

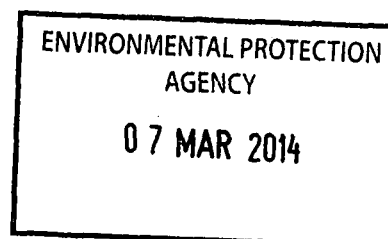


Comhshaol, Pobal agus Rialtas Áitiúil  
Environment, Community and Local Government



5 March 2014

Ms. Ana Bolger  
Programme Officer  
Environmental Licensing Programme  
Office of Climate, Licensing & Resource Use  
Environmental Protection Agency  
Johnstown Castle Estate  
Co. Wexford



Re ; Reg. No P0738-03

Dear Ms Bolger

I refer to your letter dated 19<sup>th</sup> February 2014 regarding an application by Shell E & P Ireland Ltd. for a review of Industrial Emissions Licence PO739-01.

As requested, please find enclosed, a copy of the Environmental Impact Assessment, carried out for the part of the construction of the Corrib Gas Pipeline for which a Foreshore Licence was granted on 22 July 2011. A copy of the Foreshore Licence is also enclosed. The Environmental Impact Assessment was carried out, on behalf of the Minister, by the Marine Licence Vetting Committee.

With regard to the Industrial Emissions Licence application, it is noted that the revised discharge point is located in the Corrib Field and is well outside the foreshore, as defined in Section 1 of the Foreshore Act 1933. This discharge point is unchanged from the details contained in the Foreshore Licence Application approved by the Minister in 2011.

As no changes are proposed to the discharge pipe already in situ and no further construction on the foreshore is proposed this Department has no observations to offer on the Industrial Emissions Licence application. The application is aligned with what is permitted under the Foreshore Licence granted in 2011.

Yours sincerely

Lorraine O'Donoghue  
Principal  
Marine Planning and Foreshore  
[Lorraine.ODonoghue@environ.ie](mailto:Lorraine.ODonoghue@environ.ie)  
LoCall 1890 20 20 21

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Newtown Road  
Co. Wexford

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**MINISTER FOR THE ENVIRONMENT, COMMUNITY AND LOCAL GOVERNMENT**

**SHELL E&P IRELAND LIMITED**

**STATOIL EXPLORATION (IRELAND) LIMITED**

**VERMILION ENERGY IRELAND LIMITED**

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**FORESHORE LICENCE**

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**ARTHUR COX**

**DUBLIN**

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THIS LICENCE is made the 22<sup>nd</sup> day of JULY 2011

#### PARTIES

- (1) **THE MINISTER FOR THE ENVIRONMENT, COMMUNITY AND LOCAL GOVERNMENT** of Custom House, Dublin 1, Ireland (the "Minister");
- (2) **SHELL E&P IRELAND LIMITED** a company incorporated in Ireland with registered number 316588 and having its registered office 52 Lower Leeson Street, Dublin 2 and previously known as Enterprise Energy Ireland Limited ("Shell");
- (3) **STATOIL EXPLORATION (IRELAND) LIMITED** a company incorporated in Ireland with registered number 249996 and having its registered office at George's Dock House, 2 George's Dock, IFSC, Dublin 1 ("Statoil"); and
- (4) **VERMILION ENERGY IRELAND LIMITED**, an exempt company, incorporated with limited liability and registered in the Cayman Islands with registered number 61958 and having its registered office at Appleby, Clifton House, 75 Fort Street, PO Box 190, Grand Cayman, KY1-1104, Cayman Islands, and having a branch registered in Ireland with registered number 903714 and registered office at 6 Northbrook Road, Ranelagh, Dublin 6 and previously known as Marathon International Petroleum Hibernia Limited ("Vermilion").

#### INTRODUCTION

- A. By licence dated the 17 May 2002 between the then Minister for the Marine and Natural Resources and the Licensees (the "2002 Licence"), the Licensees were granted the right to enter onto, use and occupy the licensed area adjacent to Dooncarton, Co. Mayo as more particularly described therein (the "2002 Licensed Area") upon the terms and conditions set out therein for the term of 99 years from and including 17 May 2002 (the "2002 Licence Term") subject to the payment of the rents reserved therein and the observance and performance of the covenants and conditions on the Licensees' part contained therein
- B. Relevant powers under the Foreshore Act are now vested in the Minister
- C. The Licensees have applied to the Minister for a licence pursuant to section 3(1) of the Foreshore Act to enter onto, use and occupy the Licensed Area for the purpose of constructing, locating and operating the Facilities.
- D. The Minister, in exercise of the power conferred on him by section 3(1) of the Foreshore Act, has agreed to grant a licence to the Licensees on the terms and conditions set out in this deed
- E. With effect from the date of grant of this Licence, the Licensees wish to surrender the 2002 Licence and the Minister has agreed to accept a surrender of the 2002 Licence subject to the terms and conditions of this Licence.

**IT IS HEREBY AGREED AS FOLLOWS:**

**1 DEFINITIONS AND INTERPRETATION**

1.1 In this Licence the following words and expressions have the following meanings:

**"Act of 1960"** means the *Petroleum and Other Minerals Development Act 1960*;

**"Affiliate"** means in relation to a party:

- (a) any body corporate which is a Subsidiary of that party;
- (b) any body corporate of which that party is a Subsidiary; or
- (c) any body corporate which is a Subsidiary of another body of which that party is also a Subsidiary;

**"Arbitration"** has the meaning set out in clause 26.9;

**"Assignment"** means any assignment, novation, transfer or any other legal or equitable parting with possession of any description, directly or indirectly or in whole or in part;

**"Birds Directive"** means Directive 2009/147/EC on the conservation of wild birds;

**"Business Day"** means a day that is not a Saturday, Sunday or a bank or public holiday in a place where an act is to be performed or a payment is to be made;

**"Change in Control"** means any change in the Control of a Licensee, occurring other than as a result of a transfer of the legal or beneficial ownership of any shares that are listed on a stock exchange;

**"Commencement Date"** has the meaning set out in clause 4.1;

**"Concrete Tunnel"** has the meaning set out in section 4 of Schedule 1;

**"Confidential Information"** means any information in whatever form:

- (a) in relation to the subject matter of this Licence;
- (b) in relation to a party to this Licence or an Affiliate of a party to this Licence;
- (c) in relation to any employee, servant, agent, contractor or advisor of a party to this Licence or an Affiliate of a party to this Licence;
- (d) in relation to the business, products, services, methods or work of a party to this Licence or an Affiliate of a party to this Licence;
- (e) which is by its nature commercially sensitive and/or confidential;
- (f) which is designated by the Disclosing Party as Confidential Information; or
- (g) which the Recipient knows or ought reasonably to know is Confidential Information;

but does not include:

- (h) information which is or becomes generally available to the public (other than by reason of a breach of this Licence or any other contract);
- (i) information which is known to the Recipient at the time of its disclosure;
- (j) information which is subsequently acquired by the Recipient from a third party on terms that permit it to be disclosed and/or used, provided that such third party is lawfully entitled to disclose the information on such terms; or
- (k) this Licence;

**"Control"** has the same meaning as in section 432 of the *Taxes Consolidation Act, 1997*;

**"Control Umbilical"** means the sub-sea control umbilical system described in section 2 of Schedule 1;

**"Cure Notice"** has the meaning set out in clause 14.1;

**"Department"** means the Department of the Environment, Community and Local Government;

**"Discharge Pipeline"** means the pipeline described in section 3 of Schedule 1;

**"Disclosing Party"** means a person who discloses Confidential Information;

**"Dispute"** means a difference or dispute of whatsoever nature arising between all or any of the parties under or in connection with this Licence;

**"Dispute Notice"** has the meaning set out in clause 26.2;

**"Dispute Resolution Procedure"** means the procedure described in clause 26;

**"EIA Directive"** means Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment;

**"EMG"** means the environmental monitoring group described in clause 9.6;

**"EMP"** means the environmental management plan required to be produced by the Licensees pursuant to Schedule 3;

**"Encumber"** means to grant or create or cause or permit to be granted or created any mortgage, lien, pledge, assignment by way of security, charge, hypothecation, security interest, title retention or any other security agreement or arrangement having the effect of conferring security, or other form of encumbrance;

**"EQS"** means environmental quality standards and has the same meaning as in section 4 of the *Environmental Protection Agency Act 1992* (as inserted by section 6 of the *Protection of the Environment Act 2003*);

**"EURIBOR"** means:

- (a) the percentage rate per annum equal to the offered quotation which appears on the page of the Telerate Screen which displays an average rate of the Banking Federation of the European Union for the Euro (being currently page 248) for such period at or about 11.00am (Brussels time) on the quotation date for such period or, if such page or such service ceases to be available,

such other page or such other service for the purpose of displaying an average rate of the Banking Federation of the European Union agreed by the parties;  
or

- (b) if no quotation for the Euro for the relevant period is displayed and the parties have not agreed an alternative service on which a quotation is displayed, the arithmetic mean (rounded upwards to four decimal places) of the rates at which each of the Reference Banks was offering to prime banks in the European interbank market deposits in the Euro of an equivalent amount for such period at or about 11.00am (Brussels time) on the quotation date;

**"Euro"** means the single currency of participating member states of the European Union;

**"European Site"** has the same meaning as in Article 2 of the *European Communities (Natural Habitats) Regulations, 1997* (S.I. No. 94/1997);

**"Expert"** means a person appointed pursuant to clause 26.8;

**"Facilities"** means the Gas Pipeline, Discharge Pipeline, Control Umbilical and Concrete Tunnel located or to be located in the Licensed Area, more fully described in Schedule 1;

**"Facility Decommissioning Agreement"** means the agreement of that name dated 15 November 2001 between the then Minister for the Marine and Natural Resources (now the Minister for Communications, Energy and Natural Resources) and the Licensees;

**"Facilities Decommissioning Plan"** means a plan of that name submitted by the Licensees and approved by the Minister for the Marine and Natural Resources pursuant to the Facility Decommissioning Agreement;

**"Force Majeure"** means an event or circumstance or combination of events and/or circumstances not within the reasonable control of a party which has the effect of delaying or preventing that party from complying with its obligations under this Licence, including:

- (a) acts of terrorists or protesters;
- (b) war declared or undeclared, blockade, revolution, riot, insurrection, civil commotion, invasion or armed conflict;
- (c) sabotage, acts of vandalism, criminal damage or the threat of such acts;
- (d) extreme weather or environmental conditions including lightning, fire, landslide, accumulation of snow or ice, meteorites, volcanic eruption or other natural disasters, measured by reference to local meteorological records published by Met Eireann over the previous 10 years;
- (e) the occurrence of radioactive or chemical contamination or ionising radiation, explosion including nuclear explosion, pressure waves caused by aircraft or other aerial devices travelling at supersonic speeds and impact by aircraft or other vehicles;
- (f) any strike or other industrial action which is part of a labour dispute of a national or industry wide character occurring in Ireland;



- (g) the act or omission of any contractor or supplier of a party, provided that the act or omission was due to an event which would have been an event of Force Majeure had the contractor or supplier been a party to this Licence;
- (h) the unavailability of essential infrastructure or services required to comply with obligations pursuant to this Licence, other than due to an act or omission of all or any of the Licensees; or
- (i) mechanical or electrical breakdown or failure of machinery, plant or other Facilities owned, installed or utilised by any party, which breakdown or failure was outside the control of the party acting in accordance with Good Industry Practice and Law,

provided that Force Majeure shall not include:

- (j) lack of funds and/or inability of a party to pay;
- (k) mechanical or electrical breakdown or failure of machinery, plant or other Facilities owned, installed or utilised by any party, other than as a result of the circumstances identified in clauses (a) to (i), above; or
- (l) any strike or industrial action not falling within clause (f), above;

**"Foreshore"** has the same meaning as in section 1 of the Foreshore Act;

**"Foreshore Act"** means the *Foreshore Act 1933*;

**"Gas Pipeline"** means the pipeline described in section 1 of Schedule 1;

**"Good Industry Practice"** means, in relation to activities under this Licence, conducting activities in a proper and workmanlike manner in accordance with applicable international standards, methods and practices customarily used in good and prudent oil and gas field practice and with that degree of diligence and prudence reasonably and ordinarily exercised by skilled and experienced operators engaged in a similar activity under similar circumstances and conditions;

**"Government Agency"** means any Minister, government department, statutory authority or any authorised representative of a Minister, government department or statutory authority, including any local authority;

**"Habitats Directive"** means Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora;

**"Inland Fisheries Ireland"** means the organisation of that name established pursuant to section 6 of the *Inland Fisheries Act 2010*;

**"Insolvency Event"** means in respect of a party:

- (a) the party is unable to pay its debts within the meaning of section 214 of the *Companies Act 1963* or any analogous legislation or any indebtedness of the party is not paid when due (save for normal trade debts or any debts which are disputed in good faith), any indebtedness of the party is declared to be or otherwise becomes due and payable prior to its specified maturity or any creditor or creditors of the party become entitled to declare any indebtedness of the party due and payable prior to its specified maturity;

- (b) the party commences negotiations with any one or more of its creditors with a view to the general readjustment or rescheduling of its indebtedness (except in the course of a solvent amalgamation or reconstruction approved by all other parties), or with a view to agreeing a moratorium on its indebtedness or makes a general assignment for the benefit of or a composition with its creditors;
- (c) the party takes any corporate action or other steps are taken or legal proceedings are started for its winding-up, protection by the court, dissolution, administration or re-organisation or for the appointment of a liquidator, receiver, examiner, administrator, administrative receiver, trustee or similar officer of it or of any or all of its revenues or assets;
- (d) a distress, execution or other legal process in respect of a claim of €1,250,000 or more is levied, enforced or sued out upon or against any substantial part of the property or assets of the party;
- (e) a person exercises its rights under an Encumbrance to take possession of the whole or any part of the undertaking, property or assets of the party;
- (f) the party stops or threatens to stop payment of its debts or ceases or threatens to cease to carry on or changes its business or a substantial part of its business;
- (g) any judgement or order in an amount equal to or in excess of €320,000 is made or awarded against the party and is not wholly stayed or complied with within seven days; or
- (h) the consolidated financial statements of the party for any period contain a qualification that such statements do not reflect the financial position of the party;

**"Joint Operating Agreement"** means the Corrib Field Operating Services Agreement dated 24 May 2001, and any other agreement or agreements between the Licensees, and in special circumstances another person or persons, pursuant to which an operator or operators are appointed in respect of the Corrib gas field;

**"Law"** means any Act of the Oireachtas, regulation, statutory instrument, European Community obligation, direction of a regulatory or other competent authority, condition of any consent, authorisation, licence or other permission granted by any regulatory or other competent authority and any decision of a court of competent jurisdiction, but does not include this Licence;

**"Licence"** means this deed and any Schedule to it, as may be amended by supplemental indenture from time to time;

**"Licensed Area"** means that part of the Foreshore upon which the Facilities are located, which is more accurately described in Schedule 4;

**"Licensee"** means each of Shell, Statoil and Vermilion and **"Licensees"** means all of them;

**"Marine Institute"** means the organisation of that name established pursuant to the *Marine Institute Act, 1991*;

**"Petroleum"** has the same meaning as in the Act of 1960;

**"Petroleum Lease"** means a petroleum lease granted to the Licensees pursuant to section 13 of the Act of 1960 in respect of the Corrib Gas Field;

**"Pollution Control Licence"** means an Integrated Pollution Control Licence granted pursuant to Part IV of the *Environmental Protection Agency Act 1992*, or such other pollution prevention or control licence or licences as may be required from time to time, including pursuant to European Council Directive 1996/61/EC of 24 September 1996 concerning Integrated Pollution Prevention and Control, or any regulations or legislation transposing such Directive into Irish Law;

**"Recipient"** means a person who receives Confidential Information from a Disclosing Party;

**"Representations and Warranties"** means the representations and warranties given by the Licensees to the Minister pursuant to clause 18 1;

**"Special Conditions"** means the special conditions set out in Schedule 3, as may be amended from time to time pursuant to clause 9 3;

**"Specifications"** means the specifications set out in Schedule 2, as may be amended from time to time pursuant to clause 8 2;

**"Subsidiary"** has the same meaning as in section 155 of the *Companies Act 1963*;

**"Term"** has the meaning set out in clause 4 2; and

**"Value Added Tax"** means the value added tax chargeable under the provisions of the *Value-Added Tax Consolidation Act 2010* and/or any other tax of a similar nature on the supply of goods or services which may hereafter replace or supplement such tax.

1 2 In this Licence, unless the context otherwise requires:

- (a) other grammatical forms of defined terms shall have a corresponding meaning;
- (b) the table of contents and headings are for convenience only and do not affect interpretation;
- (c) words importing persons or parties include any individual, body corporate, firm, corporation, joint venture, trust, unincorporated association, organisation or partnership and any other entity, in each case whether or not having a separate legal personality, and all references to persons includes their legal successors and permitted assignees;
- (d) an act which is required to be done on a day which is not a Business Day shall be done instead on the next Business Day;
- (e) all monetary amounts are in Euro ("€"), unless otherwise specified;
- (f) "including" and similar words are not words of limitation; and
- (g) a reference:
  - (i) to a gender includes a reference to each other gender;
  - (ii) to the singular includes a reference to the plural and vice versa;

- (iii) to legislation, regulations, directives, orders, directions, instruments, codes or other enactments includes any orders or regulations made pursuant to such legislation or other enactments and includes all amendments, modifications and replacements to such legislation, regulations, directives, orders, directions, instruments, codes or other enactments;
- (iv) in this Licence to a party, Schedule, Attachment or Appendix is a reference to a party, Schedule, Attachment or Appendix, as the case may be, to this Licence;
- (v) in this Licence to a clause, is a reference to a clause in this Licence (excluding the Schedules); and
- (vi) in a Schedule to this Licence to a section, is reference to a section in that Schedule.

## 2. TERMINATION OF 2002 LICENCE

- 2.1 Subject to Clause 2.2, the 2002 Licence is hereby terminated with effect from the Commencement Date, without prejudice to:
- (a) the validity of anything done prior to such termination pursuant to and in accordance with the 2002 Licence; and
  - (b) any antecedent breach thereof or any rights or obligations which survive termination thereof
- 2.2 On termination of the 2002 Licence:
- (a) the Licensees shall not be required to decommission any Facilities constructed pursuant to the 2002 Licence; and
  - (b) Clause 15.1(2) of the 2002 Licence [Rights and Obligations on Termination or Expiry] is hereby disappplied

## 3. GRANT OF LICENCE

- 3.1 The Minister, in exercise of the powers vested in him by section 3(1) of the *Foreshore Act 1933*, hereby grants to the Licensees a licence to enter onto, use and occupy the Licensed Area, on the terms and conditions set out in this Licence, for the purposes of:
- (a) constructing, installing or locating the Facilities;
  - (b) operating, maintaining, inspecting, testing, repairing or replacing all or any of the Facilities; and
  - (c) carrying out works which are necessary or incidental to the activities described in clauses 3.1(a) and 3.1(b).
- 3.2 Unless otherwise permitted by Law, the Licensees shall not use the Licensed Area for any purpose other than the purposes described in clause 3.1

4. **TERM**

- 4.1 This Licence shall commence on the date of execution by all parties ("Commencement Date"), such commencement to be contemporaneous with the termination of the 2002 Licence
- 4.2 Subject to clause 15, this Licence shall remain in force for a period of 99 years from the Commencement Date ("Term")

5. **RENT**

- 5.1 In consideration of the grant of this Licence, the Licensees shall pay to the Minister the sum of:
- (a) €190,000 on execution of this Licence; and
  - (b) €1 00, if demanded, on or before each anniversary of the Commencement Date.
- 5.2 It is hereby acknowledged that the Licensees paid the Minister the sum of €3,050,000 under the 2002 Licence, which sum shall be retained in full by the Minister notwithstanding the termination of the 2002 Licence

6. **COMMENCEMENT OF OPERATIONS**

- 6.1 The Licensees shall not commence any works associated with the construction or installation of Facilities in the Licensed Area, without the prior written consent of the Minister.
- 6.2 The Minister is not obliged to grant consent pursuant to clause 6.1 unless and until the Licensees have obtained and provided to the Minister in respect of the relevant works, activities or operations copies of all necessary consents, permissions, permits, licences and authorisations.

7. **COMPLIANCE WITH APPLICABLE LAWS**

- 7.1 The Licensees shall at all times comply with all applicable Laws.
- 7.2 Without prejudice to the generality of clause 7.1, the Licensees shall at all times hold all necessary licences, consents, permissions, permits or authorisations associated with any activities of the Licensees in connection with the Licensed Area

8. **SPECIFICATIONS**

- 8.1 Unless the prior written approval of the Minister is obtained, which approval may be granted subject to conditions, the Licensees shall ensure that:
- (a) all Facilities are constructed and/or installed in accordance with the Specifications and such Facilities at all times comply with the Specifications which were applicable at the date that such Facilities were constructed and/or installed; and
  - (b) no development, work, construction or installation is undertaken in the Licensed Area that does not comply with the Specifications
- 8.2 The Specifications may be amended from time to time:

- (a) by agreement between the parties; or
  - (b) by the Minister by notice in writing to the Licensees if the Minister reasonably considers it necessary to do so for reasons of public safety, protection of the environment or consistency with Good Industry Practice.
- 8.3 If at any stage the Licensees become aware that any Facilities or works do not comply with the Specifications that were applicable at the date that such Facilities were constructed and/or installed or such works were performed (whether as a result of notification by the Minister or other competent authority or otherwise), the Licensees shall immediately:
- (a) notify the Minister, unless the Licensees were notified by the Minister; and
  - (b) unless the Minister otherwise agrees in writing, take all reasonable steps to ensure that:
    - (i) such Facilities or works comply with the Specifications that were applicable at the date that such Facilities were constructed and/or installed or such works were performed, as the case may be; and
    - (ii) any adverse consequence arising out of the fact that Facilities were not constructed and/or installed in accordance with the Specifications or works were not performed in accordance with the Specifications, as the case may be, are rectified to the satisfaction of the Minister as soon as is reasonably practicable.

## 9 OPERATIONS IN CONNECTION WITH THIS LICENCE

- 9.1 The Licensees may, from time to time, with the prior consent of the Minister occupy and use such area adjacent to the Licensed Area as is reasonably required by the Licensees to exercise their rights pursuant to clause 3.1
- 9.2 Without prejudice to any other rights and obligations under this Licence or at Law, in exercising any rights or performing any obligations in connection with this Licence, the Licensees shall:
- (a) comply with the Special Conditions at all times;
  - (b) ensure that all Facilities or other works or structures in the Licensed Area are at all times maintained in a good and proper state of repair and condition, to the satisfaction of the Minister, which ensures that they do not constitute a public health hazard or danger to persons, animals, marine life or the environment;
  - (c) not Encumber this Licence or any Facility without the prior written consent of the Minister;
  - (d) at all times maintain appropriate resources to ensure the proper exercise of all rights and the performance of all obligations in connection with this Licence, including:
    - (i) ensuring that all necessary competent persons are engaged to carry out any works, activities or operations pursuant to this Licence; and
    - (ii) using suitable machinery and equipment which is in good repair and condition and maintained to proper safety standards;

- (e) use all reasonable endeavours to minimise damage and disturbance to the sea bed, fisheries and all other maritime activities and restore any damage which does occur to the satisfaction of the Minister;
  - (f) not commit or suffer any waste, spoil or destruction on the Foreshore, other than waste, spoil or destruction:
    - (i) which is reasonably necessary as a consequence of the exercise of rights and performance of obligations pursuant to this Licence; and
    - (ii) in respect of which the Licensees hold all necessary consents, licences or permissions required by law;
  - (g) unless otherwise permitted by Law, not undertake any works, activities or operations, other than navigation, outside the Licensed Area without the prior written consent of the Minister and, where appropriate, any occupiers of such sea bed;
  - (h) not, without the prior written consent of the Minister, carry out any works, activities or operations which, in the reasonable opinion of the Minister, are injurious to or interfere unreasonably with fishing, navigation, adjacent lands, approved scientific research or the public interest; and
  - (i) ensure that adequate warning notices, fencing or other appropriate security and safety measures are in place at all works and structures during construction and, where necessary, for the duration of this Licence
- 9.3 The Special Conditions may be amended from time to time:
- (a) by agreement between the parties; or
  - (b) by the Minister by notice in writing to the Licensees if the Minister reasonably considers it necessary to do so for reasons of public safety, protection of the environment or consistency with Good Industry Practice.
- 9.4 Without prejudice to any other remedy under this Licence or at Law, if the Minister is of the view that the Licensees are in breach of any obligation pursuant to clause 9.2, the Minister may, by notice in writing, require that the Licensees rectify such breach, within such reasonable time period as is specified by the Minister.
- 9.5 The Licensees shall comply with any direction of the Minister under clause 9.4 within the time specified in the notice.
- 9.6 The Minister shall establish the EMG in consultation with Mayo County Council. The EMG will be charged with monitoring all stages of construction and development within the Licensed Area and with ensuring compliance with the approved EMP. A representative from the Department shall chair the EMG. Membership of the EMG shall be determined by the Minister from time to time and with effect from the date of this Licence shall include representatives from the Department and from the Licensees. Each of the following shall be invited to nominate one representative to the EMG:
- (a) The Department of Communications, Energy and Natural Resources;
  - (b) The Department of Arts, Heritage and the Gaeltacht (National Parks and Wildlife Service);



- (c) The Marine Institute;
- (d) Mayo County Council;
- (e) Inland Fisheries Ireland; and
- (f) local fishing interests

Four representatives of the local community from Kilcommon Parish, selected in accordance with procedures to be determined by the Department, in consultation with Mayo County Council, shall be invited to serve on the EMG.

The Department may co-opt additional members to the EMG at any time

## 10. OTHER ACTIVITIES IN THE LICENSED AREA

10.1 This Licence does not preclude and the Licensees shall not have the right to interfere with:

- (a) the laying of pipelines or cables of any kind by a person in, on or above the Licensed Area, provided that this has been approved by the Minister and that the Minister is satisfied, acting reasonably, that this would not cause unreasonable inconvenience to works, activities or operations under this Licence;
- (b) lawful fishing in the Licensed Area provided that such fishing shall not endanger or create unreasonable inconvenience to works, activities or operations under this Licence;
- (c) exploration for and development of natural resources of any kind, provided that:
  - (i) such activities do not endanger or create unreasonable inconvenience to works, activities or operations under this Licence;
  - (ii) the prior written consent of the Minister is obtained; and
  - (iii) such persons give the Licensees not less than 90 days notice of their intention to engage in such activities;
- (d) lawful navigation in the Licensed Area;
- (e) the carrying out of approved scientific research, provided always that the Minister shall not approve any person to carry out such scientific research in a manner or in an area which would tend to unreasonably or unnecessarily obstruct or impede the conduct of works, activities or operations under this Licence; or
- (f) the exercise of any other rights or the undertaking of any other activities permitted by Law

## 11. REPORTING AND ACCESS TO INFORMATION

11.1 The Licensees shall at all times ensure that books of account, records and vouchers are kept in accordance with normal accounting procedures and in accordance with Section 202 of the *Companies Act, 1990*.



11.2 The Licensees shall provide to the Minister immediately upon termination of this Licence or otherwise within 20 Business Days after receipt of a request from the Minister:

- (a) copies of any records of the Licensees referred to in clause 11.1 which are requested by the Minister;
- (b) such other information as the Minister may at any time require in relation to this Licence or any works, activities or operations conducted in connection with this Licence; and
- (c) such information required by the Minister as to the progress and future plans of the Licensees in its works activities and operations in connection with this Licence;

11.3 The Licensees shall:

- (a) as soon as practicable notify the Minister of any actual or anticipated breach of this Licence;
- (b) as soon as is reasonably practicable, notify the Minister of the making of any claim or the commencement of any action, suit, proceedings or arbitration ("Claim") arising out of the exercise or purported exercise of the rights granted to the Licensees by this Licence and shall furnish to the Minister all information which the Minister may from time to time require in relation to any such Claim; and
- (c) notify the Minister in writing within 5 Business Days of receipt of any notice from any competent authority of non-compliance with any consent, permission, permit, licence or authorisation, which is in any way connected with works, activities or operations pursuant to this Licence.

11.4 Information provided to the Minister, or to which access is granted, pursuant to clauses 11.2 and 11.3 shall be:

- (a) to the best of the Licensees' knowledge, complete, accurate and not misleading in any material particular;
- (b) provided within time limits specified in this Licence or by the Minister, or if no time limit is specified, within a reasonable time; and
- (c) provided at the cost of the Licensees

## 12 INVESTIGATIONS, INSPECTIONS AND ENQUIRIES

12.1 The Minister may conduct or cause to be conducted such investigations, inspections and enquiries in connection with this Licence as he or she sees fit

12.2 The Licensees shall use all reasonable endeavours to co-operate fully and provide all reasonable assistance in relation to any investigation, inspection or enquiry conducted pursuant to clause 12.1

12.3 The Licensees acknowledge and agree that, unless the contrary intention is expressed, any investigation, inspection or enquiry undertaken pursuant to this Licence:

- (a) is without prejudice to the Licensees' rights and obligations under this Licence or at Law and does not amount to a waiver of any such rights or relieve the Licensees from any such obligations; and
- (b) does not amount to an acknowledgement by the Minister, or any officer, servant or agent of the Minister, that the Licensees have complied with this Licence, Good Industry Practice or Law in relation to any matters to which the investigation, inspection or enquiry relates

### 13 DECOMMISSIONING OF FACILITIES

- 13.1 It shall be the responsibility of the Licensees to make provision for, to carry out and to meet the costs of decommissioning of Facilities to the reasonable satisfaction of the Minister and in accordance with Good Industry Practice and Law.
- 13.2 In order to comply with the obligations pursuant to clause 13.1, the Licensees shall continue to be bound by and observe the terms of the Facility Decommissioning Agreement for the duration of this Licence and for such period following termination of this Licence until all Facilities which are required to be decommissioned are decommissioned.
- 13.3 For the avoidance of all doubt and without prejudice to any other rights under the Facility Decommissioning Agreement or at Law, any breach of the Facility Decommissioning Agreement shall be deemed to be a breach of this Licence.

### 14 STEP IN RIGHTS

- 14.1 If at any time any material obligation of the Licensees under this Licence is not performed, the Minister may give written notice to the Licensees ("Cure Notice") describing the obligation which is not performed and requiring such failure to be remedied within the period specified in the Cure Notice (which period must be reasonable having regard to the nature of the obligation which was not performed)
- 14.2 If the failure to perform the obligation referred to in the Cure Notice is not remedied within the period specified in such notice, the Minister shall be entitled to engage any personnel, execute any works and to provide and install any equipment which in the opinion of the Minister may be necessary to secure the performance of the relevant obligations
- 14.3 The Minister may recover the costs and expenses of exercising all rights under clause 14.2 from the Licensees as a civil debt in any court of competent jurisdiction.
- 14.4 The rights under this clause 14 are without prejudice to any other remedies available to the Minister under this Licence or at Law.

### 15 TERMINATION

- 15.1 The Minister may, without prejudice to any other remedies available under this Licence or at Law, terminate this Licence by notice in writing to the Licensees upon the occurrence of any of the following events:
  - (a) where, in respect of the application for this Licence, material information has been wilfully withheld from the Minister by a Licensee or Licensees or material information provided to the Minister by a Licensee or Licensees is false or misleading in any material particular;

- (b) if any moneys payable by the Licensees under this Licence are not paid by the due date for payment and such failure is not remedied within 30 days after receipt by each Licensee of a notice from the Minister requiring such failure to be remedied and stating that this Licence may be terminated pursuant to this clause 15.1(b) if such failure is not remedied;
- (c) any material breach or non-observance by any Licensee of any provision of this Licence or applicable Law, which is capable of being remedied and which is not remedied within 30 days after receipt by each Licensee of a notice from the Minister requiring such breach or non-observance to be remedied and stating that this Licence may be terminated pursuant to this clause 15.1(c) if such breach or non-observance is not remedied;
- (d) any material breach or non-observance by any Licensee of any provision of this Licence or applicable Law, which is not capable of being remedied;
- (e) repeated breach or non-observance by all or any of the Licensees of any provision of this Licence or applicable Law which has been notified to the Licensees by the Minister and which have not been disputed in good faith, whether or not they are remedied, which are not of themselves material breaches, but which collectively are reasonably determined by the Minister to constitute a material breach and which continue after receipt by the Licensees of a notice from the Minister stating that the Licence may be terminated if such breaches or non-observances continue;
- (f) any Assignment of this Licence by all of the Licensees otherwise than in accordance with clause 19; or
- (g) termination or expiry of the Petroleum Lease.

15.2 The Minister may, without prejudice to clause 15.1 or any other remedies available under this Licence or at Law, terminate this Licence in respect of a Licensee, by notice in writing to that Licensee, upon the occurrence of any of the following events:

- (a) any of the Representations and Warranties in respect of the Licensee are not true and correct in any material respect or, at any stage during the Term, any of the Representations and Warranties in respect of the Licensee cease to be true and correct in any material respect;
- (b) any material breach or non-observance by the Licensee of any provision of this Licence or applicable Law, which is capable of being remedied and which is not remedied within 30 days after receipt by the Licensee of a notice from the Minister requiring such breach or non-observance to be remedied and stating that this Licence may be terminated pursuant to this clause 15.2(b) if such breach or non-observance is not remedied;
- (c) any material breach or non-observance by the Licensee of any provision of this Licence or applicable Law, which is not capable of being remedied;
- (d) repeated breach or non-observance by the Licensee of any provision of this Licence or applicable Law which has been notified to the Licensee by the Minister and which have not been disputed in good faith, whether or not they are remedied, which are not of themselves material breaches, but which collectively are reasonably determined by the Minister to constitute a material breach;

- (e) the Minister is of the view that the capability of the Licensee to discharge fully its obligations under this Licence is materially impaired, including by reason of:
  - (i) the occurrence of an Insolvency Event in respect of the Licensee ; or
  - (ii) any other adverse change in the managerial, technical or financial competence of the Licensee ; and
- (f) any Assignment of this Licence by the Licensee otherwise than in accordance with clause 19 or any Change in Control in respect of the Licensee which is not notified in accordance with clause 19.

15.3 If this Licence is terminated in respect of all Licensees pursuant to clause 15.2:

- (a) this Licence shall be deemed to have terminated at the date of termination of this Licence in respect of the final Licensee or Licensees; and
- (b) the rights and obligations of the parties as at the date of termination of this Licence in respect of the final Licensee or Licensees shall be the same as if this Licence had been terminated pursuant to clause 15.1

15.4 Without prejudice to any obligation or liability imposed by or incurred under the provisions of this Licence:

- (a) the Licensees may terminate this Licence by giving the Minister not less than 6 months notice specifying the proposed date of termination and this Licence shall terminate on the date specified in that notice;
- (b) an individual Licensee or Licensees may terminate this Licence in respect of itself or themselves, as the case may be, by giving the Minister not less than 6 months notice specifying the proposed date of termination and this Licence shall terminate in respect of that Licensee or Licensees on the date specified in that notice; or
- (c) the Licensees may terminate this Licence upon the occurrence of an event of Force Majeure which has extended for a continuous period of 12 months, by giving the Minister not less than 30 days notice specifying the proposed date of termination and this Licence shall terminate on the date specified in that notice

15.5 A notice of termination under clause 15.4 shall be given in accordance with clause 27 and signed by all of the Licensees.

## 16 RIGHTS AND OBLIGATIONS ON TERMINATION OR EXPIRY

16.1 On termination or expiry of this Licence:

- (a) all rights and powers exercisable by the Licensees pursuant to this Licence shall cease and determine, but without prejudice to any obligation or liability arising under any applicable Law or pursuant to this Licence (including any accrued rights or obligations which exist at the date of termination or expiry of this Licence);
- (b) all Facilities which the Licensees are not required to remove pursuant to an approved Facilities Decommissioning Plan and which do not become the property of the Minister for Communications, Energy and Natural Resources

under the Petroleum Lease may, at the discretion of the Minister, become the property of the Minister without payment of compensation;

- (c) any moneys paid to the Minister under the terms of this Licence shall not be repaid; and
- (d) where this Licence expires or is terminated by the Licensees in accordance with clause 15 4, no party shall have liability to any other in respect of such termination or expiry, but rights and liabilities which have accrued prior to termination shall subsist.

16 2 On termination of this Licence in respect of one or more individual Licensees pursuant to clause 15 2 or 15 4(b), the remaining Licensees shall continue to be:

- (a) entitled to exercise all rights of the Licensees pursuant to this Licence; and
- (b) jointly and severally liable for the performance of all obligations pursuant to this Licence, including any obligations which were the responsibility of the Licensee in respect of whom this Licence is terminated.

## 17 PAYMENT AND INVOICING

17 1 All payments by the Licensees in connection with this Licence:

- (a) shall be made by cheque, bank draft or money order, delivered on or before the due date for payment, to the Minister's address for service pursuant to clause 27, or such other address notified to the Licensees by the Minister in writing; and
- (b) (except to the extent agreed by the Minister in advance or otherwise required by Law) shall be paid in full, without deduction or set off in respect of any amounts in dispute or any other amounts whatsoever

17 2 If any amount which is payable under this Licence has not been paid on or before the date that payment is due:

- (a) the party to whom payment is due may institute proceedings for recovery from the other party; and
- (b) in addition to any other remedies under this Licence or at Law, the party to whom payment is due is to be paid interest on the outstanding amount at EURIBOR + 1% from the date that payment was due until the date of actual repayment.

17 3 Save where a sum paid by any party to another party is subsequently determined to have been paid in error by the paying party and accepted in good faith (which shall be repaid without any interest), if any sum paid by a party to another party is subsequently determined not to have been due and payable, the first party shall refund the amount to the other party and pay the other party interest on the amount at EURIBOR + 1%, such interest to be calculated from the date that payment was made to the date of actual repayment.

## 18 REPRESENTATIONS AND WARRANTIES

18 1 The Licensees severally represent and warrant to the Minister that:

- (a) each Licensee is duly incorporated and organised under the laws of its place of incorporation;
- (b) each Licensee has corporate capacity and authorisation (internal and external) to enter into and perform the terms of this Licence;
- (c) the representative signing this Licence on behalf of each Licensee is duly authorised in that behalf;

18.2 This Licence expressly excludes any warranty, condition or other undertaking implied at Law or by custom and supersedes all previous agreements and understandings between the parties, other than as expressly provided for in this Licence

## 19 ASSIGNMENT AND CHANGE OF CONTROL

19.1 Subject to clauses 19.2 and 19.3, Licensee shall not Assign any interest in this Licence without the prior written consent of the Minister, such consent not to be unreasonably withheld or delayed.

19.2 In considering whether or not to grant consent under clause 19.1, the Minister may:

- (a) take into account the creditworthiness, relevant experience and technical capabilities of the intended assignee and any other relevant matters having regard to the rights and obligations of the Licensees under this Licence; and
- (b) require the proposed assignee to enter into a supplemental indenture with the Minister in a form acceptable to the Minister

19.3 The Minister shall not charge a fee in relation to the grant of any consent pursuant to this clause 19. However, if the Minister requires execution of a supplemental indenture as a condition of the grant of any consent, the relevant Licensee(s) shall pay the reasonable legal costs of the Minister associated with the negotiation, preparation and execution of such supplemental indenture, upon presentation of an invoice from the Minister supported by reasonable documentary evidence of such costs

19.4 A Licensee shall notify the Minister as soon as is reasonably practicable upon the occurrence of any Change of Control in respect of that Licensee

## 20. INDEMNITIES

20.1 Subject to clause 31.1, the Licensees hereby indemnify, and agree to keep indemnified and hold harmless, the State, the Minister and his or her officers, agents and employees, against all actions, loss, claims, damages, expenses or demands arising in any manner whatsoever in connection with:

- (a) the grant of this Licence;
- (b) the performance of works in the Licensed Area by the Licensees or their servants, agents, employees or contractors; or
- (c) the exercise of any rights or performance or non-performance of any obligations pursuant to this Licence.

## 21. MINISTERIAL CONSENT

21.1 Upon receipt of any application for consent or approval in accordance with this Licence, the Minister:



- (a) may consult with all Government Agencies and other organisations which the Minister considers appropriate in relation to the application;
- (b) shall take all reasonable and proper steps to enable him to make a decision in respect of such consent;
- (c) shall inform the Licensees of such decision in accordance with the time periods specified in this Licence, or if no such time period is applicable, as soon as is reasonably practicable; and
- (d) may, in the event that such decision is to refuse consent, inform the Licensees of the grounds of such refusal when giving his or her decision.

21.2 Unless otherwise expressly provided in this Licence or at Law, whenever:

- (a) the consent of the Minister is required under this Licence, the Minister shall not unreasonably withhold or delay such consent or grant such consent subject to unreasonable conditions; or
- (b) the Minister is entitled to impose conditions pursuant to this Licence, the Minister may only impose such conditions as are reasonable in the circumstances.

21.3 The Licensees acknowledge and agree that, unless the contrary intention is expressed, any approval or consent granted by the Minister or any servant or agent of the Minister pursuant to this Licence:

- (a) is without prejudice to the Licensees' rights and obligations under this Licence or at Law and does not relieve any Licensee from any such obligations or restrict such rights; and
- (b) does not amount to an acknowledgement by the Minister, or any servant or agent of the Minister, that the actions to which the consent or approval relates comply with Good Industry Practice or Law.

## 22 JOINT AND SEVERAL LIABILITY

22.1 Save where otherwise specified, any obligations of the Licensees under this Licence are joint and several obligations.

## 23 FORCE MAJEURE

23.1 Except as otherwise provided by this Licence, where any party or parties are rendered wholly or partially incapable of performing all or any of their obligations under this Licence by reason of Force Majeure:

- (a) as soon as is reasonably practicable, the party affected by Force Majeure shall notify the other parties, identifying the nature of the event, its expected duration and the particular obligations affected and shall furnish reports at such intervals reasonably requested by the other parties during the period of Force Majeure;
- (b) this Licence shall remain in effect but that party's obligations, except for an obligation to make payment of money, and the corresponding obligations of the other party, shall be suspended, provided that the suspension shall be of no greater scope and no longer duration than is required by the Force Majeure;

- (c) subject to full compliance with this clause 23.1, during suspension of any obligation pursuant to clause 23.1(b), the relevant party or parties shall not be treated as being in breach of that obligation;
  - (d) the party affected by the Force Majeure shall use all reasonable efforts to remedy its inability to perform all or any of its obligations under this Licence by reason of Force Majeure and to resume full performance of its obligations under this Licence as soon as is reasonably practicable;
  - (e) as soon as is reasonably practicable after notification of the Force Majeure, each party shall use all reasonable endeavours to consult with the other parties as to how best to give effect to their obligations under this Licence so far as is reasonably practicable during the period of Force Majeure;
  - (f) upon cessation of a party's inability to perform all or any of its obligations under this Licence by reason of Force Majeure, that party shall notify the other parties; and
  - (g) insofar as is possible, any party affected by an event of Force Majeure shall do all things reasonably practicable to mitigate the consequences of the Force Majeure
- 23.2 Clause 23.1(d) will not require the settlement of any strike, walkout, lock-out or other labour dispute on terms which, in the sole judgement of the party involved in the dispute, are contrary to its interests

## 24. CONFIDENTIALITY

- 24.1 Subject to clause 24.2, a Recipient shall keep confidential and shall not disclose any Confidential Information which the Recipient receives or acquires pursuant to this Licence, unless the Recipient is otherwise permitted to disclose such Confidential Information by the Disclosing Party.
- 24.2 It will not be a breach of clause 24.1 for a Recipient to disclose Confidential Information:
- (a) to the extent required by Law;
  - (b) where permitted to do so by any other agreement, including any Petroleum Lease or Joint Operating Agreement; or
  - (c) to such of its Affiliates, employees, servants, agents, contractors or advisors who require access to such Confidential Information, provided that such Affiliates, employees, servants, agents, contractors or advisors are:
    - (i) made aware of the fact that the information is Confidential Information; and
    - (ii) made aware of and bound by the obligations of Recipient under this clause 24
- 24.3 For the avoidance of all doubt, the parties acknowledge that this Licence is a public document and that it will not be a breach of this clause 24 for either party to disclose this Licence to any person.



## 25 WRITTEN PUBLIC STATEMENTS

- 25.1 Unless prevented from doing so by Law or the rules of any Stock Exchange, the Licensees must not issue any written public statement in connection with this Licence without first furnishing a copy of the proposed statement to the Minister for his or her information in advance of publication
- 25.2 If prevented from providing a copy of the proposed statement to the Minister in advance of publication, the Licensees must provide such statement as soon as is reasonably practicable following such publication

## 26 DISPUTE RESOLUTION

- 26.1 Subject to clause 26.12, no party may commence proceedings in relation to any Dispute in connection with this Licence without first complying with the provisions of this clause 26.
- 26.2 Any party may notify another party or parties of the occurrence or discovery of any item or event which the notifying party acting in good faith considers to be a Dispute under or in connection with this Licence ("**Dispute Notice**").
- 26.3 A Dispute Notice shall:
- (a) set out the particulars of the issues in dispute in sufficient detail and be accompanied by sufficient supporting documentation (if relevant) to enable the recipient or recipients of the notice to fully understand the Dispute; and
  - (b) identify an individual to represent that party in discussions in relation to the Dispute, such individual to have:
    - (i) expertise or experience in the subject matter of the Dispute; and
    - (ii) authority to negotiate in relation to the Dispute.
- 26.4 Any recipient of a Dispute Notice shall, within 10 Business Days after the date of the Dispute Notice:
- (a) appoint an individual to represent that recipient in discussions in relation to the Dispute, such individual to have:
    - (i) expertise or experience in the subject matter of the Dispute; and
    - (ii) authority to negotiate in relation to the Dispute; and
  - (b) notify the details of that individual to the sender of the Dispute Notice.
- 26.5 The nominated representatives shall meet as soon as practicable, but in any event not more than 20 Business Days after the date of the Dispute Notice, to attempt in good faith using all reasonable endeavours to resolve the Dispute satisfactorily.
- 26.6 If a Dispute is not resolved to any party's satisfaction by the nominated representatives under clause 26.5 within 30 Business Days after the date of the Dispute Notice, the Dispute may, by notice in writing by any party to each other party to the Dispute, be referred for resolution in accordance with clause 26.7
- 26.7 If the Dispute:

- (a) is of a technical or engineering nature (including in relation to the exploration, exploitation, extraction, measurement, transport or storage of Petroleum), it shall be referred for determination by an Expert in accordance with clause 26.8;
- (b) is not a Dispute of the type referred to in clause 26.7(a), it shall be referred to Arbitration in accordance with clause 26.9; or
- (c) if the parties to the Dispute are unable to agree whether or not the Dispute is of a technical or engineering nature, the issue shall be referred to the President for the time being of the Institution of Engineers of Ireland who, acting in good faith, shall make a final and binding determination in relation to whether or not the Dispute is of a technical or engineering nature within the meaning of clause 26.7(a).

26.8 The following provisions shall apply with respect to any Dispute which is referred to an Expert pursuant to clause 26.7:

- (a) The parties to the Dispute shall meet and, acting in good faith, endeavour to agree upon the Expert as soon as is reasonably practicable, but in any event no later than 5 Business Days after the later of:
  - (i) the date of the notice under clause 26.6; and
  - (ii) the determination of the President for the time being of the Institute of Engineers of Ireland under clause 26.7(c)
- (b) Failing agreement on the appointment of the Expert within the timeframe set out in clause 26.8(a), the Expert shall be appointed at the request of any party, after giving notice in writing to all other parties to the dispute, by the President for the time being of the Institute of Engineers of Ireland
- (c) The Expert shall resolve the Dispute in such manner as the Expert, in his or her absolute discretion sees fit, provided that each party to the Dispute shall be given reasonable opportunity to make oral and written submissions to the Expert as part of the dispute resolution process and the Expert shall have regard to such submissions.
- (d) The Expert shall be asked to make his or her decision within 20 Business Days after referral of the Dispute
- (e) Save in the event of fraud or manifest error, any decision of the Expert shall be final and binding upon the parties
- (f) Unless otherwise determined by the Expert, the costs of the Expert in settling or determining a Dispute shall be borne equally by the parties to the Dispute

26.9 The following provisions shall apply with respect to any Dispute which is referred for Arbitration pursuant to clause 26.7:

- (a) The Dispute shall be determined by a single arbitrator appointed by agreement between the parties.
- (b) The parties to the Dispute shall meet and, acting in good faith, endeavour to agree upon an arbitrator as soon as is reasonably practicable, but in any event no later than 5 Business Days after the later of:

- (i) the date of the notice under clause 26.6; and
  - (ii) the determination of the President for the time being of the Institute of Engineers in Ireland under clause 26.7(c)
- (c) Failing agreement on the appointment of an arbitrator within the timeframe set out in clause 26.9(b), the arbitrator shall be appointed at the request of any party, after giving notice in writing to all other parties to the Dispute, by the President for the time being of the Law Society of Ireland
- (d) The provisions of the *Arbitration Act 2010* shall apply to the Arbitration
- (e) The language of the Arbitration shall be English and the place of the Arbitration shall be Dublin, Ireland
- (f) The parties shall be entitled to call witnesses and shall have the right of cross examination
- 26.10 Notwithstanding anything else in this clause 26, a person shall not be appointed as an arbitrator or Expert, other than with the prior written consent of all parties to the Dispute, if that person:
- (a) is an employee or agent of:
    - (i) any Licensee;
    - (ii) the Government of Ireland or any County or political sub-division of Ireland; or
    - (iii) any Department or agency of the Government of Ireland or any County or political sub-division of Ireland;
  - (b) is otherwise connected with a party to the Dispute; or
  - (c) for any reason may be obliged to or may expect favours from a party to the Dispute.
- 26.11 Performance of obligations under this Licence shall continue during any Dispute Resolution Procedure pursuant to this clause 26.
- 26.12 Nothing in this clause 26 prevents any party from seeking urgent declaratory, injunctive or other interlocutory relief.

## 27. NOTICES

- 27.1 Unless this Licence expressly provides otherwise, all notices and communications concerning this Licence shall be in writing, in the English language and addressed as follows:

in the case of the Minister:

The Minister of the Environment, Community and Local Government  
c/o Department of the Environment, Community and Local Government  
Newtown Rd  
Wexford

**Attention:** The Principal, Planning Policy and Legislation Section

**Telephone:** +353 (0)53 911 7500

**Facsimile:** +353 (0)53 911 7604

in the case of Shell:

Shell E&P Ireland Limited  
52 Lower Leeson Street  
Dublin 2

**Attention:** The Managing Director

**Telephone:** +353 1 669 4100

**Facsimile:** +353 1 669 4101

in the case of Statoil:

Statoil Exploration (Ireland) Limited  
George's Dock House  
2 George's Dock  
IFSC  
Dublin 1

**Attention:** The General Manager

**Telephone:** +353 1 6119610

**Facsimile:** +353 1 6119620

in the case of Vermilion:

Vermilion Energy Ireland Limited,  
6 Northbrook Road  
Ranelagh  
Dublin 6

**Attention:** The Secretary

**Telephone:** +353 1 4959200

**Facsimile:** +353 1 4959299

27.2 A party may change its address for service at any time by notice in writing to the other parties.

27.3 Notices shall be deemed served or delivered to the addressee or its office:

- (a) if delivered by hand, upon the date of delivery;
- (b) if delivered by pre-paid ordinary post within Ireland, 2 Business Days after sending;
- (c) if delivered by pre-paid ordinary post outside Ireland, 5 Business Days after sending; or
- (d) if delivered by facsimile, at the time that a transmission report is produced by the sender's facsimile machine confirming that the transmission has been satisfactorily completed

- 27.4 The parties may agree to alternative methods of service of Notices from time to time.
28. **WAIVER**
- 28.1 A waiver of a right or power under this Licence is of no force and effect unless it is given in accordance with clause 27.
- 28.2 No delay, omission or forbearance by a party in enforcing a power or right under this Licence shall be deemed a waiver of that party's right to enforce that power or right
- 28.3 Any single or partial exercise of any power or right shall not preclude any future exercise of that power or right.
- 28.4 Any waiver of a power or right in a particular instance shall not constitute a future waiver of that power or right in any other circumstance or in any way limit a party's future ability to exercise that power or right
29. **VARIATION**
- 29.1 No amendment to this Licence shall be effective unless it is in the form of a supplemental indenture executed by all parties.
30. **RELATIONSHIP OF PARTIES**
- 30.1 Nothing in this Licence may be interpreted or construed as creating any landlord-tenant relationship, agency, association, joint venture or partnership between the Minister and all or any of the Licensees.
- 30.2 Except as is expressly provided for in this Licence, nothing in this Licence grants any right, power or authority to any party to enter into any agreement or undertaking for, act on behalf of or otherwise bind any other party
31. **COSTS AND EXPENSES**
- 31.1 Each party shall pay its own costs associated with the negotiation, preparation, execution and, except to the extent that this Licence otherwise expressly provides, administration of this Licence.
- 31.2 The Licensees shall pay all reasonable expenses of the EMG, including reasonable travel and subsistence costs of members of the EMG.
32. **TAXES AND DUTIES**
- 32.1 The Licensees shall pay and discharge all taxes, assessments, duties, charges, impositions and other moneys properly due and payable which are now or may in the future be charged or imposed in connection with this Licence.
- 32.2 For the avoidance of all doubt, any amounts quoted in this Licence are exclusive of Value Added Tax.
33. **FURTHER ASSURANCE**
- 33.1 The parties agree to do all things, including execute all documents, to give effect to the provisions of this Licence

34 **SEVERABILITY**

- 34.1 If any provision of this Licence is or becomes or is declared invalid, unenforceable or illegal by the courts of any jurisdiction to which it is subject or by order of the relevant body of the European Union, that provision shall be severed and the remainder of this Licence shall remain in full force and effect.
- 34.2 As soon as is reasonably practicable, but in any event no more than 25 Business Days after a provision of this Licence becomes or is declared invalid, unenforceable or illegal, the parties shall meet and use all reasonable endeavours to agree terms which, to the maximum extent possible, return each of the parties to the position that they would have been in had the provision not been or not become invalid, unenforceable or illegal
- 34.3 If the parties are unable to agree terms under clause 34.2 within 30 Business Days of first meeting, then the matter shall be referred to an Expert pursuant to the Dispute Resolution Procedure. The Expert shall determine the changes to this Licence that are necessary to return the parties (so far as is practicable) to the position that they would have been in under this Licence had the provision not been or not become invalid, unenforceable or illegal
- 34.4 The parties shall comply with this Licence as amended in accordance with this clause 34.

35 **SURVIVAL OF CLAUSES**

- 35.1 Notwithstanding any other provision of this Licence, clauses 1, 7, 11 to 17, inclusive, and 20 to 37, inclusive, shall survive termination of this Licence.

36 **COUNTERPARTS**

- 36.1 This Licence may be executed in any number of counterparts and the counterparts together shall form one and the same Licence.

37 **GOVERNING LAW**

- 37.1 This Licence shall be governed and construed in accordance with the laws of Ireland.
- 37.2 The parties hereby submit irrevocably to the non-exclusive jurisdiction of the courts of Ireland.

EXECUTED as a Deed on the date first above written

PRESENT when the Official Seal of the )  
Minister for the Environment, Community and )  
Local Government was affixed )

[Signature]  
Signature of Witness

GEORGE BURKE  
Name of Witness

PRINCIPAL PLANNING POLICY  
Address of Witness

LEGISLATION  
Occupation of Witness

[Signature]  
Minister for the Environment, Community and  
Local Government

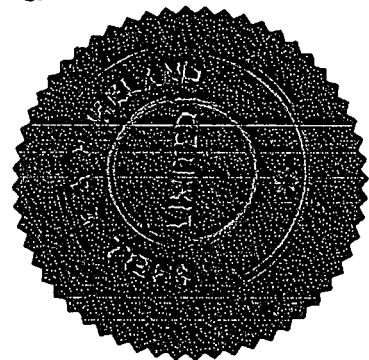
PRESENT when the Common Seal of Shell )  
E&P Ireland Limited was affixed in accordance )  
with its Memorandum and Articles of )  
Association )

[Signature]  
Signature of Witness  
THOMAS STEPHEN BURKE  
Name of Witness

112 WESTLAND SQ, DUBLIN 2  
Address of Witness

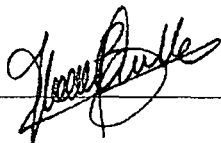
SOLICITOR & ATTORNEY AT LAW  
Occupation of Witness

[Signature]  
Signature of Director  
[Signature]  
Signature of Director/Secretary



PRESENT when the Common Seal of Statoil )  
Exploration (Ireland) Limited was affixed in )  
accordance with its Memorandum and Articles )  
of Association )

Signature of Witness

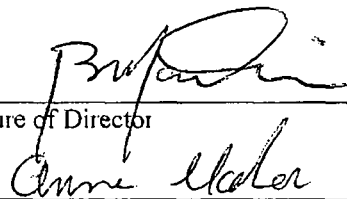


THOMAS STEPHEN BURKE  
Name of Witness

112 WESTLAND SQ DUBLIN 2  
Address of Witness

SOLICITOR AND ATTORNEY AT LAW  
Occupation of Witness

Signature of Director



Signature of Director/Secretary

PRESENT when the undersigned, intending to )  
be legally bound hereby, has duly executed this )  
Licence for and on behalf of Vermilion Energy )  
Ireland Limited )

Signature of Witness

GARRET FANELLY  
Name of Witness

70 SIR JOHN ROGERSON'S QUAY, DUBLIN 2  
Address of Witness

SOLICITOR  
Occupation Witness

Signature of Director

GERARD WALSH  
Name of Director



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## SCHEDULE 1

### FACILITIES

- 1 A gas export pipeline of 20" nominal outer diameter which transits the full width of the Foreshore from west to east ("**Gas Pipeline**").
- 2 A sub-sea control umbilical system of 5" nominal outer diameter containing 5 electrical power and signal cables, 5 hydraulic fluid supply lines, 5 chemical supply lines and 2 produced water discharge lines which transits the full width of the Foreshore from west to east. The umbilical system is split into three discreet umbilicals within the Concrete Tunnel where it crosses the Leenamore river estuary ("**Control Umbilical**").
- 3 A water discharge pipeline of 10" (250mm) nominal outer diameter, terminating not less than 12km from the landfall and outside any European Site, discharging vertically away from the seabed ("**Discharge Pipeline**").
- 4 A concrete segment lined tunnel of nominal 4.2m outer diameter, bored in the Foreshore beneath Sruwaddacon Bay, containing the Gas Pipeline, Control Umbilical and Discharge Pipeline, a fibre optic cable, a signal cable, a spare 10" (250mm) high density polyethylene duct, a spare umbilical, a spare electrical cable and a spare fibre optic cable, all encased in concrete grout within the tunnel ("**Concrete Tunnel**").

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## SCHEDULE 2

### SPECIFICATIONS

- 1 The Facilities shall comply with all applicable Laws
- 2 The Gas Pipeline shall:
  - (a) be constructed of high grade carbon steel with a wall thickness of in the range of 21mm to 27mm;
  - (b) follow the route indicated in the co-ordinates and maps attached in Schedule 4; and
  - (c) be laid on the sea floor within the Licensed Area up to a point approximately 13km from landfall and shall be trenched beneath the sea floor from that point to a point approximately 1.2 km from the landfall, from whence it shall be buried and it shall be buried at the Leenamore River crossing and within the tunnel in Sruwaddacon Bay
- 3 The Control Umbilical shall:

In the section of foreshore west of Glengad:

  - (a) be buried in a duct alongside the Gas Pipeline where the Gas Pipeline is buried and elsewhere at a distance of up to 50 metres to the south of the Gas Pipeline; and
  - (b) be trenched to below the seabed level for its entire length; and

In the section of foreshore east of Glengad:

  - (c) be split into three discreet umbilicals; and
  - (d) be buried at the Leenamore River crossing and within the tunnel in Sruwaddacon Bay
- 4 The Discharge Pipeline shall:
  - (a) be constructed of polyethylene;
  - (b) be buried or trenched alongside the Gas Pipeline;
  - (c) terminate in a seabed vertical diffuser of approximately 0.5 metres in diameter, which stands 1.5 metres above the seafloor and is covered by an overtrawable protection structure; and
  - (d) terminate not less than 12 km from the landfall and outside any European Site
- 5 The Concrete Tunnel shall:
  - (a) be a concrete segment lined tunnel with a nominal outside diameter of 4.2 m;
  - (b) follow the route indicated in the co-ordinates and maps attached in Schedule 4; and
  - (c) be constructed with a minimum depth of cover of 5.5m.

### SCHEDULE 3

#### SPECIAL CONDITIONS

1. Save as modified by this Licence, the construction of the pipeline shall be carried out in accordance with the application for this Licence, which includes the following documents:
  - (a) Corrib Gas Pipeline Application for Foreshore Licence June 2010 (Document No: COR-25-2-MDR0470Rp0039);
  - (b) Corrib Field Development Offshore (Field to Terminal) Environmental Impact Statement (RSK Environment Ltd):
    - (i) Offshore Field to Terminal EIS and Appendices 2001 (reprinted 2008) (the "**Offshore EIS**"); and
    - (ii) Offshore Supplementary Update Report and Appendices (Rev 03), 2010 (the "**2010 Offshore Supplementary Update Report**");
  - (c) 2010 Corrib Onshore Pipeline Environmental Impact Statement (RPS Group) (the "**Onshore EIS**") comprising:
    - (i) Volume 1 of 3: Corrib Onshore Pipeline Non-Technical Summary and EIS;
    - (ii) Volume 2 of 3: Corrib Onshore Pipeline EIS Appendices; and
    - (iii) Volume 3 of 3: Stahmore Peat Deposition Site;
  - (d) Additional Information relevant to the 2010 Corrib Onshore Pipeline Environmental Impact Statement (the "**Additional Information**") comprising:
    - (i) Non-technical Summary; and
    - (ii) Additional Information (to the May 2010 Onshore Pipeline EIS) (Vol 1); and
    - (iii) Geotechnical Data Package (Sruwaddacon Bay Ground Investigation Data 2010) (Vol 1, 2 and 3);

((b), (c) and (d) together the "**EIS**").

**Reason:** In the interest of clarity.

2. The Licensees shall submit for the approval of the Minister (subject to such modifications, if any, as he may deem appropriate) an Environmental Management Plan ("**EMP**") prior to the commencement of any works on the Foreshore. The works shall not commence until the EMP is agreed in writing by the Minister. The EMP shall be submitted for the approval of the Minister annually until the commencement of production, and thereafter as determined by the Minister

The EMP shall provide detailed construction methodology and shall further consider all potential and predicted impacts and how they shall be managed, the mitigation and control measures and how they shall be implemented as well as monitoring proposed.

The EMP shall address separately both construction and operational aspects and should, as a minimum, include:

- (a) Noise and vibration control and monitoring procedures;
- (b) Waste Management Plan;
- (c) Pollution Prevention Procedures;
- (d) Environmental Emergency Procedures and Contingency Plans;
- (e) Procedures for the control and minimisation of surface water discharge and suspended solids movement onto the foreshore; and
- (f) Plans for the reinstatement of the foreshore

**Reason:** In the interest of environmental protection, monitoring and control.

3. The Licensees shall:

- (a) at all times comply with the EMP;
- (b) provide the Minister and/or the EMG with such information in relation to environmental management and monitoring pursuant to the EMP as is reasonably required from time to time; and
- (c) provide the Minister and/or the EMG with such information in relation to compliance with the EMP as is reasonably required from time to time in respect of works carried out on or in the Licensed Area

**Reason:** In the interest of environmental protection, monitoring and control

4 All mitigation measures set out in the Onshore and Offshore EISs, and specifically section 6.4 of Appendix J1 and Section 6 of Appendix P of the Onshore EIS, shall be implemented in full

**Reason:** In the interest of nature conservation and protection.

5 The Licensees shall engage the services of a suitably qualified Archaeologist. The Archaeologist shall monitor all ground disturbance works and tunnel arisings associated with the development

**Reason:** In order to protect the archaeological heritage of the area and secure preservation of any remains that may exist within the site

6. Archaeological monitoring shall be licensed under the National Monuments Acts 1930-2004

**Reason:** In order to protect the archaeological heritage of the area and secure preservation of any remains that may exist within the site.

7 Should archaeological remains be found the work at that location may be stopped by the licensed archaeologist pending a decision by the National Monuments Service of the Department of Arts, Heritage and the Gaeltacht on how best to deal with the archaeology.

**Reason:** In order to protect the archaeological heritage of the area and secure preservation of any remains that may exist within the site.

- 8 The Licensees shall comply with directions from the National Monuments Service of the Department of Arts, Heritage and the Gaeltacht with regard to any mitigation actions required (preservation in situ or/and excavation) and shall facilitate the archaeologist in recording any material found.

**Reason:** In order to protect the archaeological heritage of the area and secure preservation of any remains that may exist within the site.

- 9 The Licensees shall employ a suitably qualified marine mammal observer for the duration of offshore cable laying operations on the Foreshore. Commencement of operations shall be delayed if the marine mammal observer notes cetaceans within 500m of the cable laying vessel within 20 minutes of the planned commencement of works. Cable laying may continue if weather conditions deteriorate or if marine mammals enter the Exclusion Zone following the appropriate start up. A log of the marine mammal observer operations should be submitted to the Department of Arts, Heritage and the Gaeltacht (National Parks and Wildlife Service), following completion of these works.

**Reason:** In order to protect marine mammals

- 10 The ongoing Broadhaven Marine Mammal Monitoring Programme, carried out by scientists from the Coastal and Marine Resources Centre of University College Cork, undertaken in previous years and consisting of visual survey (cliff and boat-based), acoustic monitoring and photo-identification of Bottlenose Dolphins should continue for at least one year following completion of construction activities. Annual reporting of this programme should be delivered to the Department of Arts, Heritage and the Gaeltacht (National Parks and Wildlife Service).

**Reason:** In order to protect marine mammals

- 11 The Code of Conduct (as set out in Appendix 7-16 of the 2010 Offshore Supplementary Update Report) ("**Code of Conduct**") shall be applied to the full extent of the works within the Foreshore irrespective of Natura 2000 designations.

**Reason:** In order to protect marine mammals.

- 12 All vessels approaching, leaving or working within or adjacent to Broadhaven Bay shall stay within the operating corridors shown on the Chart entitled "*Operating Corridors for Construction Vessels within the Region of Broadhaven Bay*" in Appendix 7-16 of the 2010 Offshore Supplementary Update Report

**Reason:** In order to protect marine mammals.

- 13 Blasting of rock on the Foreshore shall not be permitted

**Reason:** In order to protect marine mammals.

- 14 The Licensees shall consult with Inland Fisheries Ireland in relation to the methodology and timing of the Leenamore River crossing

**Reason:** In order to protect the passage of migratory fish.

- 15 The Licensees shall continue to carry out a monitoring programme for wintering waterbirds, as agreed with the Department of Arts, Heritage and the Gaeltacht (National Parks and Wildlife Service), for the duration of the works on the Foreshore and for a minimum of 1 year following completion of the works.

**Reason:** In the interest of nature conservation and protection

- 16 The Licensees shall submit a report to the Department of Arts, Heritage and the Gaeltacht (National Parks and Wildlife Service) on the completed rock revetment within and adjacent to the Broadhaven Bay European Site (Site Code IE000472) which will include the length and width of each segment.

**Reason:** In the interest of nature conservation and protection

- 17 The Licensees shall furnish the names/registered number of all vessels involved in the operation to the Marine Survey Office in Dublin to ensure compliance with respect to Irish load line and other relevant vessel certification

**Reason:** In the interest of navigational safety.

- 18 The Licensees shall arrange the publication by the Department of Transport, Tourism and Sport of a Marine Notice giving general description of operations and approximate dates of commencement and completion of works on the Foreshore

**Reason:** In the interest of navigational safety

- 19 The Licensees shall arrange the publication in a newspaper circulating locally of a Marine Notice giving general description of operations and approximate dates of commencement and completion in respect of works on the Foreshore

**Reason:** In the interest of navigational safety.

- 20 Before the pipeline becomes operational, the reliability rating of the offshore pipeline overpressure protection system and of the onshore pipeline overpressure protection system shall be certified by an external independent person, with particular competence in this matter, to the satisfaction, as confirmed in writing, of the authority for the time being having statutory competence (that is, the Minister for Communications, Energy and Natural Resources or the Commission for Energy Regulation, as the case may be) or, in the alternative, by the said statutory authority itself. Written confirmation of such certification is to be provided to the Department before the pipeline is brought into operation.

**Reason:** In the interest of the protection of human health and safety.

- 21 The onshore upstream pipeline shall not be operated for the purpose of bringing gas onshore from the Corrib Gas Field until such time as the construction, testing and commissioning of the pipeline, the Landfall Valve Installation and the equipment and ancillary facilities to the pipeline have been completed to the certified satisfaction of the authority for the time being having statutory competence (that is, the Minister for Communications, Energy and Natural Resources or the Commission for Energy Regulation, as the case may be). Written confirmation of such certification is to be provided to the Department before the pipeline is brought into operation.

**Reason:** In the interest of the protection of human health and safety.

- 22 (a) The Maximum Allowable Operating Pressure of the pipeline on foreshore shall be 150 barg in the case of the Offshore pipeline and 100 barg in the case of the Onshore pipeline.
- (b) The onshore pipeline shall be hydro tested to 504 barg pressure prior to the commencement of operation.

- (c) Written confirmation of such testing is to be provided to the Department before the pipeline is brought into operation.

**Reason:** In the interest of the protection of human health and safety.

23. Prior to commencement of operations, the Licensees shall obtain a safety permit from the authority for the time being having statutory competence (that is, the Minister for Communications, Energy and Natural Resources or the Commission for Energy Regulation, as the case may be). A copy of the safety permit is to be provided to the Department prior to the commencement of operations

**Reason:** In the interest of the protection of human health and safety

24. An Annual Pipeline Report shall be made by the Licensees before the 31st day of January every year of operation and shall be submitted the authority for the time being having statutory competence (that is, the Minister for Communications, Energy and Natural Resources or the Commission for Energy Regulation, as the case may be). A summary of this report is to be provided to the Department.

**Reason:** In the interest of the protection of human health and safety.

25. The Licensees shall develop and implement the Traffic Management Plan proposed in the Onshore EIS in agreement with Mayo County Council.

**Reason:** In the interest of traffic and public safety.

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## SCHEDULE 4

### LICENSED AREA

The Licensed Area is comprised of the four areas delineated by the line marked in red on the attached maps numbered EP200803224000002I and COR25MDR0470Mi2162R09 (which maps form part of this Schedule 4), more particularly described as follows:

- 1 A corridor 100 metres wide centred on the pipeline route shown on Map Number EP200803224000002I attached, whose centre is defined by an imaginary line:

- (a) from a point 54deg 20.64min N and 10deg 25 99min W
- (b) through a point 54deg 20 51min N and 10deg 21.73min W
- (c) through a point 54deg 20.41min N and 10deg 10.14min W
- (d) through a point 54deg 20.00min N and 10deg 4.82min W
- (e) through a point 54deg 20.16min N and 10deg 1 46min W
- (f) through a point 54deg 19.82min N and 9deg 59.71min W
- (g) through a point 54deg 16.90min N and 9deg 52.74min W
- (h) through a point 54deg 17 19min N and 9deg 51 15min W
- (i) to a point 54deg 17 00min N and 9deg 49.24min W,

and with changes of direction at each of these intermediate points in the form of a curve of radius 3000 metres, together with the additional area below high water at the landfall encompassed by an imaginary line:

- (j) from a point 54deg 17 05min N and 9deg 49.06min W
- (k) through a point 54deg 17.09min N and 9deg 49.06min W
- (l) through a point 54deg 17.39min N and 9deg 51 01min W
- (m) through a point 54deg 17.04min N and 9deg 52 39min W
- (n) through a point 54deg 16.98min N and 9deg 52 38min W
- (o) to a point 54deg 16.96min N and 9deg 49.26min W.

2. Those parts of Sruwaddaon Bay shown shaded yellow and outlined in red, and in blue where bounded by the line of high water, titled Area 1, Area 2 and Area 3 on Map Number COR25MDR0470Mi2162R09 attached, more particularly described as follows:

- (a) Area 1 is that area of Foreshore contained within a corridor 100m wide centred on the pipeline route shown in green on Map Number COR25MDR0470Mi2162R09 passing through the points N, 2, 3, 4, 5, 6 and G as shown in, and with coordinates as given in, that map and with radii of curvature as shown in that map, and which is bounded by a line marked in blue following the line of high water at both its north-western and south-eastern extremities.



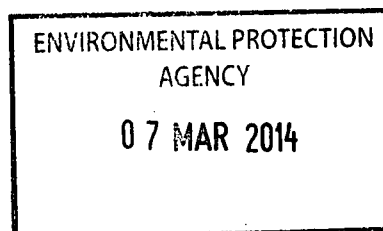
- (b) Area 2 is that area of foreshore bounded by a line joining points O, P, Q, R, S and O as shown in and with coordinates as given in Map Number COR25MDR0470Mi2162R09, and which follows the line of high water marked in blue between points Q, R and S.
- (c) Area 3 is that area of foreshore bounded by a line joining points T, U, V, W, X and T as shown in and with coordinates as given in Map Number COR25MDR0470Mi2162R09, and which follows the line of high water marked in blue between points U, V, W, X and T.

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**REPORT OF**  
**THE MARINE LICENCE VETTING COMMITTEE (MLVC)**  
**TO**  
**THE MINISTER FOR THE ENVIROMENT, HERITAGE AND**  
**LOCAL GOVERNMENT**  
**ON**  
**THE APPLICATION SUBMITTED BY SHELL E & P**  
**IRELAND LTD (SEPIL) IN RESPECT OF A FORESHORE**  
**LICENCE RELATED TO THE DEVELOPMENT OF THE**  
**CORRIB GAS FIELD**

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**01 March 2011**

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## Executive Summary

In June 2010 Shell E&P Ireland Ltd (SEPIL) submitted an application, accompanied by an Environmental Impact Statement, for a permit for works on the Foreshore. The proposed works comprise the foreshore elements of the Corrib Gas Pipeline (onshore and offshore) system which forms an integral part of the Corrib Gas Field Development. The details of the offshore pipeline system remain unchanged for the development permitted in the Foreshore Licence granted in May 2002.

Produced water arising from the gas production will be treated onshore and subsequently discharged, via the umbilical, at the well head outside the foreshore. The umbilical, which has not yet been laid, will be buried over its full length.

It is proposed to construct a 4.6 km long 4.2m outer diameter concrete tunnel under Sruwaddacon Bay. The tunnel will be bored from east to west by a tunnel boring machine (TBM) and will be constructed by stepwise installation of concrete segments forming 'rings' which will be grouted externally with cement grout. The tunnel will be installed with a minimum depth of cover of 5.5m. Work within the tunnel will be carried out on a 24-hour basis. All associated construction activities, including temporary working areas, site compounds and haul roads will be on land at Aghoos (main tunneling compound and tunnel starting pit) and Glengad (tunnel reception pit) and will be outside the foreshore.

If required, a 12m x 15m intervention pit would be constructed using sheet piles or other such methods from a pontoon / barge accessed by other support vessels. A temporary jetty, would be required as a marine access/egress point and for transferring materials to/from the pontoon/barge.

It is also proposed to construct a 40m long crossing of the mouth of Leenamore River at the eastern end of Sruwaddacon Bay as shown on drawing DG0102 Rev P03 using conventional trenching methods. This crossing will contain the same elements as listed above to be included in the proposed tunnel. The services umbilical and water discharge pipeline will be installed within a 20 inch (508mm) conduit laid parallel to the gas pipeline.

It is anticipated that the overall construction programme for the onshore pipeline, including works on the foreshore, will take 26 months to complete.

On 18<sup>th</sup> January 2011, following an oral hearing, Planning Permission for the facility, including construction of the tunnel under Sruwaddacon Bay and the crossing of the Leenamore River, was granted by An Bord Pleanála, subject to 58 conditions.

## **Public Consultation & Prescribed Bodies Consultation**

An application for a Foreshore Licence, accompanied by an EIS, was submitted by SEPIL to the Department Environment, Heritage and Local Government on 16<sup>th</sup> June 2010. The statutory public consultation period, during which written comments on the proposed development were submitted to the Department, ran from the 6<sup>th</sup> July to 30<sup>th</sup> August 2010. The Department received 453 submissions on various aspects of the proposed development and these were posted on the Department's Web site. SEPIL's responses to these submissions were also posted on the Department's Web site.

On 19<sup>th</sup> October 2010 SEPIL submitted additional information comprising further information in relation to the May 2010 Onshore Pipeline EIS and geotechnical data gathered during licenced site investigation works in Sruwaddacon Bay during May – September 2010. This information was made available to the public and the period during which written comments on this additional information were submitted to the Department, ran from the 26<sup>th</sup> October to 23<sup>rd</sup> November 2010. The Department received 12 submissions during this period and these submissions were also posted on the Department's Web site.

The statutory consultation period in respect of the application received in June 2010, during which written comments on the proposed development were invited from statutory prescribed bodies, ran from the 6<sup>th</sup> July to 30<sup>th</sup> August 2010. The prescribed bodies concerned were Mayo County Council, An Taisce, Fáilte Ireland, Department of Agriculture Fisheries and Food (DAFF), Department of Communications Energy and Natural Resources (DCENR). One submission was received from DCENR during this consultation.

The statutory consultation period in respect of the additional information received in October 2010 during which written comments on the proposed development were invited from the same statutory prescribed bodies, ran from the 1<sup>st</sup> November to 27<sup>th</sup> December 2010. One submission was received from An Taisce during this consultation.

## **Documents Considered by the MLVC**

The following documents were considered by the MLVC:

SEPIL Corrib Field Development Corrib Gas Pipeline Foreshore Licence Application June 2010 (Document No. COR-25-2-MDMR0470Rp0039) and accompanying Corrib Onshore Pipeline Environmental Impact Statement May 2010 (3 Volumes).

Corrib Natural Gas Field Development (Offshore Field to Terminal) Environmental Impact Statement, 2001 and Offshore Supplementary Update Report May 2010.



Submissions received on foot of the public consultation period which ran from 6<sup>th</sup> July to 30<sup>th</sup> August 2010 and SEPIL response to these submissions.

Corrib Pipeline Development 2010 Environmental Impact Statement Further Information 18<sup>th</sup> October 2010.

Corrib Onshore Pipeline Geotechnical Data Package Sruwaddacon Bay Ground Investigation 2010 October 2010.

Submissions received on foot of the public consultation period in relation to the EIS additional information which ran from 26<sup>th</sup> October to 22<sup>nd</sup> November 2010 and SEPIL's response to these submissions.

Submissions received from prescribed bodies in respect of the original application, the additional information and SEPIL's response to these submissions.

## **Conclusions and Recommendations**

The MLVC reviewed both technical and scientific aspects of the EIS. Overall, the Onshore and Offshore Environmental Impact Statements and Additional Information submitted by the developer in relation to the proposed gas pipeline development covers all key parameters required to be assessed under the relevant legislation. The MLVC is satisfied that the relevant EU and National EIA legislative requirements have been met.

The MLVC is also satisfied that the Onshore and Offshore Environmental Impact Statements, including the Natura Impact Statement, and Additional Information submitted by the developer provides sufficient details to allow an assessment of the impacts of the proposed works on the foreshore on Natura 2000 sites to be carried out.

Additionally the MLVC is satisfied that the purpose and objective of the proposed works on the foreshore are adequately explained. In addition, the committee is satisfied that the environmental information provided is sufficient to make a recommendation on the proposed development.

The MLVC is satisfied that, subject to compliance with the specific conditions set out at the end of this report the works on the foreshore would not have significant adverse impacts on human health and safety, the marine environment or designated Natura 2000 sites in the area and that there are no substantive grounds for a refusal, based upon environmental considerations. The MLVC recommends that the Minister issues the necessary Foreshore permit to allow the proposed works on the foreshore to proceed

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## 1. Introduction

Shell E & P Ireland Ltd (SEPIL) is developing the Corrib Gas Field off the coast of Co. Mayo. The proposed development will operate as a subsea production facility tied back to an onshore processing terminal and will include:

- The offshore wells
- Subsea facilities and offshore pipeline to landfall
- Onshore pipeline from landfall to terminal
- Gas terminal at Bellnaboy

With the exception of the onshore pipeline and an umbilical cable to the wellhead from shore the construction and installation of the above elements has been completed.

In February 2009 SEPIL submitted an application to An Bord Pleanála for approval of the proposed onshore pipeline under the Planning and Development (Strategic Infrastructure) Act 2006. In November 2009 An Bord Pleanála, following an Oral Hearing, invited SEPIL to make alterations to the proposed development including, *inter alia*, a modification of the pipeline route so that the route would be within Sruwaddacon Bay. The Bord requested SEPIL to submit a revised E.I.S including an Appropriate Assessment (now termed a Natura Impact Statement) of the impact of the development on Natura 2000 sites.

In May 2010 the revised EIS was submitted to An Bord Pleanála for consideration and was in June also submitted for statutory approval to the Department of Communications, Energy and Natural Resources (under the Gas Act) and Department of Environment, Heritage and Local Government both as a statutory consultee under the Planning and Development (Strategic Infrastructure) Act 2006 and under the Foreshore Acts.

## 2. Legislative Framework and Statutory Permissions Required

The development of the Corrib Gas Field requires a number of permits and consents, including:

- Approval from An Bord Pleanála under the Planning and Development (Strategic Infrastructure) Act 2006. On 18<sup>th</sup> January 2011, following an oral hearing, Planning Permission for the facility was granted, subject to 58 conditions.
- Order, by An Bord Pleanála, for the Compulsory Acquisition of land under the Gas Act 1976 (as amended)
- Approval from the Minister for Communications Energy and Natural Resources of the Plan of Development submitted pursuant to the Petroleum Lease issued

under section 13 of the Petroleum and Other Minerals Development Act 1960, as amended

- Consent from the Minister for Communications Energy and Natural Resources pursuant to section 5(2) of the Continental Shelf Act 1968, as amended
- A consent from the Minister for Communications Energy and Natural Resources pursuant to section 40(1) of the Gas Act, 1976 as amended
- An Integrated Pollution Prevention Control (IPPC) licence from the EPA.
- A safety permit from the Commission for Energy Regulation (CER) under the Petroleum (Exploration and Extraction) Safety Act, 2010.
- A Foreshore permit from the Minister for Environment, Heritage and Local Government, under the Foreshore Acts, 1933 -2009

This report deals with the application for a Foreshore permit. The Foreshore Acts require that a lease or licence must be obtained from the Minister for the Environment, Heritage and Local Government for the carrying out of works or placing structures or material on, or for the occupation of or removal of material from, State-owned foreshore. The foreshore is the seabed and shore below the line of high water of ordinary or medium tides and extends outwards to the limit of twelve nautical miles (approximately 22.24 kilometres).

### **3. Foreshore Permit Application and Project Description**

In June 2010 Shell E&P Ireland Ltd (SEPIL) submitted an application, accompanied by an Environmental Impact Statement, to the Minister for Environment Heritage and Local Government, for a permit for works on the Foreshore. The proposed works comprise the foreshore elements of the Corrib Gas Pipeline (onshore and offshore) system which forms an integral part of the Corrib Gas Field Development. The overall pipeline system contains the following elements:

- 20" (508mm) welded steel gas pipeline offshore and onshore
- Service umbilical – onshore and offshore
- Fibre optic cables and signal cable (Landfall valve installation to terminal only)
- 10" (250mm) HDPE water outfall pipeline from the terminal to permitted discharge location.

The details of the offshore pipeline system remain unchanged for the development permitted in the Foreshore Licence granted in May 2002.

The outfall pipeline was installed in 2009, at the same time as the gas pipeline and terminates approximately 2.5 km north of Erris Head. This pipeline will carry treated surface water run-off only. The discharge is subject to an IPPC licence from the EPA and

will be the only operational discharge from the development of the Corrib Gas field on the foreshore.

Produced water arising from the gas production will be treated onshore and subsequently discharged, via the umbilical, at the well head outside the foreshore. The umbilical, which has not yet been laid, will be buried over its full length.

East of the landfall location at Glengad the foreshore elements of the proposed development incorporate the following

### **3.1. Concrete tunnel under Sruwaddacon Bay:**

It is proposed to construct a 4.6 km long 4.2m outer diameter concrete tunnel under Sruwaddacon Bay, as shown on Drawings DG0102, Rev P03 and Drawings DG0401 Rev 3– DG0404 Rev 3 that accompanied the application.

The proposed tunnel will contain the following elements:

- A 20" (508mm) welded steel gas pipeline
- Services umbilicals, fibre optic cables and signal cables
- 10" (250mm) HDPE water outfall pipeline

In addition the proposed tunnel will incorporate the following elements:

- Spare 10 inch (250mm) HDPE duct
- Spare umbilical
- Spare electrical cable
- Spare fibre optic cable

The tunnel will be bored from east to west by a tunnel boring machine (TBM) and will be constructed by stepwise installation of concrete segments forming 'rings' which will be grouted externally with cement grout. The tunnel will be installed with a minimum depth of cover of 5.5m. Work within the tunnel will be carried out on a 24-hour basis. During a typical hour of tunnel construction 15-20 minutes will be spent tunneling. The remaining 40 - 45 minutes will be spent erecting tunnel segments and extending utility systems such as ventilation ducting and drilling fluid and tunnel arisings transport. The drilling fluid used will be a suspension of water and bentonite.

All associated construction activities including temporary working areas, site compounds and haul roads will be on land at Aghoos (main tunneling compound and tunnel starting pit) and Glengad (tunnel reception pit) and will be outside the foreshore.

If required, a 25m x 15m intervention pit would be constructed using sheet piles or other such methods from a pontoon / barge accessed by other support vessels. A temporary jetty, as shown on drawing DG603 Rev P03, would be required as a marine access/egress point and for transferring materials to/from the pontoon/barge. The proposed area for the jetty is located near the eastern end of the tunnel at Aghoos as shown on drawings DG0102 Rev P03 and DG0305 Rev P03.

### **3.2. A crossing of the Leenamore River**

It is proposed to construct a 40m long crossing of the Leenamore River at the eastern end of Sruwaddacon Bay as shown on drawing DG0102 Rev P03 using conventional trenching methods. This crossing will contain the same elements as listed above to be included in the proposed tunnel. The services umbilical and water discharge pipeline will be installed within a 20 inch (508mm) conduit laid parallel to the gas pipeline.

It is anticipated that the overall construction programme for the onshore pipeline, including works on the foreshore, will take 26 months to complete.

## **4. Public Consultation**

An application for a Foreshore Licence, accompanied by an EIS, was submitted by SEPIL to the Department Environment, Heritage and Local Government on 16<sup>th</sup> June 2010. The statutory public consultation period, during which written comments on the proposed development were submitted to the Department, ran from the 6<sup>th</sup> July to 30<sup>th</sup> August 2010. The Department received 453 submissions on various aspects of the proposed development and these were posted on the Department's Web site. SEPIL's responses to these submissions were also posted on the Department's Web site.

On 19<sup>th</sup> October 2010 SEPIL submitted additional information comprising further information in relation to the May 2010 Onshore Pipeline EIS and geotechnical data gathered during licenced site investigation works in Sruwaddacon Bay during May – September 2010. This information was made available to the public and the period during which written comments on this additional information were submitted to the Department, ran from the 26<sup>th</sup> October to 23<sup>rd</sup> November 2010. The Department received 12 submissions during this period and these submissions were also posted on the Department's Web site as were SEPIL's response to the submissions.

## **5. Prescribed Bodies Consultation**

The statutory consultation period in respect of the application received in June 2010, during which written comments on the proposed development were invited from statutory prescribed bodies, ran from the 6<sup>th</sup> July to 30<sup>th</sup> August 2010. The prescribed bodies concerned were Mayo County Council, An Taisce, Fáilte Ireland, Department of Agriculture Fisheries and Food (DAFF), Department of Communications Energy and Natural Resources (DCENR). One submission was received from DCENR during this consultation and this submission was posted on the Department's Web site

The statutory consultation period in respect of the additional information received in October 2010 during which written comments on the proposed development were invited from the same statutory prescribed bodies, ran from the 1<sup>st</sup> November to 27<sup>th</sup> December 2010. One submission was received from An Taisce during this consultation and this submission was posted on the Department's Web site.

## **6. Documents Considered by the MLVC**

SEPIL Corrib Field Development Corrib Gas Pipeline Foreshore Licence Application June 2010 (Document No. COR-25-2-MDMR0470Rp0039) and accompanying Corrib Onshore Pipeline Environmental Impact Statement May 2010 (3 Volumes).

Corrib Natural Gas Field Development (Offshore Field to Terminal) Environmental Impact Statement, 2001 and Offshore Supplementary Update Report May 2010.

Submissions received on foot of the public consultation period which ran from 6<sup>th</sup> July to 30<sup>th</sup> August 2010 and SEPIL response to these submissions.

Corrib Pipeline Development 2010 Environmental Impact Statement Further Information 18<sup>th</sup> October 2010.

Corrib Onshore Pipeline Geotechnical Data Package Sruwaddacon Bay Ground Investigation 2010 October 2010.

Submissions received on foot of the public consultation period in relation to the EIS additional information which ran from 26<sup>th</sup> October to 22<sup>nd</sup> November 2010 and SEPIL's response to these submissions.

Submissions received from prescribed bodies in respect of the original application, the additional information and SEPIL's response to these submissions.

## **7. Submissions and Developer's Responses**

The issues and concerns raised were identified by examining each submission in detail. SEPIL in their comments on the submissions identified 69 number issues raised in the first round of public consultation and 18 number issues in the second round. Having examined the submissions and the responses to them from SEPIL a total of 103 number separate issues that would encompass all the issues and concerns raised were identified.

These 103 issues were listed in a matrix against the 48 different submissions, 417 of the 465 submissions received being identical, so that the concerns and issues raised in each submission could be addressed. This matrix is provided in Appendix A

The issues raised were amalgamated into 25 more general topics which are shown in Table 1 below together with the issue number from Appendix A and the relevant submission number.



Table 1. Topics, Issues raised in consultations and relevant submission numbers.  
The submission numbers refer to the order in which the submissions are listed and displayed on the DEHLG Website

	<b>Topic</b>	<b>Issue Number</b>	<b>Submission Number</b>
1	Safety of pipeline	4, 10,30,33,35, 45, 58, 59, 64, 74,75, 76, 87, 97	1, 2, ,6, 9, 10, 11, 12, 13, 14, 15, 16, 19, 22, 24, 26, 27, 29, 33, 35, 37, 41, 44, 45 47,
2	Impact of works on Natura 2000 sites (SAC & SPA)	1, 8, 11, 14, 15, 16, 20, 21, 25, 26, 27, 2939, 51,52, 54,56, 77, 78,79, 80, 81, 83, 88, 89, 90, 91, 94, 95, 99, 100.	1, 2, 4, 5, 10, 11, 13, 14, 15,16, 18, 19, 21, 22, 24, 25, 26, 27, 28, 29, 30, 32, 33, 35, 37, 38, 39, 40, 41, 42, 43, 44, 47, 48
3	Impact of tunnelling (vibration) on houses & landslide risk	3, 5, 19, 47,57	1, 2, 11, 13, 14, 15, 16, 22, 24, 25,26, 27, 29, 30, 33, 35, 36, 41, 44
4	Impacts of works on migratory fish & fishing activity.	11, 17, 37, 44, 50, 95	1, 5, 9, 11, 19, 22, 24,25, 27, 29, 33, 37, 41, 44
5	Stability of tunnel and risk of surface intervention	13, 94, 96	5, 11, 35, 36, 44, 45
6	Adequacy and Legality of Site Investigation works	2, 12, 23, 72, 86, 100	1, 5, 7, 10, 14, 15, 16,19, 22, 24, 25, 26, 27, 29, 30, 32,33, 35, 37, 41, 48
7	Adequacy of consultation	9, 66	14, 15, 16, 26, 27, 29, 35, 47
8	Decommissioning	55	26
9	Impact of operational discharges	31	1
10	Alternatives	38, 40, 41, 42	5, 11, 12, 19, 40, 47,
11	Visual impact	36	2
12	Archaeology	69, 93	29, 35, 36, 42
13	Project splitting	6, 43, 100, 101	4, 5, 8, 14, 15, 16, 19, 38, 41, 44, 45, 48
14	Construction traffic impacts	7, 53, 82	14, 15, 16, 19, 22, 24, 26, 27, 33, 38, 39, 40, 48
15	Oral Hearing	70	1, 5, 6, 9, 10, 20, 22, 24, 26, 27, 32, 33, 36, 37, 40, 44, 46, 47
16	Run-off and pollution from terrestrial works	18, 22,28,48,	1, 19, 26, 38
17	Greenhouse Gas emissions	73	24
18	Depletion of local quarries	62	26
19	Effects on property prices, house insurance	61, 84	26, 41

	<b>Topic</b>	<b>Issue Number</b>	<b>Submission Number</b>
20	On land construction methodology	24,49,	1, 19, 38
21	Storage and disposal of waste	32	1
22	Future finds	34	2, 13
23	Community Issues	67, 68, 71	18, 19, 22, 24, 25, 26, 27, 29, 31, 33, 35, 37
24	Need for offshore cetacean monitoring	65	19
25	Air quality	60	26

## **8. Compliance with Environmental Impact Assessment (EIA) Legislation**

The MLVC reviewed both technical and scientific aspects of the EIS. Overall, the Onshore and Offshore Environmental Impact Statements and Additional Information submitted by the developer in relation to the proposed gas pipeline development covers all key parameters required to be assessed under the relevant legislation. The MLVC is satisfied that the relevant EU and National EIA legislative requirements have been met.

The MLVC is also satisfied that the Onshore and Offshore Environmental Impact Statements, including the Natura Impact Statement, and Additional Information submitted by the developer provides sufficient details to allow an assessment of the impacts of the proposed works on the foreshore on Natura 2000 sites to be carried out.

## 9. Principal Issues Raised in Submissions

The MLVC is satisfied that the 25 topics listed in Table 1 encompass the main issues raised in the submissions received. Discussion and recommendations, where relevant, on these topics follow

### 9.1. Safety of pipeline

An overriding issue raised in most submissions was the safety of the community in proximity to the pipeline.

The safe design, installation and operation of the pipeline are the statutory responsibility of the Minister for Communications, Energy and Natural resources. Under the Petroleum (Exploration and Extraction) Safety Act 2010 this statutory responsibility is being vested in the Commission for Energy Regulation.

However the rerouting of the pipeline in a tunnel under Sruwaddacon Bay means that more houses are now closer to the foreshore section of the 'Onshore Pipeline' than was previously the case.

An Bord Pleanala, in its request to SEPIL to consider this re-routing, '*having regard to the fact that Ireland has not adopted a risk based framework for decision making on major hazard pipelines (transporting wet gas)*' considered that the Board should adopt the UK HSE risk thresholds for assessment of the individual risk level associated with the pipeline.

The Board also considered that it should adopt a minimum pipeline to dwelling distance such that a person at that distance from the pipeline would be safe in the event of a failure of the pipeline.

The individual risk at the pipeline of receiving a dangerous dose of thermal radiation is assessed by specialist consultants to SEPIL, Det Norske Veritas, in appendix Q to the EIS, as a risk of  $3 \times 10^{-9}$  per year [3 chances every 1,000,000,000 years]. This is well below the threshold of 'broadly acceptable' risk set by an Bord Pleanala at  $1 \times 10^{-6}$  per year [1 chance in 1,000,000 years] as per the UK HSE risk thresholds.

This individual risk at the Landfall Valve Installation (LVI) is assessed as  $7 \times 10^{-6}$  per year, due to the higher Maximum Allowable Operating Pressure (MAOP) at the LVI and the statistical risk levels related to the facilities at the LVI. This is within the level of risk set by an Bord Pleanala as 'tolerable if As Low as Reasonably Practical (ALARP)' [ $1 \times 10^{-5}$  to  $1 \times 10^{-6}$  per year] as per UK HSE. SEPIL have demonstrated compliance with ALARP in the design and specification of the LVI. The risk reduces to  $1 \times 10^{-6}$  per year, 'broadly acceptable', at a distance of 63 m from the LVI.

At the request of an Bord Pleanala SEPIL analysed the consequences of a full bore failure of the pipeline immediately igniting into a fireball. The analysis found that in the worst

case failure buildings (assumed to be constructed of timber) more than 216 m from the pipeline would provide safe shelter and a person standing beside such a building would not receive a dangerous level of thermal radiation before escaping to the building. All dwellings are outside this 216m distance from the pipeline route.

The MLVC notes that the relevant design codes for the pipeline dictate that a design factor of 0.72 should be used for the pipeline design. This would result in a thinner pipe wall than the 27.1mm proposed and would dictate a minimum occupied building proximity distance of 63m. However it has been specified by the Department of Communications, Energy and Natural Resources, in accordance with the recommendations of the Advantica Independent Safety Review, endorsed by the TAG, that a conservative design factor of 0.3 should be used for the pipeline. This results in the pipe wall thickness of 27.1mm as designed. In accordance with the relevant code, IS 328, a pipeline of this wall thickness designed with a factor of 0.3 would require a minimum building proximity of 3 m.

As the nearest dwelling to the LVI is 280 m distant and the nearest dwelling to the pipeline route is 234 m distant it can be seen that the building proximity distance stipulations of the design codes have been greatly exceeded.

The MLVC considers that the conservative design approach dictated by the setting of a conservative design factor of 0.3 and the setting of a minimum building proximity distance based on a qualitative risk (a person being safe at that distance in the event of a failure) independent of the quantitative risk (taking account of the likelihood of a failure) is appropriate.

The MLVC notes that the Petroleum (Exploration and Extraction) Safety Act 2010 requires the establishment of a risk – based petroleum safety framework and the granting of a safety permit under this framework for the pipeline and facilities.

The MLVC considers that conditions relating to public safety should be attached to a foreshore permit if one is granted. These conditions should deal with

- compliance with the relevant Codes,
- Statutory Safety Certification of the offshore and onshore pipelines and associated facilities including the Landfall Valve Installation (LVI)
- Maximum Allowable Operating Pressure (MAOP)
- Submission of an annual pipeline report

The MLVC considers that compliance with these conditions will adequately address the concerns relating to the safety of the pipeline throughout its length.

## **9.2. Impact of works on Natura 2000 sites (SAC & SPA)**

An issue raised in multiple submissions was the impact of the proposed works on designated Natura 2000 sites as well as specific species of conservation interest e.g. kingfisher, otter.

Natura 2000 is the centrepiece of EU nature and biodiversity policy. It is an EU wide network of nature protection areas the aim of which is to assure the long-term survival of Europe's most valuable and threatened species and habitats. This network comprises Special Areas of Conservation (SAC) designated by Member States under the Habitats Directive, and also incorporates Special Protection Areas (SPAs) which they designate under the 1979 Birds Directive.

Natura 2000 is not a system of strict nature reserves where all human activities are excluded. Article 6 (3) of the Habitats Directive requires that *"any plan or project not directly connected with or necessary to the management of the site but likely to have significant impact thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessed for its implications for the site in view of the sites conservation objectives. ...."*

The development must be assessed in terms of temporary and permanent impacts in light of the habitats' and species' resilience and/or recoverability for which the site is designated.

### **9.2.1. Special Protection Areas designated under Council Directive 79/409/EEC (Birds Directive)**

The Birds Directive recognises that habitat loss and degradation are the most serious threats to the conservation of wild birds. It therefore places great emphasis on the protection of habitats for endangered as well as migratory species (listed in Annex I), especially through the establishment of a coherent network of Special Protection Areas (SPAs) comprising all the most suitable territories for these species. . Bird species for which the site is designated are known as "species of conservation interest".

In a site that is designated as an SPA, the bird species which are of conservation interest at that site must be protected as must the habitats that they use for feeding, resting and breeding.

### **9.2.2. Special Areas of Conservation (SAC) designated under Council Directive 92/43/EEC (Habitats Directive)**

Special Areas of Conservation are designated for a range of habitats and species listed on Annex I and Annex II respectively of the Habitats Directive. The habitats and species for which a site is designated are known as Qualifying Interests and are considered to be good representative examples of the habitat or an important area for the species.

### 9.2.3. Annex IV Mammals

Article 12 of the Habitats Directive requires that species listed on Annex IV of the Directive must be afforded strict protection, '.....prohibiting

- i) *all forms of deliberate capture and killing of specimens of these species in the wild*
- ii) *deliberate disturbance to these species, particularly during the period of breeding, rearing, hibernation and migration.*
- iii) *deliberate destruction or taking of eggs from the wild*
- iv) *deliberate destruction or deterioration of breeding sites or resting places.'*

Annex IV species relevant to this project are as follows:

- All cetaceans
- Otters
- All bats

### 9.2.4. Protection under the Wildlife Act

In addition to the EU Habitats and Birds Directive the Wildlife Act, 1976, the Wildlife Amendment Act, 2000 and the Wildlife (Amendment) Act 2010 are the principal national statutory provisions providing for the protection of Wildlife (both Flora and Fauna) and the control of activities which may impact adversely on the conservation of Wildlife

Under section 22 (4 and 5) of the Wildlife Act 1976, Wildlife (Amendment) Act 2000, Wildlife (Amendment) Act 2010 the hunting, killing and wilful interference with or the destruction of a breeding place of a wild bird is an offence under the Wildlife Act 1976 and Wildlife (Amendment) Act 2000 and Wildlife (Amendment) Act 2010 except for those species listed on the Third Schedule of the Act. However, under section 22 (5h) during engineering construction works it is not offence to kill or injure a protected wild bird or to remove, destroy, injure or mutilate the eggs or nest of a protected wild bird.

Examples of species to which this section applies for this development are the kingfisher, snipe, chough i.e. all birds that are not considered to be species of conservation interest for the Blacksod Bay/Broadhaven SPA.

Under section 23 (4 and 5) of the Wildlife Act 1976, Wildlife (Amendment) Act 2000, and Wildlife (Amendment) Act 2010 the hunting killing and wilful interference with or destruction of the breeding place or resting place of a protected wild animal, listed in Fifth Schedule of the Act, is an offence. However, under 23 (7c) during engineering construction works it is not an offence "*unintentionally to kill or injure or unintentionally to destroy or injure the breeding place or resting place of such an animal*"

A number of species protected under the Wildlife Act are also listed on Annex IV of the Habitats Directive e.g. otters, whales and dolphins. Those species listed in Annex IV of the Habitats Directive are excluded from the provisions of Section 23.7 (c) of the Wildlife Act.

Seals, badgers and frogs are not Annex IV species and are subject to the provisions of Section 23.7 (c) of the Wildlife Act during construction activities.

The hunting, killing and wilful interference with, or the destruction of a breeding place of, a wild bird is an offence under the Wildlife Act 1976, section 22 (4 and 5), the Wildlife (Amendment) Act 2000 and the Wildlife (Amendment) Act 2010, except for those species listed on the Third Schedule of the Act. However, under section 22 (5h) during engineering construction works it is not an offence to kill or injure a protected wild bird or to remove, destroy, injure or mutilate the eggs or nest of a protected wild bird.

#### **9.2.5. Natura 2000 designations in the area of the proposed works on the foreshore**

The most extensive element of the proposed works on the foreshore would occur within Sruwaddacon Bay, Co Mayo. This Bay is part of Glenamoy Bog Complex candidate Special Area of Conservation (Site Code: IE000500) which has no marine Qualifying Interests. The proposed works would occur within and adjacent to Blacksod Bay/Broadhaven Special Protected Area (4037) designated under Council Directive 147/2009/EU (the revised Birds Directive) and the Broadhaven Bay SAC (Site Code IE 000472). This site is designated for the marine Annex I habitats: Large shallow inlets and bays, Mudflats and sandflats not covered by seawater at low tide, Reefs and Submerged or partly submerged sea caves.

Arising from the European Court of Justice findings in Case C-418/04, the Department of the Environment, Heritage and Local Government is assessing the boundaries of existing SPAs and is subsequently modifying these boundaries where appropriate. The boundary of this SPA as per Statutory Instrument 31 of 1995 was critically assessed and changes to the boundary of Sruwaddacon Bay have been proposed to the Minister for re-notification. This will involve both the inclusion and exclusion of areas. The areas that are currently within the SPA (as per SI 31 of 1995) and those areas that are proposed for inclusion into the SPA were considered to be part of the SPA when assessing the impacts of the proposed works.

Sruwaddacon Bay is part of Blacksod / Broadhaven Bay SPA (4037). This site was designated an SPA in 1995 as per Statutory Instrument 31 of 1995 for wintering waterbirds and breeding terns. It should be noted that Blacksod/Broadhaven Bay SPA is to be redesignated through a public notification process in the near future accompanied by a detailed list of the bird species of special conservation interests for this wetland site.



As part of this process the bird species of special conservation interests of the site have been identified using (a) the 5-year mean peak of bird counts between 1995/96 and 1999/2000 for wintering waterbirds and (b) the 1995 all-Ireland tern survey along with the Seabird 2000 Census for breeding seabird interests. This site qualifies for SPA designation for Ringed Plover, Bar-tailed Godwit and Sandwich Tern. In addition to the aforementioned species the following are also to be listed as special conservation interests for the site: Great Northern Diver, Common Scoter, Red-breasted Merganser, Sanderling, Dunlin and Turnstone. Member States are explicitly required under Article 4 of the Birds Directive to pay attention to the protection of wetlands. To this end the wetland habitat and the waterbirds that utilise this resource within Blacksod/Broadhaven Bay SPA,, are therefore to be listed as a special conservation interest for this site.

Inishderry Island is part of Blacksod/Broadhaven Bay SPA and is an important and traditional breeding site for Sandwich Tern with 81 pairs recorded here in 1995. In numerical terms Blacksod/Broadhaven Bay SPA is one of the most important sites in Ireland for Ringed Plover outside of the breeding season. Ringed Plover overwinter in Ireland and also are recorded here on passage during the autumn migration period. The five-year mean peak of 379 individuals represents over 2% of the all-Ireland population estimate. Blacksod/Broadhaven Bay is also one of the most important sites in the country for Bar-tailed Godwit (5 year mean peak of 476 individuals). The following species also overwinter at Blacksod/Broadhaven SPA in nationally important numbers: Great Northern Diver (5 year mean peak of 41 individuals), Common Scoter (5 year mean peak of 561 individuals), Red-breasted Merganser (5 year mean peak of 48 individuals), Sanderling (5 year mean peak of 90), Dunlin (5 year mean peak of 2,003 individuals) and Turnstone (5 year mean peak of 141 individuals). The distribution and abundances of species vary over time. Using the reference period (1995/96 - 1999/2000) Light-bellied Brent Goose did not exceed the thresholds for national or international importance and consequently it was not listed as a special conservation interest for this site. However surveys conducted in Sruwaddacon Bay and elsewhere indicate that this SPA is internationally important for Light-bellied Brent Goose. As such, and in the context of this assessment, Light-bellied Brent Goose should be regarded as a special conservation interest for this site.

The most recent survey findings confirm that the SPA is internationally important for Light-bellied Brent Goose but also for Ringed Plover and Bar-tailed Godwit (unpublished NPWS data 2010).

#### **9.2.6. Consideration of impacts on SPA and birds species**

The proposed works on the foreshore may potentially impact on Blacksod/Broadhaven Bay SPA through a number of sources including:

- Habitat loss or degradation and disturbance caused by personnel and their machinery in the SPA if an intervention pit is required.
- The laying of the pipe across the Leenamore River by way of an open trench negatively impacting on, in particular, the saltmarsh contained in the SPA as well

as potentially disturbing and displacing feeding and/or roosting birds in the vicinity.

- Although the two site compounds are to be situated outside of the SPA the infrastructure, associated lighting and noise as well as increased human and machine activities could disturb and displace both feeding and roosting waterbirds in the vicinity of both locations. These potential impacts on the waterbirds would span the construction, operation and dismantling phases of work at these compounds.
- Impact on the intertidal feeding resource of waterbirds, in particular Ringed Plover, through the vibration of the sediments emanating from the tunnel boring machine (TBM) along the proposed route.

- SEPIL considered a number of alternative construction options and combinations of methods for the proposed onshore pipeline route underneath Sruwaddaon Bay. The possible methods included: conventional open cut construction; specialised open cut method; micro tunnelling and horizontal tunnelling; and segment lined tunnelling. The latter method was eventually selected and, from an SPA management perspective, represents the preferred option. This is because the planned works do not involve cutting a trench across the bay or involve the planned temporary construction of intermediate pits. Both these methods can potentially displace both feeding and roosting waterbirds at low tide and possibly cause habitat change or damage due to the trenching itself and also risk further habitat change to the intertidal sandflats due to the scouring effects of tidal currents on the trench or intermediate pit infrastructures. It is noted, however, that there is a possibility that a surface intervention pit(s) may be required if a large obstruction is encountered by the preferred segment lined tunnelling method. Based on the additional information provided in the Geotechnical Data Package submitted by SEPIL in October 2010 and the fact that obstructions can be dealt with from within the TBM, the MLVC considers the likelihood of requiring such an intervention pit to be extremely unlikely.

If an intervention pit is required there will be short-term, temporary disturbances to birds due to activity on the foreshore, noise from sheet-piling and machinery and some lighting at night. In addition, there will be some impact on food resource for birds as a result of the scouring of sediments around the pit and possibly in areas where the sediment is redistributed. It would be expected that the redistributed sediment will be spread out and form only a thin layer and there will be no smothering of existing mobile biota. The MLVC considers that the impacts will not be permanent or irreversible and will not have a significant effect on the food source and feeding activity of birds within the SPA.

- Recent Bird survey reports indicate that the areas of the SPA near the Leenanmore River seem to be of relatively low bird use when compared to the other parts of the bay. The likely impacts of the proposed works on species of conservation interest in the vicinity of the Leenanmore crossing are considered minimal and non-significant.

- The site compounds, and in particular the Aghoos compound, are proposed to be in close proximity to the SPA boundary. A proportion of the pipe stringing area overlaps with the current SPA. A number of mitigation measures are proposed and described in

Section 6.4 of Appendix J-1 of the Onshore EIS. These measures if implemented will minimise likely sources of disturbance at the site compounds to birds. These measures include the erection of acoustic screening barriers, the implementation of a specific lighting regime, limiting access routes to the compounds among others.

- The TBM will produce vibrations in the sediments and this may impact upon those invertebrates occurring at or just below the surface, which would usually be available to foraging waders such as Ringed Plover when exposed during low-tide conditions. The impact of the operating TBM will be both temporary and localised. The duration of this impact is considered to be small as the actual drilling time is estimated to account for 1/3 of the overall time. Furthermore, the foraging area available for exploitation by wading birds is only available during low tide, restricting further the exposure of the birds to drilling impacts.

The MLVC is satisfied that, if the proposed mitigation measures are implemented in full, the proposed works on the foreshore and operation of the completed infrastructure will not have lasting and significant impacts on the qualifying interests of the SPA.

#### **9.2.7. Consideration of Impacts on SAC - Habitats**

The MLVC is satisfied that sufficient detail is provided in the EIS and supporting documentation to cover the likely interactions between the habitats identified and the elements of work proposed within Broadhaven and Sruwaddacon Bays. Sruwaddacon Bay, which lies within the Glenamoy Bog Complex SAC, is an estuary with mud flats and sand flats but neither habitat are a qualifying interest for the SAC but the wetland habitats require protection as bird habitat within the SPA. Broadhaven Bay is a large shallow inlet and bay and this is a qualifying interest for the SAC and part of the area is also in the SPA. No rare habitats are known to occur within either bay.

##### *Broadhaven Bay*

For the revised/updated offshore section there is specifically a reassessment on the impacts on flora and fauna with specific consideration given to the effects of the extended duration of the construction process. Chapter 7 of the Offshore Supplementary Update Report 2010 highlights the additional survey work completed broadly within Broadhaven Bay since 2000 (the first EIS) and focuses specifically upon benthos and marine mammal monitoring. The additional surveying provides a comprehensive overview of biotic conditions in Broadhaven Bay and beyond, along the route of the pipeline. The proposed activities in Broadhaven Bay focus upon the laying of the umbilical pipeline which runs parallel to the main pipeline. Table 16.1 (Chapter 16 - Offshore Supplementary Update Report 2010) highlights the impacts of various stages of these works on the ecological features in the bay. While there will be impacts as a consequence of the trenching of the umbilical, it is the view of the MLVC that the disturbance will be non-significant. The sandy habitat that predominates along the pipeline route in Broadhaven Bay will be disturbed in the immediate vicinity of the pipeline but given that the sediments are naturally subject to periodic disturbance it is likely they will recover rapidly to pre-construction conditions. Chapter 17 (Offshore Supplementary Update Report 2010)

highlights the cumulative effects of rock placement on seabed ecology of the area in question. Within Broadhaven Bay it envisioned that a maximum of 3 ha of seabed will be impacted by rock placement (Chapter 8 - Section 8.5 of Offshore Supplementary Update Report 2010). It is acknowledged that this will result, in some instances, in a permanent alteration to the seabed, particularly if the seabed is of a finer sedimentary nature. Given that the Broadhaven Bay SAC comprises 9,075 ha (source: NPWS), 3 ha comprises 0.033% (3/100<sup>th</sup> of 1%) of the entire SAC. While the effect will be permanent on sedimentary habitat (rock on rock will not likely change the long term community constituents), the overall impact on the SAC will be that the conservation features under consideration (Large Shallow Inlet and Bay) will not be significantly disturbed and the integrity of the site will not be compromised.

#### *Sruwaddacon Bay*

A Natura Impact Statement (Appendix P of the Onshore EIS) was produced for the tunnelling process in Sruwaddacon Bay. The MLVC is of the view that, given the nature of the proposed routing of the pipeline through the SAC (i.e. tunnelling), impacts on the SAC will be minimised throughout both the construction and operational phase of the project as the level of interaction with conservation features will be minimal. The MLVC considers that alternative methods considered (e.g. open trenching) would likely have a far greater interaction with nearly all conservation features (e.g. estuarine habitats) particularly during the construction phase.

Sruwaddacon Bay is an estuary dominated by sands and muds. The area is subjected to semi-diurnal tidal regime. This, allied with the moderate to large tidal range found in the bay (3-3.7m) will result in significant hydrodynamic forcing in the estuary as highlighted in the EIS and in numerous submissions during public consultation. Such forcing results in periodic, yet substantial, sediment suspension to which the communities and species (including mobile species such as fishes) found in the estuary will have adapted. It is the view of the MLVC that any suspension and/or fluidisation of sediments caused by vibrations resulting from the tunnelling are likely to be short lived and their impact negligible. The proposed works beneath Sruwaddacon Bay are unlikely to significantly alter the conservation value of the designated area.

As stated previously, there is a possibility that a surface intervention pit may be required if a large obstruction is encountered. Based on the additional information provided in the Geotechnical Data Package submitted by SEPIL in October 2010 and the fact that obstructions can be dealt with from within the TBM, the MLVC considers the likelihood of requiring such an intervention pit to be extremely low. In the event that an intervention pit is required an impact will be realised and depending upon the location of the pit it may result in:

- Restriction in channel flow
- Scouring and redistribution of sediments in and around the pit
- Physical restriction of migrating species through and within the estuary
- Destruction of habitat and invertebrate communities in the footprint of pit and associated works (concrete mattresses-scour protection, barges, pontoons, jetties)
- Damage to foreshore in the vicinity of access points to service an intervention pit

The intervention pit would generate some scour which will redistribute the sediment and expose the invertebrate species present to predation, though some may survive and rebury. Without mitigation in the area of highest flow near the entrance to Sruwaddacon Bay, it is conservatively estimated (worst case scenario) that this would cover an area up to a maximum of 8,000 m<sup>2</sup> depending upon location within the estuary. With proposed mitigation measure, e.g. concrete mattresses, the overall impacts from scour would be considerably reduced. In addition, an intervention pit will be temporary and will occupy a small area of 12 x 12m. There will be no long term impacts on the sediment fauna as a result of construction an intervention pit. The impact of the scour protection (concrete mattresses) on seabed fauna could be substantial. However, the retention of sediments in the vicinity of the intervention pit is paramount and will result in a rapid colonisation of estuarine fauna upon removal of the protection.

Consequently, it is the view of the MLVC that while there would undoubtedly be short term impacts in the vicinity of the intervention pit, the long-term impacts of this activity on habitats would be likely to be negligible and temporary in nature.

#### ***Other habitat issues***

In addition to the foreshore habitats considered above, a number of submissions raised concerns in relation to the impact of works on priority habitat 'active blanket bog' and priority habitat Machair at Glengad head. This is not strictly a foreshore issue but all impacts must be considered under potential cumulative effects. Notwithstanding this however, there is no designated active blanket bog within the Glenamoy Bog Complex SAC that will be impacted by the construction works. In addition, the classification of the dry calcareous grassland at Glengad head as the priority Annex I habitat Machair is strongly disputed by the MLVC.

### **9.2.8. Consideration of impacts on SAC-Species**

#### **9.2.8.1. Zostera beds in Sruwaddacon Bay.**

Appendix L1 (Extract from RSK 2007 survey Report) of the Onshore EIS shows that Zostera or eel grass (a marine flowering plant) has been recorded from North/Curranboy bay and Inner Broadhaven Bay near Ballyglass pier but has not been recorded in Sruwaddacon Bay and will not be impacted by the tunnelling activities. In the unlikely event that an intervention pit is required, no plant or structures will be anchored in the Zostera beds in Broadhaven Bay.

#### **9.2.8.2. Cetaceans**

Juvenile and neonatal dolphins have been recorded in Broadhaven Bay. It is not possible, however, to determine where the dolphins are born but their presence does indicate that Broadhaven Bay may be a nursery area. Survey work to date has demonstrated that both Broadhaven Bay and the area offshore from it are important for cetaceans.



The laying of the umbilical will take place in Broadhaven Bay over a short period of time in a limited part of the bay. The MLVC is satisfied that full implementation of the mitigation measures, including a Code of Conduct for vessels involved in pipe or cable laying or dredging activities in the area, including the presence of a Marine Mammal Observer, will ensure that negative interactions with cetaceans will be minimised. A code of conduct for all security vessels will also be required and must be agreed with DEHLG (National Parks and Wildlife Section) in advance of the works

The likely noise generated by the tunnel boring machine was assessed by the applicant in order to ensure that there would be no significant effects to marine mammals. The transmission of sound sources to the open sea within Broadhaven Bay is unlikely to occur at a level perceptible by marine mammals. At least some of the expected noise levels generated would be within the normal ambient range for the marine environment. Those sources that would exceed this level, specifically in terms of frequency, would be at the lowest limit or below the auditory threshold for cetacean species likely to occur within the Bay. Therefore, the introduction of noise from the tunnel boring machine is very unlikely to produce a measurable disturbance of or alteration in the usage by cetaceans of Sruwaddacon Bay because of the nature of sounds to be produced. . In addition, detailed surveys have not documented the use of Sruwaddacon Bay by cetaceans but occasional forays into the bay cannot be ruled out. (See Chapter 14 of the 2010 Onshore EIS)..

The MLVC is satisfied that the installation, presence and removal of an intervention pit would not have a significant impact on cetaceans in the area

#### **9.2.8.3. Seals**

The introduction of noise from the tunnel boring machine is very unlikely to produce any disturbance of or alteration in the usage by seals of Sruwaddacon Bay. In addition, the installation, presence and removal of an intervention pit and associated noise would cause avoidance behaviour by seals of the immediate area in Sruwaddacon Bay. As the Bay is not documented as being an important haul-out or breeding site for seals the MLVC is satisfied that there will not be an impact on seal populations in the area as a result of the proposed works.

#### **9.2.8.4. Otters**

Otter surveys were carried out at various times of year in 2002, 2003, 2004, 2005, 2007, 2008 and 2010. The only areas not surveyed were those of very dense vegetation where it was not possible to survey, i.e. coniferous plantations south of the bay and dense gorse scrub near the Leanamore River. Notwithstanding this, these data are considered adequate for conducting a risk assessment on the impacts of the construction works on otters.

The otter surveys demonstrated that a number of resting places occur along the shore and one potential holt was identified. The construction compounds and the crossing of the Leanamore River are unlikely to interact negatively with otter holts.

Otters are primarily nocturnal but may frequently be seen during the day and thus low levels of light pollution are unlikely to impact on them. Resting places and in particular holts are generally well shaded at the back and additional increase in low levels of ambient light are unlikely to penetrate these burrows.

On the basis of the above the MLVC is satisfied, if the mitigation measures proposed (Section 12.5.2 Onshore Pipeline EIS) are implemented, that the proposed works will not have a significant impact on otters.

#### **9.2.8.5. Badgers**

Badgers will be able to avoid areas of high intensity lighting and noise. Badgers are known to frequent the area along the shoreline. Four Badger setts were identified during the surveys all of which were considered to be outliers, i.e. a sett that may be used occasionally. Three of the setts were disused and the fourth sett on the north side of the bay appears to have been used in the last 3 years. As these setts are not considered to be primary breeding areas, the noise is unlikely to significantly impact on breeding badgers as no primary setts have been found.

Trenches may pose a danger to badgers. The suggested mitigation that escape ramps are installed in very deep trenches associated with foreshore works should minimise the risk posed by such trenches to badgers. This mitigation measure, among the others proposed for non-avian fauna, should be implemented.

#### **9.2.8.6. Bats**

The bat surveys carried out have demonstrated that while a number of bat species occur in the general vicinity they are not common in the area. The proposed activities are highly unlikely to impact on any bat species and in particular on their resting and breeding sites.

#### **9.2.8.7. Frogs**

Frogs are terrestrial species and typically are not found on the foreshore. As noted above, under the Wildlife Act, frogs are not protected from construction activities. However if frogs are known to be in the area efforts should be made to move frog spawn and some breeding adults to suitable sites under licence.

### **9.2.9. MLVC View**

The MLVC is of the view that the proposed works are not likely to have a significant impact on the species of conservation interest or their habitats for this SPA if the mitigation measures in the recommendation below are implemented.

The MLVC is also of the view that the proposed works are not likely to have a significant impact on marine habitats or marine mammals if the mitigation measures in the recommendation below are implemented.

#### **9.2.10. Recommendations**

The MLVC recommends that all mitigation measures set out in Chapter 14, Section 6.4 of Appendix J1 (Birds) and Section 6 of Appendix P (Habitats and Birds) of the Onshore EIS should be implemented in full.

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### **9.3. Impact of tunnelling (vibration) on houses & landslides**

#### **9.3.1. Houses.**

The tunnelling will not be continuous but will rather be intermittent lasting about 20 minutes in every hour.

It is predicted in the EIS that vibrations from the tunnelling at the nearest house to the tunnel route will be 0.01 to 0.02 mm/s Peak particle velocity (PPV). The threshold of human perception of vibration is accepted to be in the range 0.14 to 0.3 mm/s PPV. If the nature of the house and or the foundation conditions were to cause amplification of the vibration by a factor of 1.5 the vibration within the nearest house, 240 m distant, would still be an order of magnitude (ten times) below the level of human perception.

Vibrations from piling at the tunnelling compounds at Glengad and Aghoos were assessed in the additional information provided. At the nearest house to both locations vibrations from such piling are predicted to be 0.1 mm/s PPV (Glengad) and less than 0.02 mm/s PPV (Aghoos), both below the threshold of human perception.

Should an intervention pit be required, which is considered a very remote probability, piling of a coffer dam would be required. The vibrations from such piling have been predicted and assessed in the additional information provided. The vibration level due to piling experienced at the nearest house to the tunnel route is predicted to be less than 0.1 mm/s PPV, below the threshold of human perception.

#### **9.3.2. Landslides**

The construction vibrations associated with the foreshore elements of the development are those directly from tunnelling, those from piling in the tunnelling compounds, those from a possible intervention pit and those from traffic associated with the tunnelling operation. These vibrations have been assessed in the EIS and in the additional information provided by SEPIL in response to queries from DCENR.

The upper slopes of Dooncarton where previous land slides have occurred are 800m or more from the route of the tunnel. The vibration from the tunnelling at a distance of 240 m is predicted to be up to 0.02 mm/s PPV, below the level of human perception, see above. The vibration at the Dooncarton slopes would be considerably less and the SEPIL conclusion that they are negligible is considered reasonable.

The vibration at Dooncarton Mountain due to piling in the compounds at Glengad and Aghoos is predicted to be 'significantly lower than 0.02mm/s PPV' and 0.005 MM/s PPV respectively, again below the level of human perception.

The vibration at Dooncarton due to piling of a possible intervention pit is predicted to be 0.001 mm/s PPV at a distance of 330 m from the tunnel route and consequently much lower at a distance of 800m. This is negligible.

The vibration at Dooncarton Mountain due to construction traffic will be minimised by maintenance of the road surface to a high standard.

Additionally, the MLVC sought advice from the Geological Survey of Ireland. The GSI Principal Geologist advised that:

*The Geological Survey of Ireland (GSI) is the national earth science agency and has datasets on Bedrock Geology, Quaternary Geology, Mineral deposits, Groundwater Resources and the Geology of the Irish Seabed area. These consist of maps, reports, and extensive databases. These latter include mineral occurrences, site investigation boreholes, mineral exploration boreholes, karst features, wells, springs and the national Landslide Database.*

*In relation to landslides, GSI visited and reported on the 2003 Pollatomish area landslides and subsequently formed the Irish Landslide Working Group and published the report Landslides in Ireland in 2006 and currently manage an NDP funded Landslide Susceptibility Mapping Programme.*

*In relation to the proposed development I have examined the documents submitted to date in relation to EIS, Foreshore Licence Application and supplementary information in relation to An Bord Pleanála hearing. As the 2003 landslide events related to an intense rainfall event and dislodged dominantly peat material from the upper slopes of the hills south of Sruwaddacon Bay, we do not see an increased likelihood of landslide events arising from the proposed works. We also feel the proposed monitoring and mitigation programme in relation to vibration should be adequate to detect any potential risk in relation to movement of deeper peat in the low lying areas.*

The apparent conflict between the EIS and Tobin report of 2003 regarding landslides was raised in some submissions. SEPIL have explained the apparent conflict in their response to submission number 26. In essence the Tobin report addressed the residual risk of further landslides to housing in the immediate area in the immediate aftermath of the 2003 landslides. The EIS assess the impact the development might have on the stability of the Dooncarton Mountain and the risk to the pipeline posed by the possibility of further landslides. Both are considered negligible which is reasonable.

The impact of climate change on future landslides was also raised. Because of the extreme nature of the rainfall event that caused the 2003 landslides, which SEPIL state had a return period "in excess of 1 in 100 years up to possibly between 4,000 and 10,000 years" SEPIL consider a repeat highly unlikely, even when taking into account climate change. The MLVC consider this conclusion reasonable.

### **9.3.3. MLVC View**

The MLVC is of the view that vibrations from tunnelling and the possible construction of an intervention pit would not have a significant impact on the houses nearest to the tunnel

route and that the cumulative impact on slope stability of vibration from tunnelling, piling and traffic is negligible.

The MLVC considers that vibration due to the construction activities should be monitored and recommends that, as a minimum, the vibration monitoring as proposed in Item 7 of the Further Information provided by SEPIL on 18<sup>th</sup> October 2010, be carried out. The MLVC considers that this requirement can best be dealt with by inclusion of the specification of noise and vibration monitoring in the required elements of an Environmental Monitoring Plan to be submitted by the licensee and agreed before commencement of the works.

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#### **9.4. Impact on migratory fish, fishing activity and aquaculture**

##### **9.4.1. Impact on fish and fisheries**

Atlantic salmon is a qualifying interest in the Glenamoy Bog Complex SAC, adjoining the Broadhaven SAC. Adult Salmon traverse Broadhaven and Sruwaddacon Bays to access the Glenamoy catchment where spawning occurs. Similarly, smolts or young salmon, born in the Glenamoy system descend to the sea to complete their development and grow to adult maturity prior to returning to natal waters to spawn. Thus the Broadhaven serves as a route corridor for Glenamoy salmon. As such, actions that impact on salmon in Broadhaven Bay are relevant to the status of salmon within the Glenamoy SAC.

The construction process, in terms of the physical process of tunnel boring, lining and waste removal, will not create a physical or topographical barrier to movement of salmon and trout. However, it is possible that construction disturbance could impact on the migration of salmon. This disturbance would be in the form of sound transmitted through the medium of the sand substratum into the water column. This issue is addressed in Chapter 13 and Chapter 14 of the EIS. The potential for noise generation by the Tunnel Boring Machine (TBM) was modelled (Appendix H3) and the outcomes of this modelling informed the comment in Ch. 13.4.4 of the EIS.

The EIS document describes the works process for the tunnel boring machine (TBM) and identifies that the boring process will take place for 20 minutes in every hour of operation. This would provide windows of reduced noise/vibration level for fish passage, with zero noise from the TBM for 66% of the tunnelling works period. It is likely that the 5 m thickness of sediment will damp the intensity of the sound dispersal, reducing any adverse impact on fish.

In the event that an intervention pit is required and that it does occur in a low tide channel within the estuary there is a risk that it may form a barrier to the movement of fish within the estuary. However, it is likely that the fish will be able to swim around such a restriction when suitable tidal conditions present themselves. A risk to the fish presents itself if the fish are trapped in a tidal pool, during warm weather conditions when dissolved oxygen in the water could decrease to critical levels.

Movement of salmon and of migratory trout (sea trout) is also related to a range of other factors such as tidal condition and level of flow or discharge from the Glenamoy River catchment. The Sruwaddacon estuary is one in which the tide 'strips out' at low tide, leaving a very narrow tract of water and very extensive areas of exposed intertidal ground. Any resident fish communities and species must cope with this situation twice daily. Migratory salmon and trout would not be likely to traverse the narrow wetted path through the estuary at low tide condition. Adult salmon are drawn up into natal rivers by elevated flow conditions emanating from the natal channel. There may be an element of chemical imprinting/recognition involved but there is also an opportunity to avail of the high flows and elevated water surface levels to traverse barriers or obstructions to passage for the adult fish. It is likely that a combination of high tide with elevated or

flood flow in the Glenamoy River would draw adult salmon upstream, traversing the estuary and any subterranean site of works in a single passage of swimming. In such circumstances it is less likely that noise or vibration from tunnelling would impede this upstream movement as the effect would have to be realised throughout the entire bay and the modelling does not support this scenario.

Within Sruwaddacon Bay, the completed pipeline structure will be 5m below the seabed and thus cannot act as any form of physical impediment to any commercial fishing activity during construction and operation.

The MLVC is not aware of any evidence that shows Sruwaddacon is a spawning ground for sand eels. In addition, fish surveys captured very few individuals. The sediment type found in the estuary (muddy sands) is not conducive to the distribution of the sand eel who prefer a cleaner, less silty and coarser sandy sediment. It is the view of the MLVC that the proposed works will have little or no effect on any sand eel populations that might be found in Broadhaven and Sruwaddacon Bays.

There is a small pier at Rinroe from which some small-scale commercial fishing is undertaken. This fishing is undertaken in the open sea and in Broadhaven bay to seaward of Sruwaddacon. The MLVC is not aware that commercial fishing is undertaken within Sruwaddacon. It is likely that fishing would be restricted in extent in Broadhaven Bay during the period of pipe laying using large shipping. Such restrictions would be necessary in the context of marine safety but would not be operable once pipe laying was completed.

During the operational phase of the project the discharge of produced water will occur at the wellhead (80km offshore in approximately 350 m of water). This is highly unlikely to result in the accumulation of waste material in Broadhaven Bay and surrounding waters. It is acknowledged that during pipelaying activities, a safety or temporary exclusion zone will operate around the pipelaying vessel(s) as is normal with such maritime activities. A consequence of this zone will likely be the restriction of all other activities in the vicinity of the vessel(s) in question for the duration of its presence in the bay. It is anticipated that the laying of the umbilical from landfall to the gas field will take on the order of 15-20 days, the duration of activities within Broadhaven Bay will be shorter again and therefore the impact on marine activities, including fishing, in bay will be of short duration and temporary. During the operational phase it is not expected that the pipeline will have any impact on other activities in the bay.

Surveys of the area identified relatively impoverished faunal communities with relatively small molluscan components. Visual examinations of sediments identified the presence of some larger bivalve fauna, whose extent was considered sporadic at best. The MLVC is of the view that, given the route proposed and the fact that impact, if any, will be highly localised, it is unlikely that any intertidal shellfish populations will be impacted.

It is proposed that the estuarine Leenamore River crossing will be carried out using conventional open cut methods and it is anticipated that the "in-stream" works will be

completed in 2 days. The MLVC is satisfied that, if the mitigation measures set out in Chapter 13 of the Onshore EIS are implemented, the impacts on migratory fish will not be significant. The MLVC recommends that SEPIL consult with Inland Fisheries Ireland in relation to the methodology and timing of the Leenamore River crossing.

#### **9.4.2. Impact on Aquaculture**

The MLVC note that there 2 licenced shellfish aquaculture sites in Sruwaddacon Bay adjacent to each other. The Department of Agriculture Fisheries and Food, the licensing authority for aquaculture, has not raised an objection to the proposed works. The MLVC is satisfied that the proposed tunnelling in Sruwaddacon Bay will not directly impact the operation of the licensed shellfish sites.

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## 9.5. Stability of tunnel and risk of surface intervention

### 9.5.1. Stability of the tunnel

There are two issues to be considered here, (a) movement of the tunnel during construction due to settlement of the Tunnel Boring Machine (TBM) or of the tunnel itself, requiring intervention from the surface and (b) movement of the tunnel after commissioning of the pipeline causing damage or rupture of the pipeline.

The results of the site investigation works undertaken in 2007 (geophysical surveys) and 2008 (ground investigations) provided sufficient information to adequately determine the route of the tunnel under the bay, and the environmental impact associated with the proposed construction project. Further site investigations conducted in 2010 have confirmed the nature of the estuarine deposits as

- Fine to medium sand (estuarine deposit)
- Organic silt and very localised peat
- Sand and gravel (possible glacial soil)
- Bedrock

The levels and thicknesses of these strata are shown in the table below.

Strata	Depth to Top of Strata (m bsl) (Note 1)	Maximum Thickness of Strata (m)
Fine to medium sand (estuarine deposit)	Seabed level	20.4
Organic silt and very localised peat	7.5 to 19.6	2.5
Sand and gravel (possible glacial soil)	2.0 to 20.4	0.1 to 14.5
Bedrock	4.7 to 24.8	-

Notes

(1) Depth given as metres below seabed level (m bsl)

The tunnel will be in bed rock at both the Aghoos and Glengad ends. Between these two sections the tunnel will be formed in the sand and gravel stratum primarily, meeting occasional lenses of organic silt or peat.

SEPIL in their response to concerns raised about the stability of the tunnel state

*'The proposed load of the tunnel on the estuarine deposits along the line of the tunnel has been assessed to determine whether there would be any movement of the surrounding*



soil. In general, the tunnel would not provide any notable net vertical loading onto the surrounding soil as the weight of the soil removed by the tunnel would be less or about equivalent to the weight of the completed tunnel.

During construction the TBM would pass through the soil and would impose a slight net transient vertical load on to the underlying soil. Assuming a loose soil then the estimated maximum settlement of the TBM would be about 6mm.

In the permanent case, the tunnel will be backfilled with a lightweight grout (density in the range typically 1.2 to 1.5Mg/m<sup>3</sup>), which would be less than the density of the soil removed from the tunnel (soil density typically 1.7Mg/m<sup>3</sup>). Uplift of the tunnel is also not applicable due to the depth of the tunnel and weight of the overlying soil bearing onto the tunnel.

In summary, at the depth of the tunnel the estuarine sediments are stable and are considered relatively benign with respect to the proposed tunnel works representing a relatively uniform medium that can be readily excavated by the tunnel boring machine. The imposed load from the tunnel results in no movement of the surrounding soils.'

It is thus predicted that the maximum settlement due to the weight of the TBM that could be encountered is 6mm. If such settlement occurred it can readily be accommodated by the nature of segment lining of the tunnel. Settlement due to the weight of the tunnel itself is not predicted.

When the tunnel is completed, with pipeline and services installed and filled with grout, it is calculated that the weight of the structure will be similar to the weight of the spoil removed and therefore there would be no movement of the structure or resultant stress on the pipeline.

The MLVC agrees with these conclusions.

If an intervention pit is required, which is predicted to be a remote possibility, the depth of cover over the tunnel could be greatly reduced by scour (see below). The mitigation proposed in Section 14.7.7 of the Onshore EIS to deal with this must be employed if a pit is required.

#### **9.5.2. Surface Intervention**

The Tunnel Boring Machine (TBM) will be specifically designed for the ground conditions determined by the site investigations. Specifications for the machine teeth will be based on both the type and strength of rock sampled from the boreholes and the sand / gravel with occasional cobbles.

If the TBM encounters an obstacle that either rotates with the cutting head or is so hard as to resist the cutting teeth and the machine progress is halted the obstacle can be accessed



by way of a door in the cutting head and the obstacle removed by manual cutting or breaking.

If the obstacle cannot be removed an intervention pit will be constructed by driving a sheet pile coffer dam around the TBM, excavating the sand / gravel within the dam and removing the obstacle. The impacts of such a pit on other criteria than pipe stability are dealt with elsewhere.

The geotechnical data provided with the additional information, combined with results from previous site investigations, indicate that the strata within which the tunnel will be bored are relatively uniform and very unlikely to present obstacles sufficient to halt the TBM.

If an intervention pit is required and it is located in the main channel the effect of scour on the estuary bed must be considered. The modelling carried out and described in Chapter 14 of the Onshore EIS, and refined in the additional information, predicts that scour of the bed around any such pit could reach a depth of 7.0 to 9.0 m below bed level. This could expose the tunnel to uplift forces in the absence of the load of the overlying soil. These would be greatly reduced by the weight of the TBM itself. It is predicted, however, that the relatively short duration of the intervention works would reduce the potential scour to about 3.0m below bed level.

The mitigation measures proposed, which would depend on the flow regime at the site of any required intervention pit and which include placing of scour protection such as concrete mattresses and periodic replacement of scoured material with excavated material from the intervention pit site, along with the reduction in the size of any proposed intervention pit described in the addendum to the EIS, would reduce the scour to levels that would not impact on the tunnel.

The MLVC considers that the tunnel as proposed will be stable both during construction and when fully completed. Adequate and feasible measures are proposed to reduce the possibility of the need for surface intervention. The possible impact of such intervention on the stability of the tunnel has been adequately addressed and suitable mitigation measures proposed.

## 9.6. Adequacy and Legality of Site Investigation Works

The detailed issues referred to here are:

- That the Site investigation information was incomplete

The Geotechnical Data Package submitted as further information following completion of the site investigation works confirms the ground conditions assumed on the basis of previous site investigation works and gives adequate detail to allow full design of the tunnel boring machine and the segment lined tunnel.

- That the 2010 Site Investigation Works have disturbed wildlife in the estuary

The MLVC is not aware of any evidence to support this. While acknowledging that wildlife may have been disturbed by the drilling rigs and boat traffic the MLVC is satisfied that any such disturbance was short term and temporary and not significant.

- That possible hazards were not fully identified as the survey was not yet completed.

This concern appears to be from a mistaken understanding of a statement in the EIS concerning identification of any construction safety hazards that may have arisen or been created since preparation of the EIS. The concern was in relation to unknown hazards to the pipeline whereas the statement in the EIS relates to possible hazards to construction personnel and the requirement to have up to date information before commencing work on a construction site.

- That full Site Investigation Works of the terrestrial pipeline route were not completed.

The site investigation works for the foreshore section of the pipeline have been completed.

- That the results of the 2010 Site Investigation are not accurate

This is not accepted. It is the MLVC view that the 2010 Site Investigation has given a detailed description of the ground conditions that exist along the proposed tunnel route.

- That the 2010 Site Investigation data was illegally obtained as no screening, Appropriate Assessment or EIA was conducted

The 2010 Site Investigation was carried out with a valid foreshore licence.

### **9.7. Adequacy of consultation**

It was submitted that consultation was inadequate. In determining this foreshore permit application there was an 8 week public consultation period regarding the application. In addition there was a further 4 week public consultation period regarding additional information provided by the applicant. The MLVC is aware that SEPIL has endeavoured to carry out extensive public consultation during the scoping phase of the EIS.

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## 9.8. Decommissioning

Section of 4.6 of the Onshore pipeline EIS states:

*Decommissioning of the pipeline after its useful life will involve the removal of any above ground facilities at the LVI and any remaining gas and hydrocarbon residues from the pipeline and services. Decommissioning may involve reinstating the dished LVI compound to previous ground level. This would involve importing material to the area in consultation with the relevant authorities at the time, particularly having regard to the relevant designation status.*

*Decommissioned pipelines are typically left in place, cleaned and monitored according to an agreed programme. The umbilicals will be flushed to remove all traces of chemicals and all electrical lines isolated and disconnected. The outfall pipe will be flushed with clean water. The umbilical and outfall pipe, once isolated, flushed and capped could be left in-situ.*

*A decommissioning plan will be prepared to ensure that the activities will comply with relevant EU and national legislation relevant to decommissioning at that time. The plan will incorporate best practice for decommissioning at the relevant time period, and will include an environmental appraisal of the proposed decommissioning methods. Decommissioning plans will be subject to further regulatory approval at the relevant time.*

In their response to submissions SEPIL also note that "A brief description of decommissioning is also provided in Section 2.5 of the Non-Technical Summary of the Onshore Pipeline EIS. Decommissioning is also addressed in Chapter 2.8 of the 2001 Offshore Field to Terminal) EIS."

The MLVC is of the view that this is appropriate.

### **9.9. Impact of operational discharges**

It was submitted that the operational discharges would result in marine pollution and impacts on Natura 2000 site.

The regulation and control of discharges is done by way of an IPPC licence.

The MLVC note that the only operational discharge from the development of the Corrib Gas field on the foreshore will be treated surface runoff water which will be discharged some 2.5Km north of Erris Head, outside the boundary of the Natura 2000 site. Produced water arising from the gas production will be treated onshore and subsequently discharged, via the umbilical, at the well head approximately 80Km offshore and outside the foreshore.

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### 9.10. Alternatives

The alternatives outlined in the 2009 Application were revisited following an invitation from An Bord Pleanála, in a letter dated 2nd November, 2009, for SEPIL to modify the pipeline route between identified chainage points (Ch. 83.910 to Ch. 89.550) such that it *“would be generally in accordance with that indicated as Corridor C (that is, within Sruwaddacon Bay) in the route selection process”*.

Additionally Chapter 3 of the Onshore Pipeline EIS examined alternatives in detail including alternative onshore pipeline routes, alternative construction methods applicable to the route selected; and alternative options for the design and configuration of the Landfall Valve Installation (LVI).

The MLVC considers that alternatives relating to works on the foreshore have been adequately addressed.

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### 9.11. Visual Impact

While works on the foreshore will be underground and invisible the MLVC recognise that there will be significant negative visual impact during the construction phase, particularly for the Highly Scenic View from County Road L1202 due to the works compounds which are ancillary to the foreshore works.

The tunnelling compound at Aghoos and Glengad and the LVI construction site at Glengad will be prominent in the view from the L1202. The mitigation measure proposed in Chapter 10 of the EIS, in relation to fencing of the site compounds and control of lighting spill from the tunnelling should be implemented in full. The impacts will be temporary.

The MLVC is of the view that an intervention pit is unlikely to be needed. If, however, such a pit is required there will be significant visual impact but this will be temporary and short term.

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### **9.12. Archaeology**

Archaeology is considered in Volume 1, Section D, chapter 16 of the Corrib Pipeline Onshore Environmental Impact Statement and in appendix N, and appendix O of Volume 2 of the 2010 Onshore Environmental Impact Statement. Archaeology is also considered in Section 14 (including Appendix 14.1) of the Corrib Offshore Environmental Impact Statement 2001 and in Section 14 of the Corrib Offshore Supplementary report 2010.

#### **9.12.1. 2010 Onshore Environmental Impact Statement Methodology and findings**

Section 16.6, Volume 1, Section D and Appendix O (2010 EIS), sets out the methodology as follows:-

- A desktop assessment of the proposed application site (Section 4.1 & 4.2, Appendix O, Volume 2).
- An archaeological assessment of a marine geophysical survey carried out of Sruwaddacon Bay and geotechnical data from the Bay (Section 4.3, Appendix O, Volume 2).
- An archaeological field inspection of the proposed development including an intertidal survey and underwater assessment of side-scan sonar anomalies (Section 5, Appendix O, Volume 2).

#### **Desktop Assessment**

In the desktop assessment a range of published archaeological and historical documentation was consulted. Data assessed included cartographic sources, topographical files of the National Museum of Ireland, The Record of Monuments and Places (RMP) held by the National Monuments Service of the Department of Environment, Heritage & Local Government, the Shipwreck Inventory of Ireland also held by the National Monuments Service of the Department of Environment, Heritage & Local Government and other relevant documentary sources.

#### **Marine Geophysical Survey**

A geophysical survey of Sruwaddacon Bay was carried out by Osiris Projects Ltd. in July 2007. The survey consisted of a side-scan sonar survey, a magnetometer survey, bathymetric survey and a sub-bottom profiler survey. An inspection was carried out of the geophysical survey on the 13th July 2007 and was deemed to be comprehensive. An archaeological assessment was carried out of the survey data with the objective to determine the location, nature and extent of archaeological remains, where present, within the proposed application site. In addition, the geo-technical study undertaken on behalf of the applicants in 2008 to provide information on the underlying geology and



ground conditions was archaeologically assessed with the objective of determining the location, nature and extent of potential buried archaeological remains, if present, within the proposed application site.

#### Archaeological Field Inspection

Intertidal and diver-truthing inspections were carried out in 2007 and 2010. The intertidal surveys were undertaken in September 2007 and April 2010 licensed under the National Monuments Acts 1930-2004 to determine the location, nature and extent of archaeological remains, where present, within the proposed application site. An underwater assessment and diver-truthing of the side-scan sonar anomalies identified during the geophysical survey carried out in July 2007 was carried out in October 2007 licensed under the National Monuments Acts 1930-2004.

#### Desktop assessment

The desktop assessment reviewed a wide range of cartographic and documentary sources but did not identify material of archaeological significance within the bay area. A study of 19th century maps of the bay indicated nothing of archaeological significance. A ferry point was noted between Glengad and Rosdoagh at the north end of the Bay but this will not be affected by the proposed development. The desktop assessment noted the presence of a number of archaeological monuments in townlands surrounding Sruwaddacon Bay. None of these monuments are located within 200m of the proposed pipeline and therefore will not be affected should the development proceed. An assessment of the Shipwreck Inventory of Ireland did not reveal any known wreck sites in Sruwaddacon Bay or any historic report of a wreck in the Bay. A number of ships are known to have been wrecked in Broadhaven Bay which serves to highlight the potential for shipwrecks to also be present in Sruwaddacon Bay. Although the desk top assessment concluded that the known archaeological potential of the area is low, it does illustrate the potential for previously unrecorded archaeology to exist in the Bay.

#### Marine Geophysical Survey

A desktop archaeological assessment was carried out of the geophysical survey data acquired in July 2007. 29 side-scan sonar anomalies were identified, twenty of which are located in Sruwaddacon Bay. Only one anomaly was considered to be of archaeological potential but this is not located within Sruwaddacon Bay. Five anomalies are located in close proximity to the proposed pipeline being located within the corridor of the temporary working area. None of the twenty anomalies identified in the Bay were considered to be of archaeological potential but were inspected as part of the inter-tidal and dive inspection. The sub-bottom profiling survey did not identify any material of archaeological significance but did identify a buried river channel and layers of peat deposits which do have the potential to contain archaeological material. The magnetometer survey identified a single localised buried magnetic anomaly. Overall the geophysical survey identified the potential for previously unidentified archaeological material to survive in Sruwaddacon Bay.

#### Archaeological Field Inspection

An archaeological field inspection of the proposed development including a number of inter-tidal surveys and underwater assessment of geophysical anomalies was carried out. The inter-tidal survey was carried out of Sruwaddacon Bay in 2007 and two features of archaeological/historical interest were found including a possible 19th slipway and remains of a possible boat house located on the north shore of the Bay at Rosdoagh. These features are not located along the route of the proposed pipeline and will not be affected by the proposed pipeline should it go ahead. An underwater dive survey of sub-tidal areas was carried out but nothing of archaeological significance was encountered during the survey. A hand-held metal detection survey was carried out of the north shore of Sruwaddacon Bay at Rosdoagh. Nothing of archaeological significance was encountered during the survey. An inter-tidal survey was carried out in April 2010 of four areas of foreshore including the proposed staring pit at Aghoos, a temporary access point at Aghoos, the reception pit at Glengad and the Leenamore River crossing. Nothing of archaeological significance was encountered during the survey. An inter-tidal and dive survey was carried out of the 20 side-scan sonar and single magnetometer anomalies identified during the geophysical survey. All side-scan sonar anomalies were found to be natural in origin or modern man-made debris. There was no visible trace of the magnetic anomaly which is most likely buried. Nothing of archaeological significance was encountered during the surveys.

#### 9.12.2. 2001 and 2010 Offshore Environmental Impact Statement Methodology and findings

Section 14 of the 2001 and 2010 offshore Environmental Impact Statement sets out the methodology as follows:-

- A desktop assessment of the proposed application site.
- An archaeological assessment of a marine geophysical survey carried out of the offshore pipeline route.
- An intertidal survey of the offshore pipeline landfall at Dooncarton/Glengad.

#### Desktop Assessment

In the desktop assessment a range of published archaeological and historical documentation was consulted. Data assessed included cartographic sources, topographical files of the National Museum of Ireland, The Record of Monuments and Places (RMP) held by the National Monuments Service of the Department of Environment, Heritage & Local Government, the Shipwreck Inventory of Ireland also held by the National Monuments Service of the Department of Environment, Heritage & Local Government and other relevant documentary sources. A geophysical survey of the offshore pipeline route was carried out by Gardline Surveys Ltd. and Osiris Projects Ltd in 2000. The survey consisted of a side-scan sonar survey, a sub-bottom profiler survey, a magnetometer survey and a bathymetric survey. An intertidal survey was carried out of the landfall site in 2000 at Dooncarton/Glengad.

The desktop assessment identified Broad Haven Bay as an area of high archaeological potential and recommended archaeological monitoring. A series of archaeological

monitoring programmes were undertaken in Broad Haven Bay in 2002, 2005, 2008 and 2009 of all dredging operations connected with the burial of the pipeline at the Dooncarton/Glenagad landfall and in relation to geotechnical test pits carried out in 2004 and 2005. Nothing of archaeological significance was found during the monitoring.

#### Intertidal Survey

The intertidal survey carried out of the landfall site in 2000 at Dooncarton/Glenagad revealed nothing of archaeological significance.

#### Marine Geophysical Survey &

The archaeological assessment of a marine geophysical survey revealed nothing of archaeological significance along the route of the pipeline and proposed umbilical route. The National Monuments Service has confirmed that archaeological monitoring of the laying of the umbilical will not be required.

### 9.12.3. Written Submissions

Three written submissions dealing with four issues related to marine archaeology were received during the public consultation phase. The four issues are as follows and are dealt with below:

1. Local landowners and archaeologists were not consulted regarding archaeology
2. Concern regarding the disappearance of hazelnut shells
3. Tunnelling will destroy archaeological artefacts
4. Hazelnut shells indicate Mesolithic presence

1. Local landowners and archaeologists were not consulted regarding archaeology (Submission No. 26).

16.2.2, Section D, Volume 1 of the Onshore EIS states that local landowners were consulted regarding the project but it does not present the results of this consultation. It also lists a number of archaeologists who were consulted regarding the project including those who have all previously carried out archaeological research in North Mayo and would be considered experts in the type of archaeology that one would expect to find in this area. The Minister for Environment, Heritage and Local Government is the owner of the foreshore in Sruwaddacon Bay and has been consulted regarding archaeology through the foreshore licence process and as a statutory consultee under the Strategic Infrastructure Act 2006.

2. Concern regarding the disappearance of hazelnut shells

Hazel nut shell fragments discovered during site investigation works in 2008 were mislaid while in storage by SEPIL's representatives and were therefore not dated. Site investigation works undertaken in 2010 identified an oak fragment and a fragment of a hazel nut shell in the organic material. This material has since been dated to the Mesolithic period but alone does not provide evidence for a human presence in

Sruwaddacon Bay during this period and it would be expected that organic material such as wooden fragments or hazel nut shells would naturally occur in peat deposits of this nature.

3. Tunnelling will destroy archaeological artefacts

The archaeological component of the EIS indicates that the known archaeological potential of Sruwaddacon Bay is low. Archaeological monitoring of all construction works in the Bay should reduce the potential for the tunnelling works to negatively impact on previously unrecorded archaeological material.

4. Hazelnut shells indicate Mesolithic presence

Site investigation works undertaken in 2010 identified an oak fragment and a fragment of a hazel nut shell in peat deposits. This material has since been dated to the Mesolithic period but does not alone provide evidence for a human presence in Sruwaddacon Bay during that time and it would be expected that organic material such as wooden fragments or hazel nut shells would naturally occur in peat deposits of this nature.

**9.12.4. Summary and Recommendations**

The archaeological component of the EIS indicates that the proposed development is in an area of low archaeological potential and will avoid all known archaeological features. However, the development does have the potential to negatively impact on previously unrecorded archaeological material. The National Monuments Service, DEHLG has confirmed that no further archaeological monitoring will be required for the umbilical installation works. The National Monuments Service, DEHLG has however, recommended that archaeological monitoring of construction works be carried out at this site.

The MLVC recommend that archaeological monitoring shall consist of the following:

- Applicant shall engage the services of a suitably qualified Archaeologist.
- The Archaeologist shall monitor all ground disturbance works and tunnel arisings associated with the development.
- Archaeological monitoring shall be licensed under the National Monuments Acts 1930-2004.
- Should archaeological remains be found the work may be stopped pending a decision on how best to deal with the archaeology.
- SEPIL shall be prepared to receive advice from the National Monuments Service of DEHLG with regard to any mitigation action required (preservation in situ or/and excavation)
- SEPIL shall facilitate the archaeologist in recording any material found

### 9.13. Project Splitting

Project Splitting is the practice of splitting projects into sub-projects so that each of these fall below screening thresholds or criteria and therefore avoid the obligation to undergo an Environmental Impact Assessment.

The purpose of the EIA Directive cannot be circumvented by the splitting of projects and the failure to take account of the cumulative effect of several projects must not mean in practice that they all escape the obligation to carry out an assessment when, taken together, they are likely to have significant effects on the environment within the meaning of Article 2(1) of the EIA Directive.

The MLVC acknowledge that multiple consents are needed for this complex project but are satisfied that project splitting has not occurred.

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#### **9.14. Construction Traffic Impacts**

While construction traffic will not be on the foreshore, and will have no impact on the foreshore, the MLVC acknowledge that a large part of the traffic will be generated by works taking place on the foreshore.

The MLVC considers that the licensee should develop a traffic management plan, as proposed in the EIS, and that this plan should be agreed in writing with Mayo County Council.

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### **9.15. Oral Hearing**

The MLVC notes that the provision exists in the Foreshore Acts, 1933 – 2009 for the Minister to hold a public inquiry, if he thinks fit, in regard to the granting of a foreshore licence. This is a policy matter and is outside the remit of the MLVC

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#### **9.16. Runoff from terrestrial works and pollution.**

The MLVC recommend that prior to the commencement of any works on the foreshore an Environmental Management Plan (EMP), which shall include procedures for the control and minimisation of surface water discharge and suspended solids movement onto the foreshore , shall be drawn up for the approval of the Minister. The EMP shall also include procedures for Pollution prevention, Environmental Emergency procedures and Contingency Plans.

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#### **9.17. Greenhouse Gas emissions**

It was submitted that all new sources of CO<sub>2</sub> should be “put on hold” pending agreed global control on the limited use of existing resources. This is a policy matter and is outside the remit of the MLVC.

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### 9.18. Depletion of Local Quarries

The MLVC notes that it is intended to use at a maximum some 120,000m<sup>3</sup> of material extracted, where possible, from local quarries as part of the proposed works. It has been submitted that this will lead to the depletion of material from local quarries. This activity will take place above the high water mark and thus will be outside the foreshore. The extraction of material from quarries is, by its nature, unsustainable as the resource is finite and non-renewable. Nevertheless the operation of quarries is subject to separate planning control

The MLVC also note that it is intended to use, where possible, material extracted during tunnelling operations as part of the proposed works, thus reducing the amount that would need to be extracted from quarries.

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### **9.19. Effects on property prices and insurance**

The MLVC is of the view that the proposed facilities are designed to nationally and internationally prescribed codes. Appropriate controls will be in place during construction and operation of the facilities. Therefore the project should not have a negative impact on property prices or insurance availability.

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### **9.20. On-land construction methodology**

A number of issues in this area relate to the construction impacts on species and habitats e.g. otters, blanket bog. These have been addressed in Section 9.2 above.

The MLVC recommend that prior to the commencement of any works on the foreshore an Environmental Management Plan (EMP), which shall include procedures for the control and minimisation of surface water discharge and suspended solids movement onto the foreshore, shall be drawn up for the approval of the Minister.

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#### **9.21. Storage and disposal of waste**

The MLVC recommend that prior to the commencement of any works on the foreshore an Environmental Management Plan (EMP), which shall include a Waste Management Plan, be drawn up for the approval of the Minister. The Waste Management Plan shall address both construction and operational aspects of the marine, freshwater and terrestrial element of the works related to the development of the Corrib Gas Field which may impact on the foreshore.

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### 9.22. Future finds

It was submitted that the proposed gas infrastructure would be used to bring ashore any future gas finds. This is a matter for future planning and is beyond the scope of the current foreshore application.

The MLVC recommend that use of the onshore and offshore elements of the pipeline shall be confined to the transportation of natural gas from the Corrib Gas Field. Any proposal to connect additional gas fields to the pipeline shall be the subject of appropriate foreshore consent.

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## **9.23. Community Issues**

### **9.23.1. Tourism**

The MLVC is of the view that there will be a temporary impact on tourism during the construction phase of the proposed works due to visual impact, increased traffic etc. Works on the foreshore, however, when completed, are not considered likely to impact on tourism as they will not be visible, will not result in degradation of water or air quality or impact on Natura 2000 sites.

The MLVC notes that, as set out in Section 6.5.3 of the Onshore EIS, the Corrib Natural Gas Erris Development Community Fund has been established. Phase 1 of this fund, 2009 – 2012 has a total fund of €5 million, over 50 applications have been received and a total of €2.2 million has already been distributed.

Additionally the MVLC notes Condition 58 of the Planning Permission granted on 18<sup>th</sup> January 2011 by An Bord Pleanála which requires the provision of a Community Gain Investment fund, with a budget of €1.7 million per annum over the next 5 years, a total of €8.5 million over the life of the fund.

### **9.23.2 Intrinsic value of wilderness**

The construction of a tunnel under Sruwaddacon Bay will leave no long term impacts on the area. It is accepted that during construction the compound at Aghoos and at Glengad will cause visual, noise and light disturbance and vibrations will have a minor impact on some species and habitats. However the impacts will be temporary and there will be no lasting impacts once the tunnelling is complete and associated works are complete. In addition the land areas (outside of the foreshore area) will recover in time. Apart from the Landfall Valve Installation or LVI, which is partially recessed into the ground, and which is not part of the foreshore license, there will be no visual impact on the area.

### **9.23.3 MLVC Conclusions**

It is accepted that the construction activity on the foreshore and the associated compounds at Aghoos and at Glengad will diminish the wilderness value. The MLVC considers these impacts to be temporary and short term. Apart from the LVI, which is not on the foreshore, there will be no visual impact on the area.

#### **9.24 Need for Offshore Cetacean Monitoring**

The monitoring of cetaceans in Broadhaven Bay covers this issue within the remit of the Foreshore License. The MLVC recommends that the monitoring of Cetaceans should continue should continue for at least one year following final completions of construction/commissioning activities.

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### 9.25 Air Quality

The MLVC recommend that the Mitigation Measures set out in Section 8.5 of the EIS should be implemented in full.

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## 10. Conclusions and Recommendations

The MLVC reviewed both technical and scientific aspects of the documentation supplied by SEPIL. The Committee is satisfied that the purpose and objective of the proposed works on the foreshore are adequately explained. In addition, the committee is satisfied that the environmental information provided is sufficient to make a recommendation on the proposed development.

The MLVC is satisfied that the works on the foreshore would not have significant adverse impacts on human health and safety, the marine environment or designated Natura 2000 sites in the area and that there are no substantive grounds for a refusal, based upon environmental considerations. The MLVC recommends that the Minister issues the necessary Foreshore permit to allow the proposed works on the foreshore to proceed subject to compliance with the specific conditions below:

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## Special Conditions

- 1) Prior to the commencement of any works on the foreshore an Environmental Management Plan (EMP), shall be drawn up for the approval of the Minister (subject to such modifications, if any, as he may deem appropriate)

The EMP shall provide detailed construction methodology and shall further consider all potential and predicted impacts and how they shall be managed, the mitigation and control measures and how they shall be implemented as well as monitoring proposed.

The EMP shall address separately both construction and operational aspects and should, as a minimum, include

- a) Noise and vibration control and monitoring procedures
- b) Waste Management Plan
- c) Pollution Prevention Procedures
- d) Environmental Emergency Procedures and Contingency Plans
- e) Procedures for the control and minimisation of surface water discharge and suspended solids movement onto the foreshore
- f) Plans for the reinstatement of the foreshore

The works shall not commence until the EMP is agreed in writing by the Minister and the Licensee shall at all times comply with the EMP.

- 2) All mitigation measures set out in the Onshore and Offshore EISs, and specifically section 6.4 of Appendix J1 and Section 6 of Appendix P of the Onshore EIS, shall be implemented in full.
- 3) The Licensee shall engage the services of a suitably qualified Archaeologist. The Archaeologist shall monitor all ground disturbance works and tunnel arisings associated with the development.
- 4) Archaeological monitoring shall be licensed under the National Monuments Acts 1930-2004.
- 5) Should archaeological remains be found the work at that location may be stopped by the licensed archaeologist pending a decision by the National Monuments Service of DEHLG on how best to deal with the archaeology.
- 6) The Licensee shall comply with directions from the National Monuments Service of DEHLG with regard to any mitigation actions required (preservation in situ or/and excavation) and shall facilitate the archaeologist in recording any material found
- 7) The Licensee shall employ a suitably qualified marine mammal observer for the duration of offshore cable laying operations on the foreshore. Commencement of operations shall be delayed if the marine mammal observers notes cetaceans within

500m of the cable laying vessel within 20 minutes of the planned commencement of works. No action shall be necessary if cetaceans approach once operations have commenced. A log of the marine mammal observer operations should be submitted to the DEHLG (NPWS), following completion of these works.

- 8) The ongoing Broadhaven Marine Mammal Monitoring Programme, carried out by scientists from the Coastal and Marine Resources Centre of University College Cork, undertaken in previous years and consisting of visual survey (cliff and boat-based), acoustic monitoring and photo-identification of Bottlenose Dolphins should continue for at least one year following completion of construction activities. Annual reporting of this programme should be delivered to DEHLG (NPWS).
- 9) The Code of Conduct (as set out in Appendix 7-16 of the Offshore Supplementary Update Report) shall be applied to the full extent of the works within the foreshore area irrespective of Natura 2000 designations.
- 10) As per the above Code of Conduct, 30 minutes of pre-survey is required prior to commencement of any construction works. The applicant should make clear to operators, in the Environmental Plan and Procedures, the differentiation between the project specific Code of Practice (Appendix 7-16) and guidelines derived by the Department of the Environment, Heritage and Local Government in relation to acoustic seafloor surveys.
- 11) All vessels approaching, leaving or working within or adjacent to Broadhaven Bay shall stay within the operating corridors shown on the Chart entitled "*Operating Corridors for Construction Vessels within the Region of Broadhaven Bay*" in Appendix 7-16 of the Offshore Supplementary Update Report.
- 12) Cable laying may continue if weather conditions deteriorate or if marine mammals enter the Exclusion Zone following the appropriate start up.
- 13) Blasting of rock on the foreshore shall not be permitted.
- 14) The Licensee shall consult with Inland Fisheries Ireland in relation to the methodology and timing of the Leenamore River crossing.
- 15) The Licensee shall continue to carry out a monitoring programme for wintering waterbirds, as agreed with DEHLG, for the duration of the works on the foreshore and for a minimum of 1 year following completion of the works.
- 16) The Licensee shall submit a report to DEHLG on the completed rock revetment within and adjacent to the SAC which will include the length and width of each segment.

- 17) The Licensee shall furnish the names/registered number of all vessels involved in the operation to the Marine Survey Office in Dublin to ensure compliance with respect to Irish Load line and other relevant vessel certification.
- 18) The Licensee shall arrange the publication by the Department of Transport of a Marine Notice giving general description of operations and approximate dates of commencement and completion of works on the foreshore
- 19) The Licensee shall arrange the publication in a newspaper circulating locally of a marine notice giving general description of operations and approximate dates of commencement and completion in respect of works on the foreshore
- 20) Before the pipeline becomes operational, the reliability rating of the offshore pipeline overpressure protection system and of the onshore pipeline overpressure protection system shall be certified by an external independent person, with particular competence in this matter, to the satisfaction, as confirmed in writing, of the authority for the time being having statutory competence (that is, the Department of Communications, Energy and Natural Resources or the Commission for Energy Regulation, as the case may be) or, in the alternative, by the said statutory authority itself. Written confirmation of such certification is to be provided to the Department of Environment Heritage and Local Government before the pipeline is brought into operation
- 21) The onshore upstream pipeline shall not be operated for the purpose of bringing gas onshore from the Corrib Gas Field until such time as the construction, testing and commissioning of the pipeline, the Landfall Valve Installation and the equipment and ancillary facilities to the pipeline have been completed to the certified satisfaction of the authority for the time being having statutory competence (that is, the Department of Communications, Energy and Natural Resources or the Commission for Energy Regulation, as the case may be). Written confirmation of such certification is to be provided to the Department of Environment Heritage and Local Government before the pipeline is brought into operation.
- 22) (1) The Maximum Allowable Operating Pressure of the pipeline on foreshore shall be 150 barg in the case of the Offshore pipeline and 100 barg in the case of the Onshore pipeline  
(2) The onshore pipeline shall be hydro tested to 504 barg pressure prior to the commencement of operation.  
(3) Written confirmation of such testing is to be provided to the Department of Environment Heritage and Local Government before the pipeline is brought into operation.
- 23) Prior to commencement of operations, the Licensee shall obtain a safety permit from the authority for the time being having statutory competence (that is, the Department of Communications, Energy and Natural Resources or the Commission for Energy Regulation, as the case may be). A copy of the safety permit is to be provided to the

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Department of Environment Heritage and Local Government prior to the commencement of operations.

- 24) An Annual Pipeline Report shall be made by the Licensee before the 31st day of January every year of operation and shall be submitted the authority for the time being having statutory competence (that is, the Department of Communications, Energy and Natural Resources or the Commission for Energy Regulation, as the case may be). A summary of this report is to be provided to the Department of Environment, Heritage and Local Government.
- 25) The use of the onshore pipeline shall be confined to the transportation of natural gas from the Corrib Gas Field. Any proposal to connect additional gas fields to the pipeline shall be the subject of an appropriate foreshore consent.
- 26) The Licensee shall develop and implement the Traffic Management Plan proposed in the Onshore EIS in agreement with Mayo County Council.

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