting is significantly lower than the 144 bar close-in pressure recommended by the Advantica Safety Review, adding further conservatism to the onshore pipeline design pressure of 144bar.

The LVI replaces the previous design that comprised a manually operated 20" isolating valve with bypass located at the landfall.

2.3.2 Umbilical and Landfall Valve Installation controls

The onshore design contains three parallel umbilicals. These umbilicals have smaller diameters than the offshore umbilical and together have the same functionality as the single offshore

umbilical. The lower unit weight of the three split umbilical allows for more practical onshore transport and installation.

A fibre optic cable and an electric signal cable will be installed between the terminal and the landfall valve installation. These cables form part of the control and communication system between the terminal and the landfall valve facility. The cables will be installed in the same trench as the pipeline.

3 Produced Water Discharges

The proposed treated produced water discharge arrangement will utilise 2 spare cores in the control umbilical for the discharge of produced water at the manifold module located in the Corrib field. Excess treated produced water (if any) will be transported by road tankers to licensed water treatment facilities. Treated surface water will be discharged via the already permitted outfall located outside Broadhaven Bay.

4 Project Schedule

The anticipated date of commencement of Commercial Production Operations is redacted as commercially confidential. This date remains a provisional one, based on the assumption that that there will be no further substantial delays in the permitting process and no particularly onerous conditions in the new permits, once issued, and that no further unforeseen delays occur.

Appendix

- Modified Route (Figure 1)
- Modified Route & Previously Approved Route-Figure 2