

# Inspector's Second Report

## CORRIB GAS PIPELINE

### An Bord Pleanála CASE REFERENCE

#### 16. GA.0004

Re-routing of the onshore upstream gas pipeline facility relating to the Corrib Gas Field Project at Glengad, Ros Dumhach, Aghoos, Bellagelly South, Co. Mayo

#### 16. DA.0005

Corrib onshore pipeline Acquisition Order 2010

### Applicant

RPS, on behalf of Shell E&P Ireland Limited (SEPIL),  
Corrib House, 52 Leeson St. Lower, Dublin 2.

### Date of Applications

182c Original Application:	12 <sup>th</sup> Feb 2009	}	16.GA.0004
182c Modified Development	31 <sup>st</sup> May 2010		
Acquisition Order	31 <sup>st</sup> May 2010		16.DA.0005

**Inspector Mr. Martin Nolan**

# Preface

This Second Inspectors report has been written to stand reasonably complete. The following is a breakdown of how the report is structured:

Part 1	Outline of the applications and written submissions received	Chapters 1-3
Part 2	Policy Context	Chapters 4-9
Part 3	The Oral Hearing	Chapters 10-16
Part 4	The Issues to be considered	Chapters 17-48
Part 5	The Acquisition Order	Chapters 49
Part 6	Conclusions and Recommendations Conditions Recommended	Chapters 49-51 Chapter 52
Appendix	1 Mr. O’Sullivan’s Report,	
Appendix	2 Mr. Wright’s Report	
Appendices	3 to 6 contain copies of relevant documents	

The File 16.DA.0004 is considered also in Chapter 49.

I wish to thank and acknowledge Mr. O’Sullivan and Mr. Wright and Mr. O’Donnell for their assistance and advice, and for the significant contribution they have made to this Report.

Martin Nolan  
Inspector  
3.01.2011

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# Chapter 1 The Scheme

## 1.1 Introduction

Shell E & P Ireland Limited (SEPIL) on behalf of the Corrib Gas Partners (SEPIL, Statoil Exploration (Ireland) Limited and Vermilion Energy Ireland Ltd., formerly Marathon International Petroleum Hibernia Limited) is developing the Corrib Gas Field off the coast of Mayo. The project will operate as a subsea production facility with onshore processing. The overall development includes: the offshore wells, subsea facilities and pipeline as far as the Mayo coast, the onshore section of the pipeline, a gas terminal at Béal an Átha Buí (Bellanaboy Bridge), the Galway Mayo Gas Pipeline. The application for approval which is the subject of this report relates to the onshore section of the pipeline between landfall at Glengad and the gas terminal in Bellagelly South.

### 1.1.1 Further information request

Following the examination of the initial application 16.GA.0004, which included the holding of an oral hearing in 2009, ABP issued a request for further information on 2<sup>nd</sup> November 2009. The Board also issued an invitation to the applicant to modify the project in accordance with section 182C (5) of the Planning and Development Act 2000-2006 as amended. RPS on behalf of the applicant subsequently sought clarification on 15/01/2010, and by letter on 29/01/2010 ABP responded to the request for clarification.

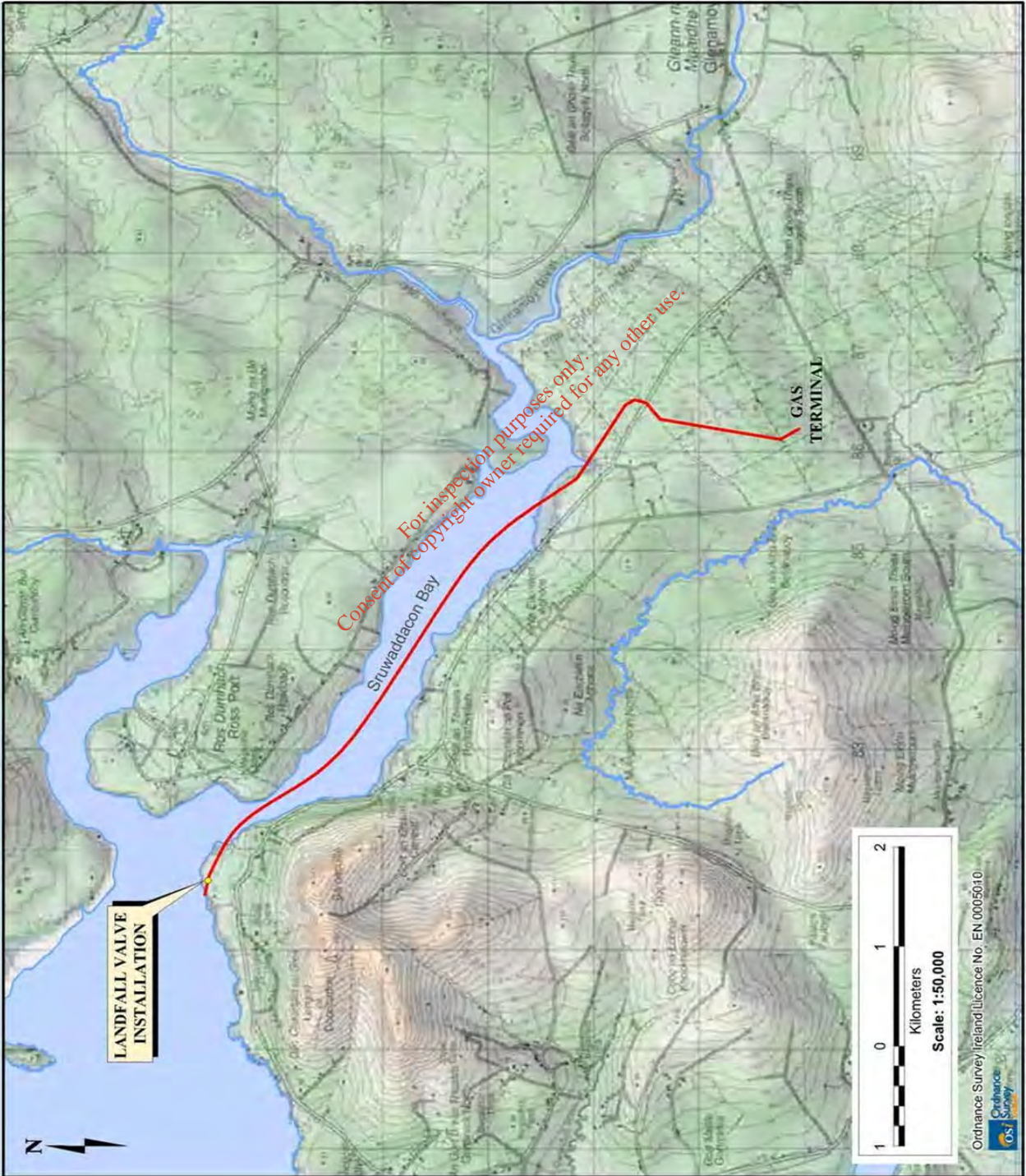
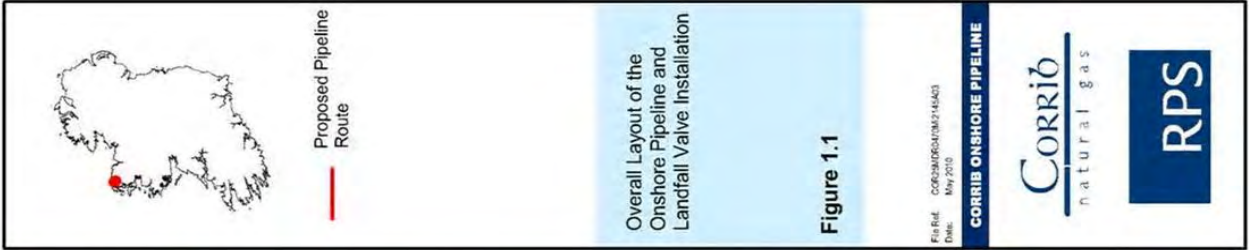
The applicant has now submitted the information requested and has submitted a revised and modified project including a revised E.I.S. in response to the ABP request. The revised E.I.S. has been examined and provides a substantial response to the ABP letter of 2/11/2009.

## 1.2 The Scheme As Now Proposed

The modified scheme consists of an 8.3Km long onshore pipeline from landfall at Glengad, through a tunnel underneath Sruth Fada Conn Bay to Aghoos and into the Bellanaboy Bridge Gas Terminal at Bellagelly South.

Figure 1.1 attached shows the overall layout of the onshore pipeline and the L.V.I.







## 1.3 Previous Routes

An original route for the pipeline was approved in 2002 by the Minister for Marine and Natural Resources. At that time that pipeline was exempted development. The application for an onshore pipeline (16.GA.0004) submitted to ABP on 12/02/2009 which is the current application under consideration, but now in respect of a modified route, is in part along the 2009 route and in part modified by the tunnel under Sruth Fada Conn.

2002 route approved by Minister (exempt) (Black)

2009 GA.0004 route the subject of my first report (Blue)

2010 GA.0004 route modified now being considered (Red)

Figure 3.4 attached shows the proposed pipeline route (red) and also shows the 2002 route (part blue line, black line, part red line) and also shows the route through Rossport for which SEPIL made the initial application to ABP on 12/02/2009 (blue line, red line)

## 1.4 Route Selection

Corridor C was identified in the original route selection process as one of eight corridors examined in that process. ABP invited SEPIL to modify the pipeline route between chainage points 83+910 and 89+550 such that it *'would be generally in accordance with that indicated as Corridor C in the route selection process'*, that is, within Sruth Fada Conn Bay.

Figure 3.3 attached shows corridor C and the modified proposed pipeline route.

**LEGEND:**

- Proposed Route 2010
- Proposed Route 2009
- Previously Approved Route
- Glenamoy Bog Complex (SAC) (Indicative)

**Note:**  
Approximate Chainage Points Shown

**Proposed Pipeline Route Showing Tunnelled Section**

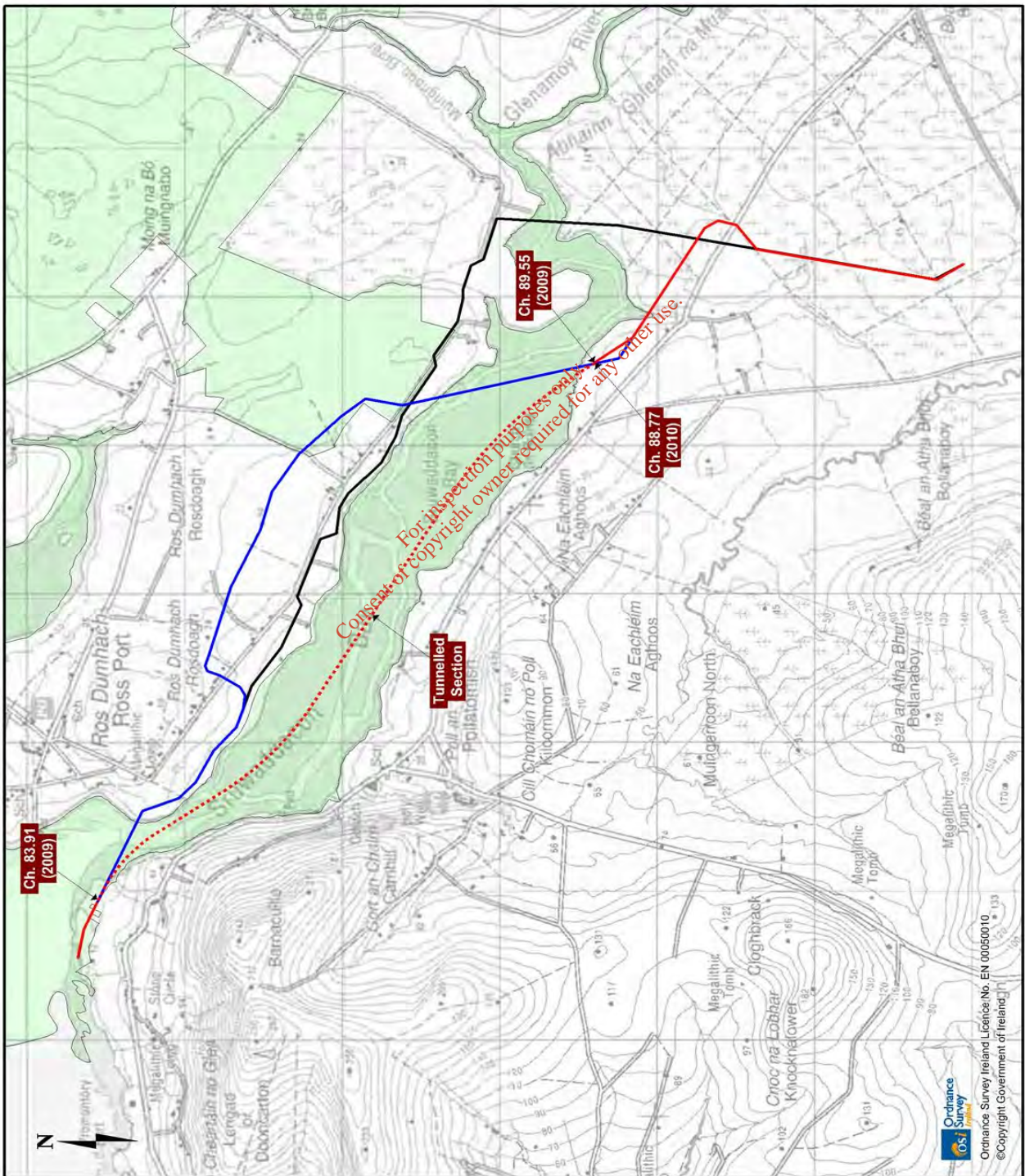
**Figure 3.4**

Proj Ref: CORRI000100/210/243  
Date: May 2010

**CORRIB ONSHORE PIPELINE**

**CORRIÓ**  
natural gas

**RPS**







## 1.5 Project Description

The modified Corrib onshore pipeline will consist of the following elements

- Onshore pipeline 8.3Km long, 20inch pipe
- 4.9Km segmented tunnel construction 4.2m outer diameter and the gas pipe will be laid within the tunnel. Approx. 4.3Km of the pipeline will be under Sruth Fada Conn Bay. A Tunnel Boring Machine will be used. The tunnel will be constructed with a minimum cover of 5.5m and a maximum depth below the indicated centerline of 10m.
- The tunnel construction requires a large temporary compound located on peat lands at Aghoos to service the tunnel boring operation in the direction from Aghoos to Glengad and then to service the pipe laying operation. The compound will be completely removed and the site reinstated when construction is completed.
- Umbilical's used to control subsea wells
- The umbilicals include facility to discharge treated process water from the Terminal offshore at the wellhead
- Communication cables
- Electrical cables used to control subsea wells
- An outfall pipe for surface water from the gas terminal discharges 12.7Km from landfall;
- L.V.I. This is a standalone safety shutdown system to isolate the offshore pipeline and prevent the pressure in the onshore pipeline from going above the maximum allowable operating pressure, MAOP, for the onshore pipeline.
- A spare set of umbilicals, communication and electrical cables will be laid through the tunnel section.
- The construction will also involve the removal of 75,000m<sup>3</sup> of peat which will be transported and deposited at the Bord na Móna site at Srahmore. The construction will also involve the disposal of 68000m<sup>3</sup> of material from tunneling arising or such lesser quantity as will be required to be disposed when material suitable has been used in construction work.
- The modified proposed development now has maximum allowable operating pressure MAOP offshore 150barg and for the onshore pipeline from LVI to the terminal, MAOP 100barg.

## 1.6 The Pipeline

The pipeline is the same as was considered in the 2009 proposed development.

The pipeline onshore section has nominal 20 inch outside diameter, is made from carbon steel 27.1mm thick (SMYS 485 N/mm<sup>2</sup>). The pipeline outfall and umbilical and all subsea facilities will have a design life of 30 years and are expected to operate for 15-20 years. The pipeline will transport natural gas.

Methane	92.4%,
Ethane	2.9%,
Nitrogen	2.6%,
Water	1.0%
Methanol(injected at wellheads)	0.35%,
Carbon Dioxide	0.25%,

Hydrogen Sulphide

0.0%

The pipeline will transport a maximum of 350 million standard cubic feet of gas per day (350MSCFD) through the pipeline and the gas will arrive at the terminal at a pressure of between 80 to 85 barg.

SEPIIL have set the maximum allowable operating pressure (MAOP) for the offshore pipeline as far as the landfall valve installation at 150 barg. SEPIIL have set the maximum allowable operating pressure for the onshore pipeline from the LVI to the Terminal at 100 barg.

The onshore pipeline will have a design pressure of 144 barg, a normal operating pressure of 90 barg to 85 barg and hydrostatic test pressure of 504 barg.

The pipeline has a factory applied external anti-corrosion coating protection of a three layer polypropylene system (3LPP). Field joints will be coated with a heat shrink sleeve applied with a primer in the field.

The completed pipeline will be cathodically protected by a permanent impressed current system.

The primary leak detection system proposed for the pipeline is a mass balance system using pressure and flows at subsea and terminal to balance the mass of gas being transferred.

A secondary independent system for the onshore pipeline is also proposed utilizing the properties of fibre optic cable technology. This was not part of the 2009 scheme. The pipeline will be laid at a minimum depth 1.2m below ground and 1.5m deep at road/stream crossings.

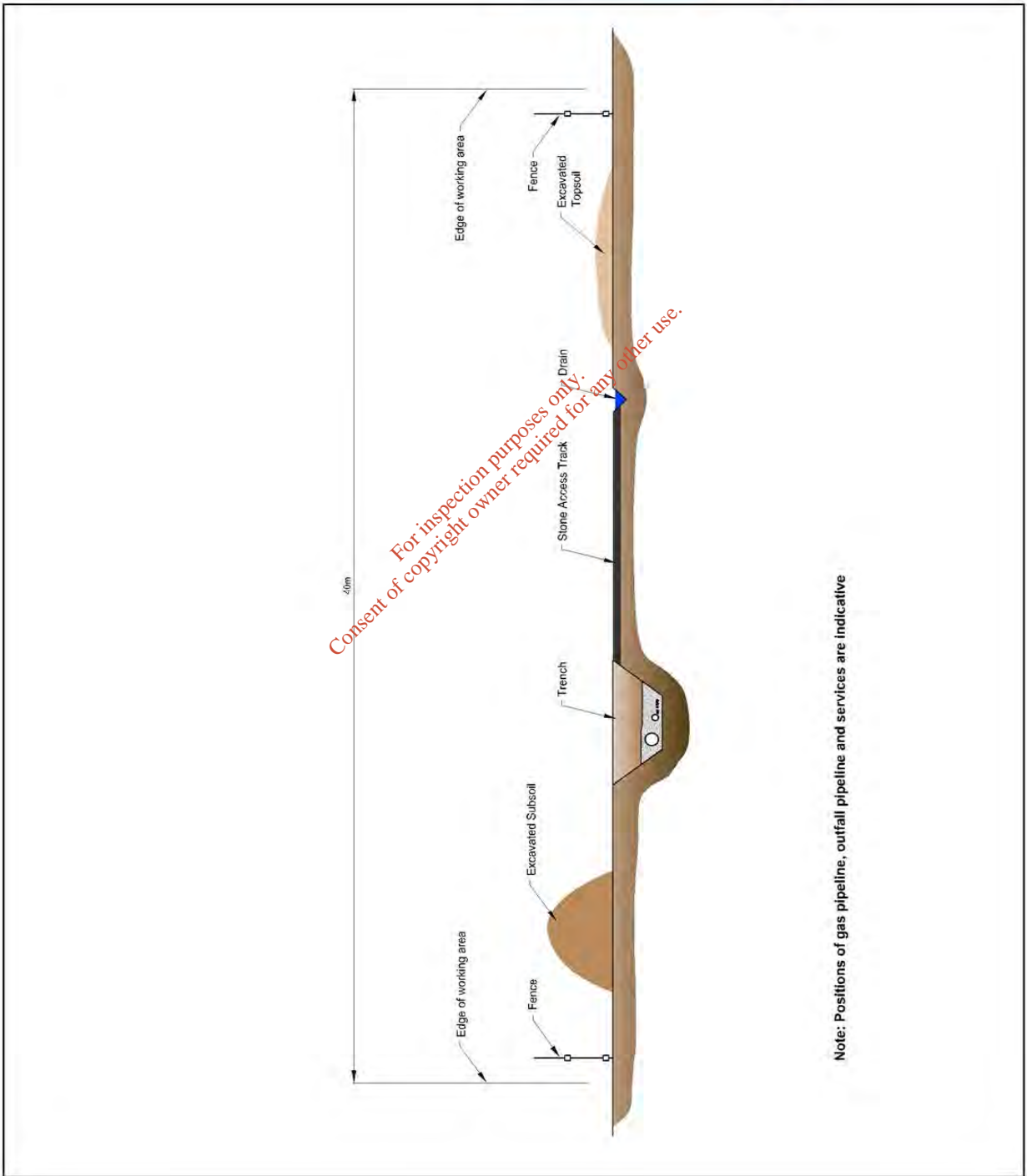
The pipeline will be laid through grassland habitat in the Glenamoy Bog Complex cSAC at Glengad, and also crosses the salt marsh in the Glenamoy Bog Complex cSAC where it crosses the Leenamore River at Aghoos.

Figure 5.3 shows the typical layout of temporary working area in grassland.

The pipeline will be laid in a tunnel underneath Sruth Fada Conn Bay. The tunnel will be constructed through rock at either end and mainly within sands and gravels through the Bay.

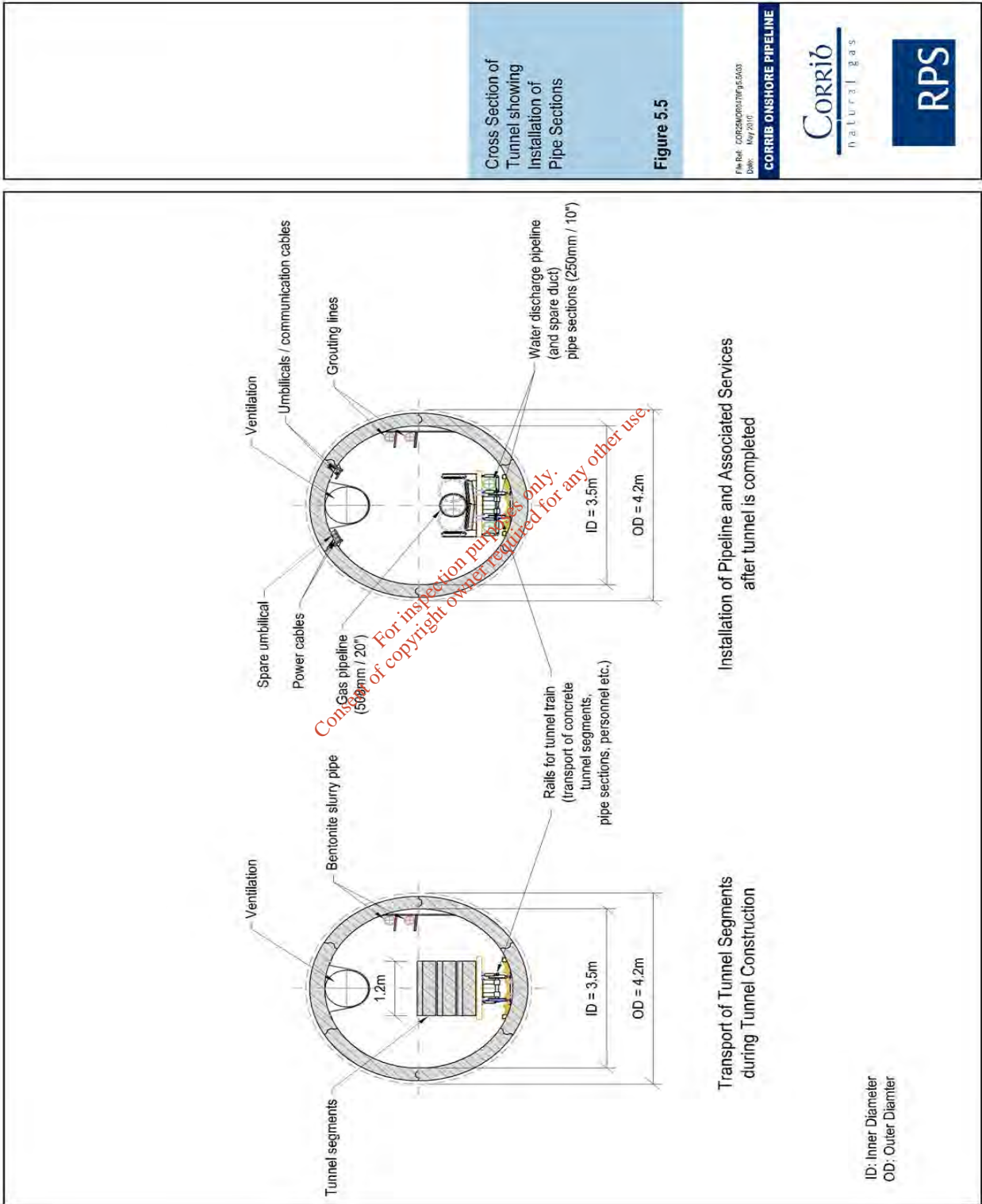
Figure 5.5 shows a cross section of tunnel showing railway used in the installation of pipe section.

Figure 5.6 shows outline of long section showing segment lined tunnel. The tunneling will be bored in one direction from the Aghoos end and requires a substantial temporary construction compound at Aghoos. Figure 5.7 shows the Aghoos Tunnelling Compound.

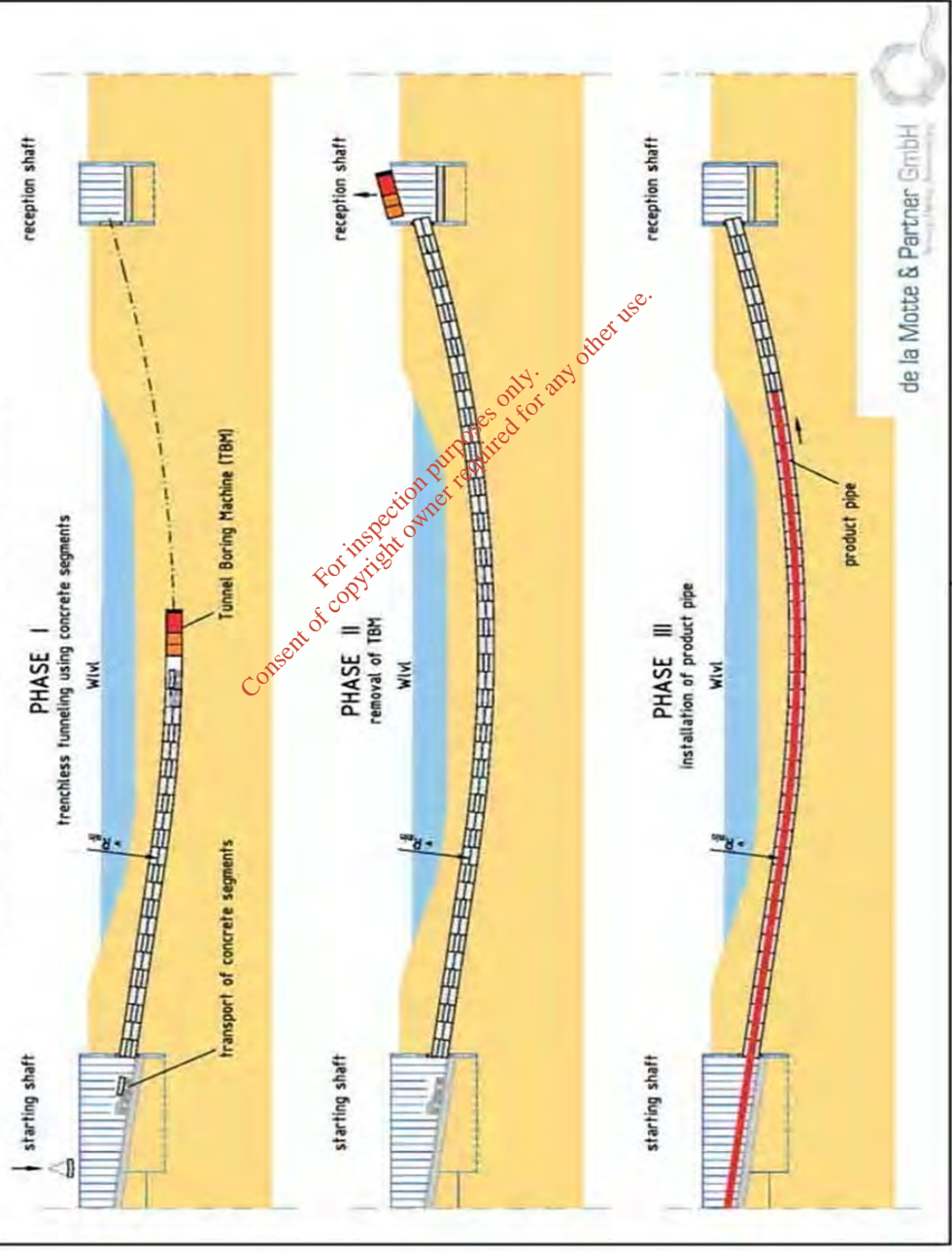


Note: Positions of gas pipeline, outfall pipeline and services are indicative





### Principle of the Segment Lining method



Outline of Segment Lined Tunnelling

Figure 5.6

Proj Ref: MORANTHOGESB08 Rev A03  
Date: May 2010

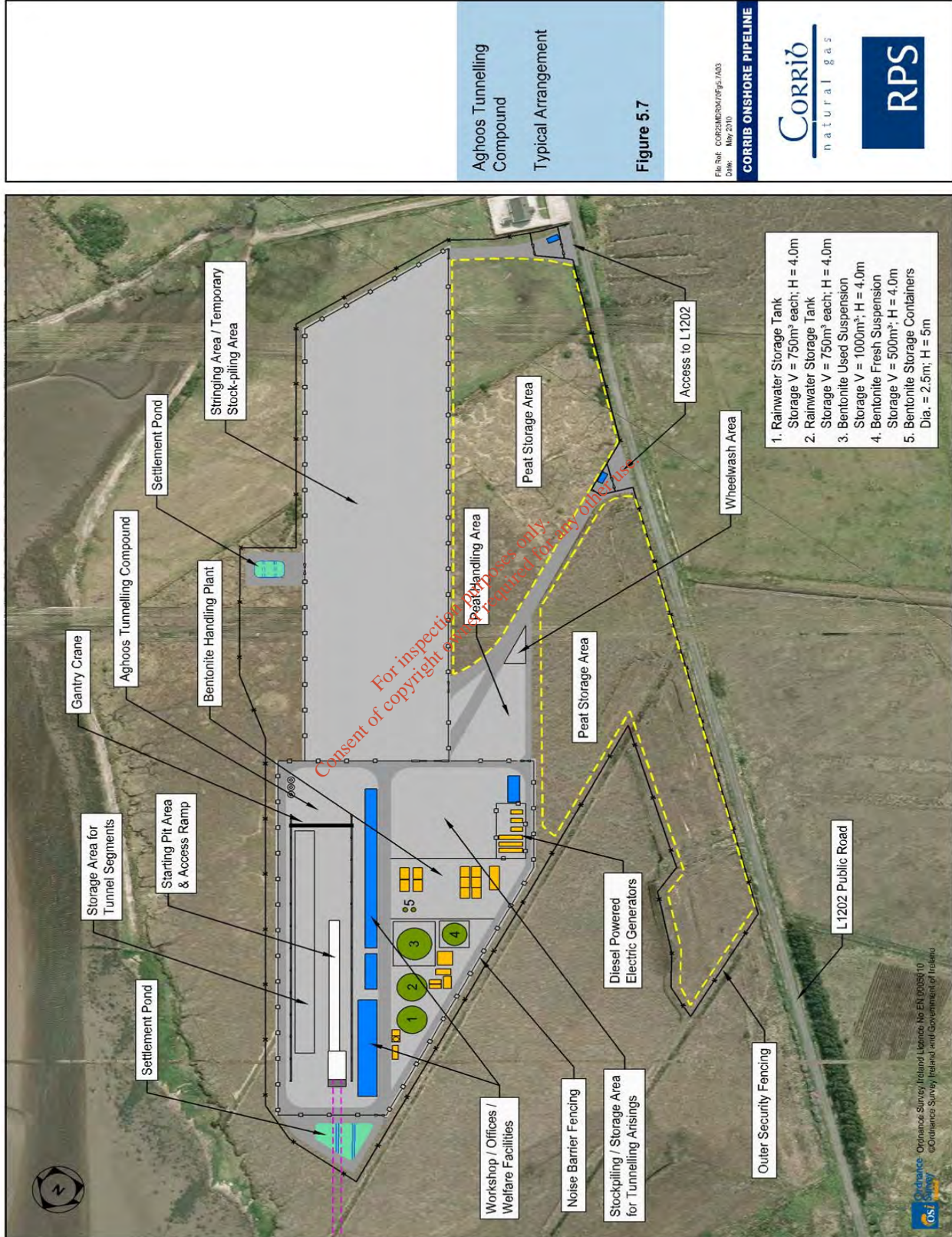
CORRIB ONSHORE PIPELINE

CORRIB  
natural gas

RPS



Figure 5.7 shows the Aghoos tunnelling compound.



This compound will have a significant footprint during construction and will contain storage tanks and settlement ponds and will contain a working site based on 24 hour 7 day week operation for tunneling over a period of 15 months, and a total construction period over 26 months.

From Aghoos, the pipeline will be laid through peat lands from the tunnel back towards the Terminal. There is a short section of wet grassland, a River crossing and saltmarshes where the pipeline will traverse a section, through cSAC Glenamoy Bog Complex, then through peat lands including blanket bog habitat before entering the forestry, crossing the road L1202 and on through forestry and peat lands as far as the Terminal.

In the peat lands it is proposed to use a stone road method whereby peat is excavated and removed and replaced by stone. In this way a roadway 12m wide is constructed through the peat. This width will be reduced to 9m wide in a section 190m long where Blanket Bog habitat has to be traversed at Aghoos.

Figure 5.4 shows the typical layout of temporary working area in peat bog lands.

## 1.7 Services

The services and umbilicals are as proposed in the 2009 proposed development.

A services umbilical will link the gas terminal and the offshore subsea facilities. This will contain:

Hydraulic Fluid Lines: These contain a water/glycol mixture operating at pressures of 210 barg and 610 barg.

Chemical Supply Lines: These contain a corrosion inhibitor and methanol mixture to prevent internal corrosion of the pipeline and the methanol prevents formation of hydrates (crystalline solids like ice)

Water Discharge Lines: To transport treated produced water from the gas terminal to discharge at the subsea manifold

Data Communication and Electrical Control and Power cables that also provide information and control operation of the well field equipment.

Figure 4.2 shows services umbilicals and outfall pipe typical details.

The umbilical and the cables are laid in the same trench as the pipeline at a similar depth and about 1m from the pipeline.

Outfall Pipe: A 10 inch HDPE outfall pipe is to be laid to transport treated surface water run-off from the process area of the Gas Terminal to a discharge location 12.7 km offshore in accordance with an IPPC licence [P0738-01/P0738-02]

## 1.8 Landfall Valve Installation (LVI)

This will consist of valves, pipe work instrumentation and supporting equipment. The LVI will limit the pressure in the onshore pipeline to a maximum allowable operating pressure (MAOP) of 100

barg. The system will activate automatically when pressure in the pipeline approaches 100 barg. An operating envelop has been defined and the production system from the wells to the gas terminal will be controlled such that this safeguarding system would operate on a very infrequent basis.

The LVI has been set down in a dished area approx. 3m below ground in order to minimize the visual impact of the facility. The LVI is located in a cSAC and the construction of the LVI will result in a permanent loss of habitat in the cSAC in this dished area.

Figure 4.3 shows the Landfall Valve Installation general layout.

Figure 4.4 shows the Landfall Valve Installation detail layout.

Figure 4.5 shows the Landfall Valve Installation configuration.

## **1.9 The Permission being sought**

SEPIL advertised in the Western People and in the Irish Times on the 10<sup>th</sup> February 2009 notice of its intention to make an application for approval to An Bord Pleanála in relation to the construction of the Corrib Onshore Pipeline comprising strategic upstream gas pipeline infrastructure in accordance with Section 182c of the Planning and Development Act 2000 as inserted by the Planning and Development (Strategic Infrastructure) Act 2006. File 16.GA.0004 refers. SEPIL advertised in Irish Independent and in the Western People on 28<sup>th</sup> June 2010 notice of the alterations, further information and revised E.I.S. as lodged with ABP on 31<sup>st</sup> May 2010.

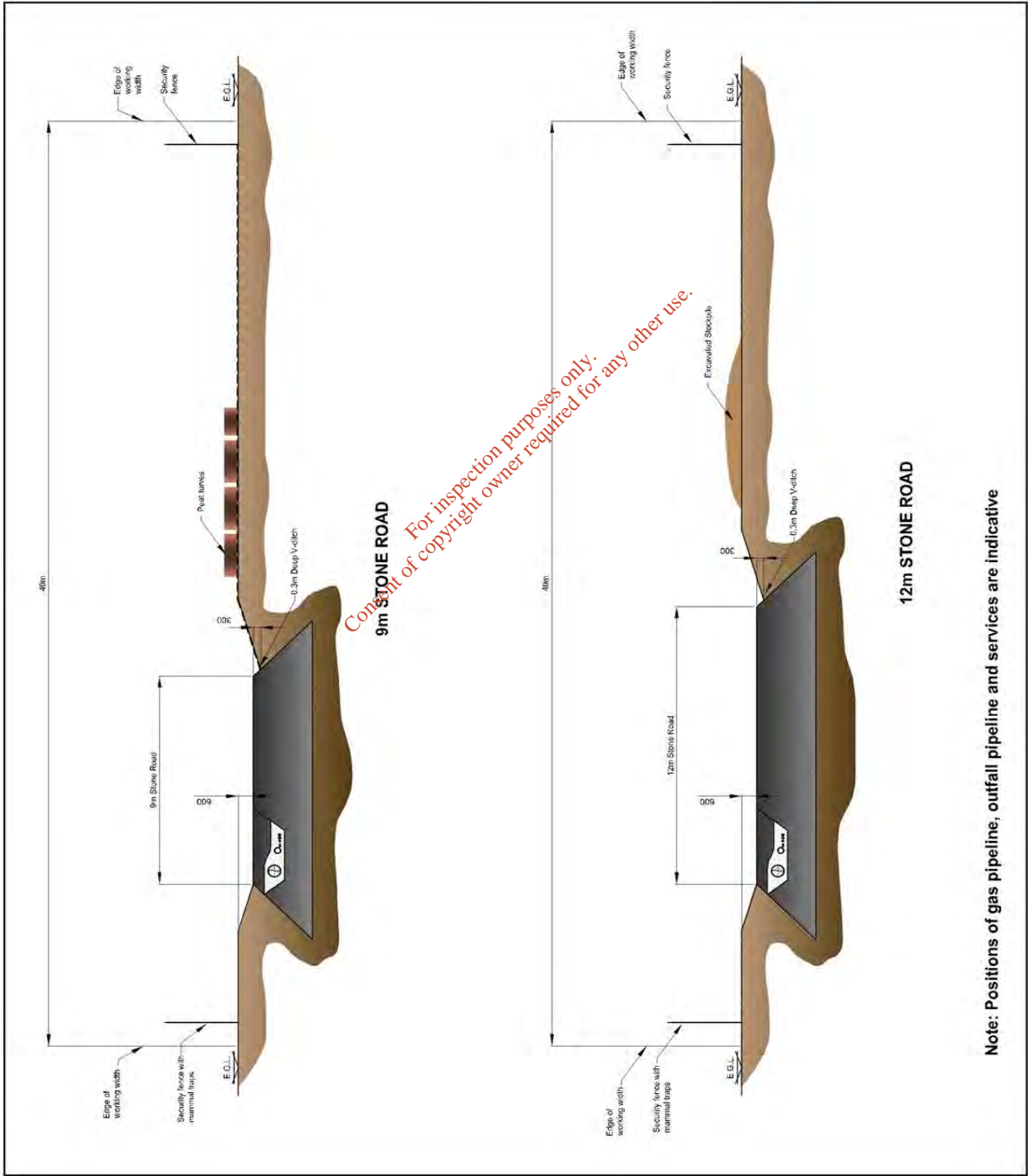
## **1.10 The Acquisition order File 16.DA.0005**

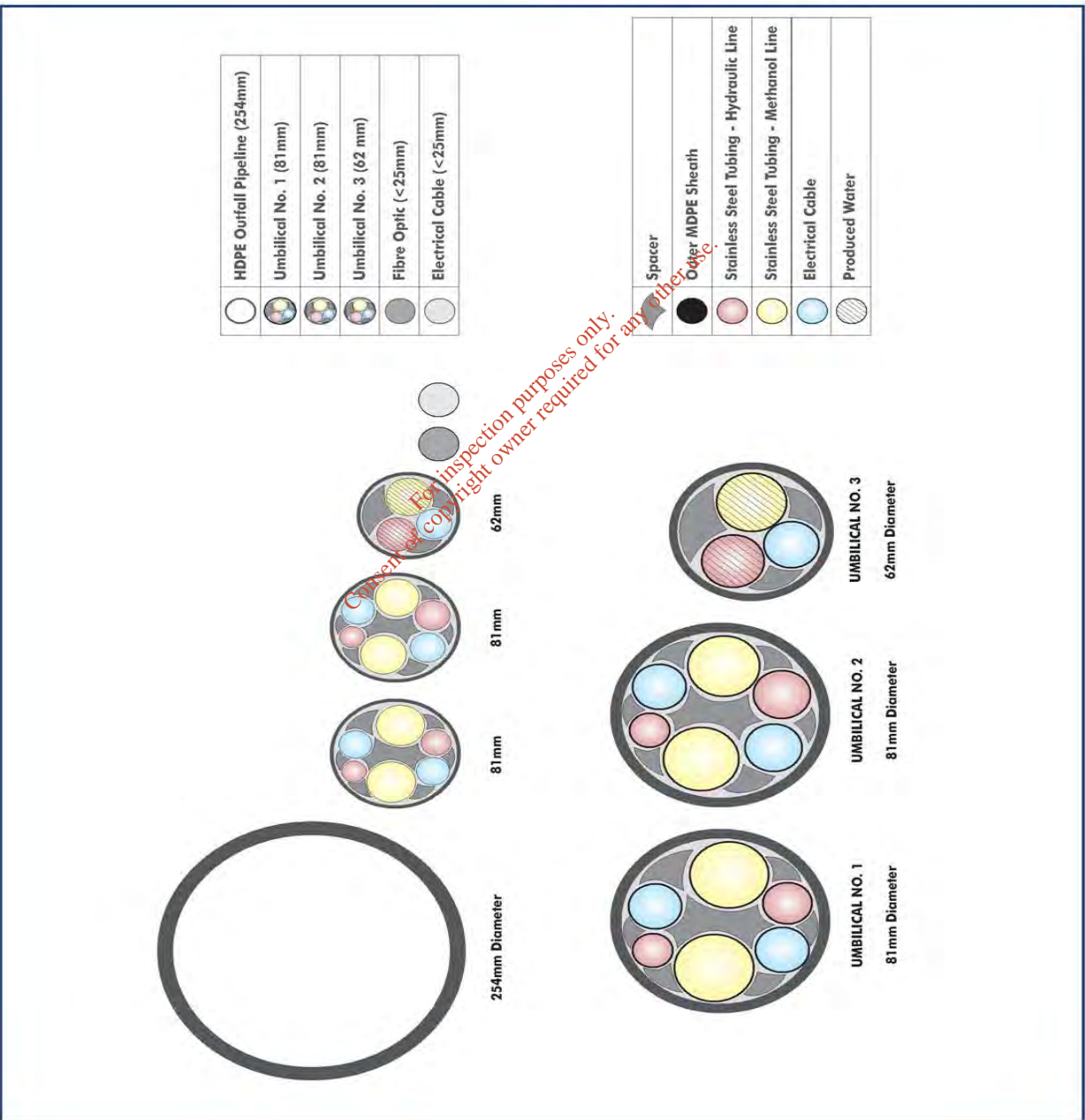
SEPIL advertised in the Western People and The Irish Independent on Tuesday 1<sup>st</sup> June 2010 notice of its intention to apply to ABP for an acquisition order under section 32 (1A) of the Gas Act 1976, to acquire compulsory the right over land to use strips of land specified in the schedules attached to the application for the purpose of laying and maintaining the gas pipeline. The application includes a request for confirmation of deviation limits specified in the schedule. File 16.DA.0005 refers.

## **1.11 Acquisition Order Application File Withdrawn**

The original application for an acquisition order and which related to the 2009 route file 16.DA.004 was withdrawn by SEPIL by letter dated 31<sup>st</sup> May 2010.

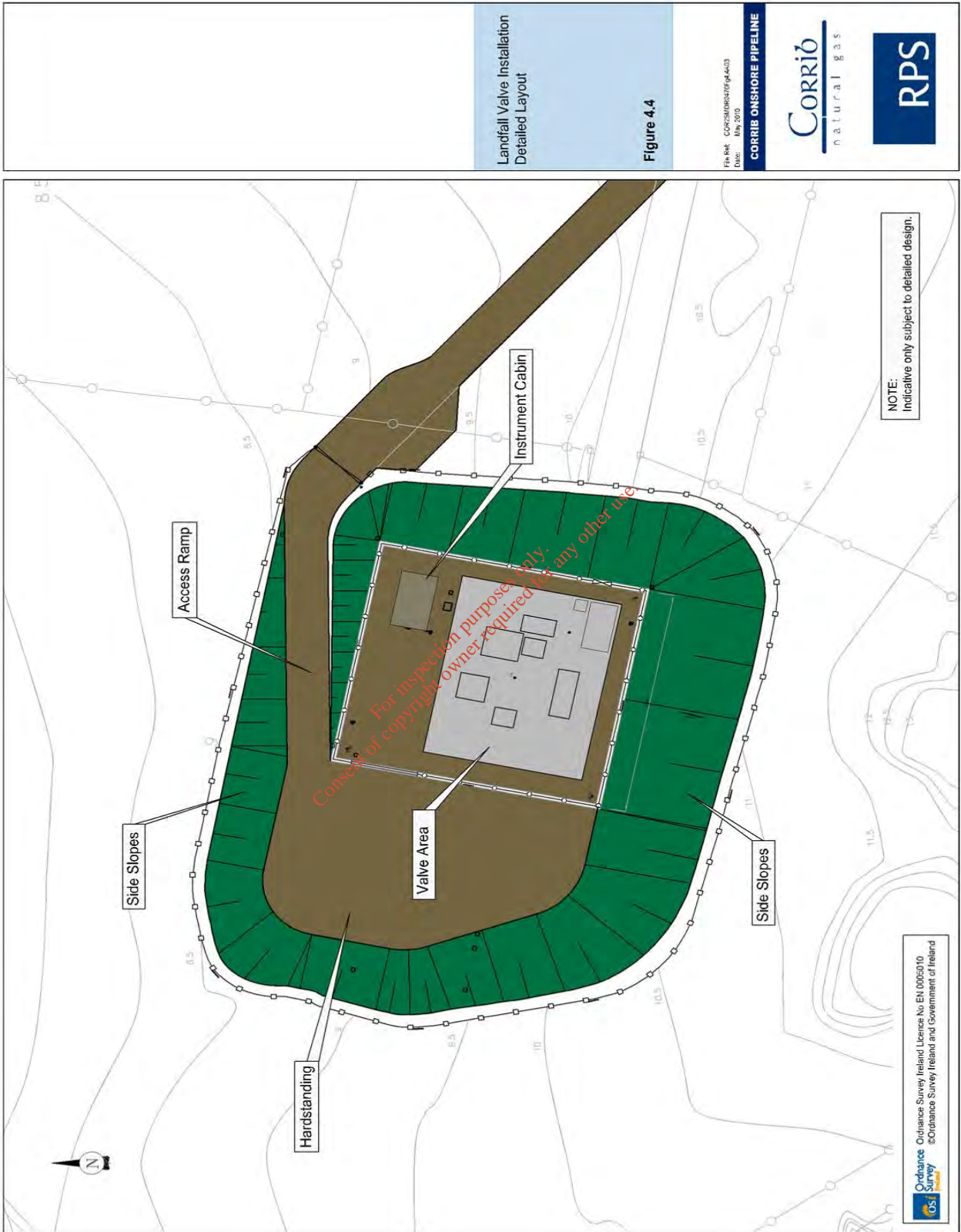


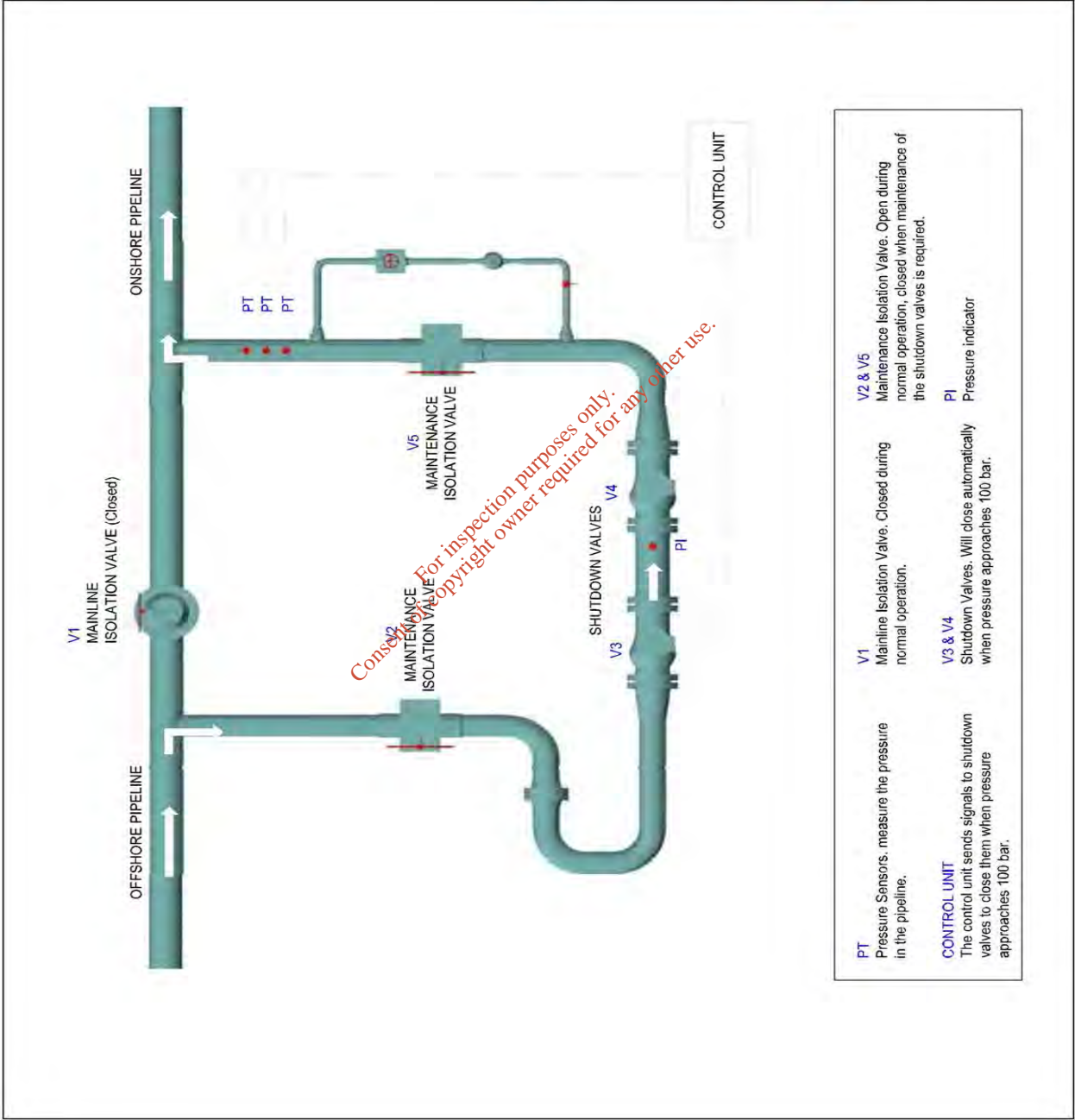












<b>PT</b> Pressure Sensors, measure the pressure in the pipeline.	<b>V1</b> Mainline Isolation Valve. Closed during normal operation.	<b>V2 &amp; V3</b> Maintenance Isolation Valve. Open during normal operation, closed when maintenance of the shutdown valves is required.
<b>CONTROL UNIT</b> The control unit sends signals to shutdown valves to close them when pressure approaches 100 bar.	<b>V3 &amp; V4</b> Shutdown Valves. Will close automatically when pressure approaches 100 bar.	<b>PI</b> Pressure indicator



## Chapter 2 The Site

### 2.1 The Location

The Site is located in North West Mayo and runs from Broadhaven Bay at Glengad along through Sruth Fada Conn Bay and into Aghoos and finally enters the terminal site at Bellanaboy Bridge in Bellagelly South.

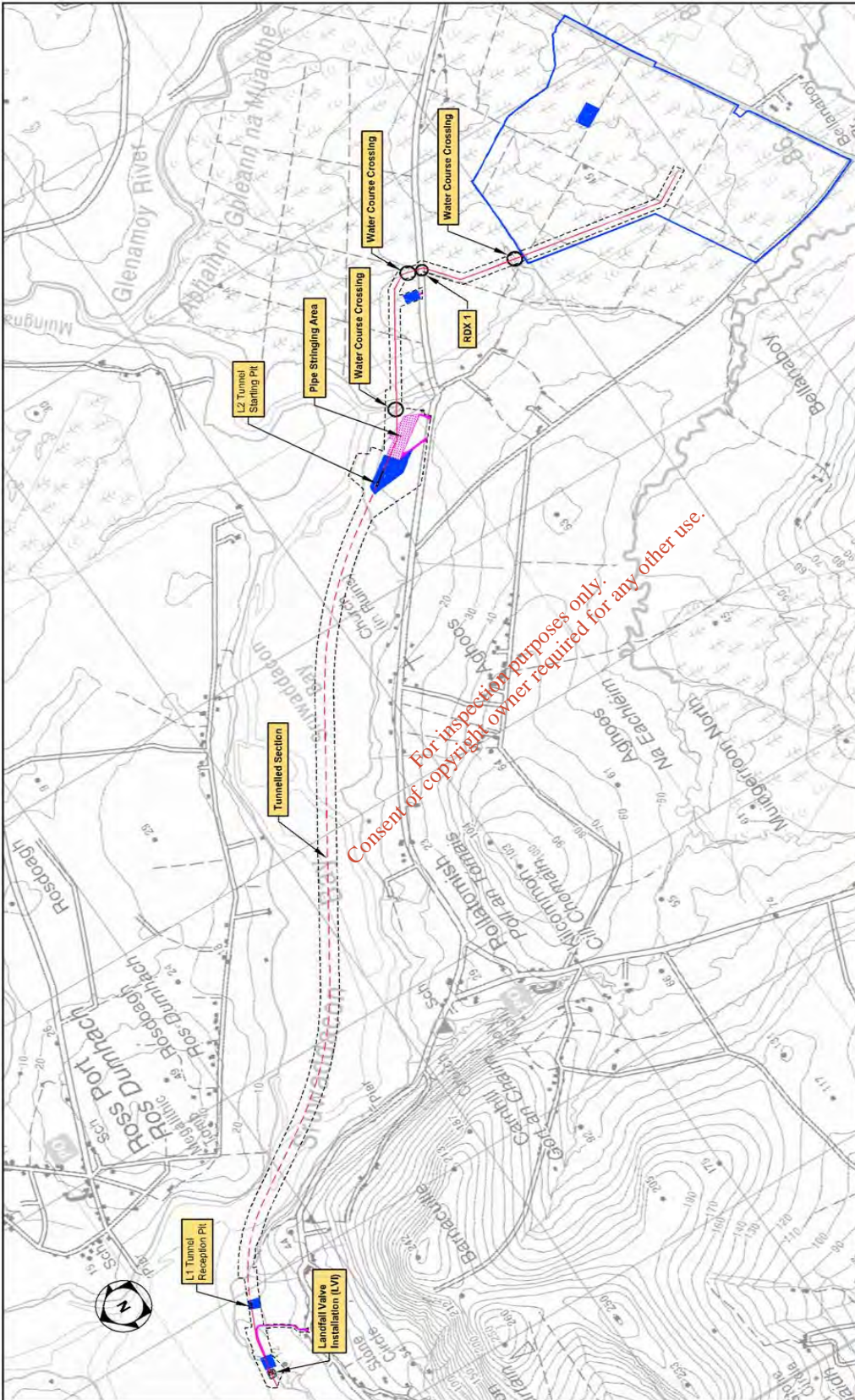
Figure 5.1.b shows the proposed construction plan.

The Corrib Gas well field is located 83km west of County Mayo in approximately 350 m of water and at a depth of 3500m below the seabed. The field centre has latitude of 54° 20' N and landfall has a latitude of 54° 17' N.

### 2.2 Special Characteristics of the Site

The site has special characteristics as follows:

- 1) The Glengad site and Sruth Fada Conn Bay are in an area of special protection. The Blacksod/Broadhaven Bay SPA No 4037 and the Broadhaven Bay cSAC No 472 and the Glenamoy Bog Complex cSAC 500. (Plans of the SPA and SACs are presented in Appendix 5)
- 2) The pipe length at 8.3 km will involve significant movement and mobilisation of plant materials and construction support. The L1202 local road will be used extensively to provide access to the site at Glengad and at Aghoos. The L1204 will be used as part of the haul route for the project.
- 3) The Aghoos Compound will be the centre of a large construction activity over 26 months and will have traffic and other construction relates impacts that need to be assessed. The construction of a tunnel means that the Aghoos compound will be used as a single construction site for 4.9km of the onshore pipeline.
- 4) The construction methodology involves open cut trenching in the grassland at Glengad, tunnelling under the cSAC and pSPA within Sruth Fada Conn Bay and special construction using the stone road method through the blanket bog peat lands and forestry parts of the site.
- 5) There is one public road crossing, L1202, the Sruth Fada Conn Bay /estuary crossing by tunnel, the Leenamore River crossing at Aghoos within cSAC [500], and one small river crossing at Ballygelly South involved as well as minor watercourse crossings at Glengad and Bellagelly along the route.



**PROPOSED CONSTRUCTION PLAN**

**LEGEND**

- PROPOSED PIPELINE ROUTE
- TUNNELLED SECTION
- TERMINAL PLANNING BOUNDARY
- TEMPORARY WORKING AREA
- SITE EXPOSURES
- TEMPORARY ACCESS ROAD (IN USE)
- ROAD CROSSING

**NOTE:**  
 TEMPORARY WORKING AREA  
 REPRESENTS THE AREA  
 DEVELOPED FOR THE PROPOSED  
 PIPELINE CONSTRUCTION.  
 THE PIPELINE CONSTRUCTION  
 CONTRACTORS SHOULD BE  
 ADVISED THAT THE TEMPORARY  
 WORKING AREA ALSO  
 INCLUDES AREAS FOR  
 ACCESS AND EGRESS.

**Corrib**  
natural gas

**RPS**

**CORRIB ONSHORE PIPELINE**

File Ref: CORC/MD/00779/05\_Rev03  
 Date: May 2010

**Figure 5.1b**

- 6) The area at Dooncarton Hill which is located over Glengad landfall site has been the subject of landslides in 2003.
- 7) The Landfall Valve Installation (LVI) involves a tie in with the offshore pipeline and construction of a valve assemble and controls area in a site which is visible from a number of observation points two of which are marked as scenic views in Mayo CDP 2008 – 2014.
- 8) The Landfall Valve Installation (LVI) and the pipeline and the construction of a tunnel reception pit at Glengad will involve mobilisation and movement of plant materials and construction support in the Aghoos Pollathomais Glengad area which is served by L1202.
- 9) The land uses are agricultural grassland, peat land, forestry. The peat varies in depth up to 5m.
- 10) The mean annual rainfall is 1142 mm over records for 32 years in the area. The prevailing wind is WSW and there are 30 days of gales per annum.
- 11) The site of the pipeline is within the Gaeltacht area of North Mayo.
- 12) Part of the route and site was the subject of the 2002 Section 40 consent by the Department of Marine and Natural Resources (now DCENR) to construct a pipeline. SEPIL indicated in 2009 that the change from that pipeline route was initiated to achieve greater separation from the houses and following mediation by Mr. Peter Cassel's. The modified proposed development as set out in the 2010 E.I.S has been proposed by SEPIL in response to the invitation by ABP to modify the route in the Board's letter of 2-11-2009. Observers contend that the 2002 route and the 2002 consent is the subject of a High Court case which has not concluded. (Appendix 6 contains a copy of Corrib Gas Field consent to construct a pipeline, April 2002)
- 13) The geology of the area is best understood by reference to Table 15.1 shown attached. About one third of the route, from Aghoos to Bellagelly South, is peat lands or forestry in peat lands.
- 14) The tunnel will have between 5.5m minimum cover and will be within 10m below the defined centerline as it is laid under the Bay. The tunnel will be constructed in mainly sands and gravels with construction at each end being through rock formation there.
- 15) The population of the 5 electoral districts in the area Cnoc an Dáimh, Muing na Bó, Barr Rúscaí, Gleann na Muaidhe, Cnoc na Lobhar was 1,899 in 2006. That population has shown a decline of 11% over 10 years.



**Table 15.1:** Description of geology along route (showing approximate chainages) with details of Proposed Construction Methods (see Chapter 5).

Section	Approximate Chainage		Land type*	Description	Proposed Construction Method
	From	To			
Gleann an Ghad (Glengad)	83.40	83.88	Improved agricultural grassland	<p>The proposed landfall valve installation location is at the west of this section. A small cliff face about 3m to 4m high is exposed at the western end fronted by a beach leading to the sea. Sand dunes are located to the north of the section.</p> <p>Ground conditions comprise generally shallow granular subsoil on psammite (metamorphosed sandstone) rock, which was encountered in boreholes between about 3.85m and 5m bgl.</p> <p>Psammite rock is exposed along the cliffs at the landfall site. Rock typically dips at 80° to the south although close to the landfall there is a near perpendicular change in dip angle.</p> <p>The pipeline will be within a tunnel from the eastern Gleann an Ghad (Glengad) headland where a compound area with a reception pit will be constructed.</p>	Spread technique
Tunnel	83.90	88.77	Wet grassland, marsh, estuary and intertidal, eroded/cutover blanket bog	<p>This section of the pipeline passes beneath Srwaddacon Bay and will be constructed using tunnelling methods (Segment Lining).</p> <p>Shallow granular and cohesive subsoils exist in the foreshore section. Geophysical and geotechnical surveying within Srwaddacon Bay showed granular deposits consisting of mainly sands and gravels with occasional cobbles and small boulders to depths of about 25m overlying bedrock.</p> <p>The bedrock is exposed on the foreshore in the northern part of the bay.</p>	Segment lined tunnel technique
South of Srwaddacon Bay / na hEachú (Aghoos)	88.77	89.18	Modified cutover and eroding blanket bog- undesignated	The tunnel will be constructed from na hEachú (Aghoos) on the south eastern shore of Srwaddacon Bay where a compound area associated stringing area and starting pit will be constructed.	'Stone Road' method
	89.18	89.36	Stream inlet and salt marsh/ improved agricultural grassland and wet grassland	This section comprises gently sloping peatland underlain by granular and cohesive subsoil to a depth of 8.2mbgl** in turn underlain by weak to moderately weathered schist bedrock to 16.4m bgl underlain by a strong slightly weathered psammite bedrock to depth as determined from a borehole in the area (IDL, 2009).	Spread technique
	89.36	89.55	Recovering Eroded blanket bog	Peat probing indicated peat depths of between about 1m and 4m. This section crosses peatland and a small valley associated with the Leenamore River, until it reaches a forested area at chainage 89.545.	'Stone Road' method
Forested Area	89.55	91.72	Coniferous forestry on blanket bog/ some trees recently felled	<p>This section of the route runs south east crossing commercially forested land before changing direction where it crosses a road. It changes direction again to run south to south west falling towards a small valley and rising again to the Terminal site.</p> <p>Peat probing indicated peat depths of between about 2m and locally 5m.</p> <p>Trial pits indicated soft to very soft slightly to highly amorphous peat from 0m to 3.5mbgl. Slightly silty very gravelly sand was present at 3.5mbgl in one of the trial pits.</p> <p>Approximately 900m of stone road was constructed in this area (Ch. 90.73 to 91.69) during previous pipeline construction activities</p>	'Stone Road' method

\*Sections are generally based on land types as defined by habitat mapping (see Chapter 12).

\*\*m bgl: metres below ground level

- 16) A study area has been defined by the Applicant as the local and wider residents of these 5 electoral districts. In reality, the smaller group of the residents of Glengad, Pollathomas, Aghoos and Rossport are the local communities affected immediately in their daily lives by the proposed development and by the construction activities involved.
- 17) SEPIL have now included the complete route from HWM at Glengad to the Terminal in the Application. SEPIL have included the full extent of the works proposed from HWM to the terminal in the application.
- 18) SEPIL have now restated the condition of the site in Aghoos – Bellagelley South area where a stone road has already been constructed. This existing stone road will be used in that part of the site for construction of the proposed development.
- 19) The site traverses Sruth Fada Conn Bay which is a very fine natural estuary which fills and empties with each tide and is overlooked by Aghoos, Pollathomas and Glengad on the south and overlooked by Rossport on the North. Sruth Fada Conn Bay is a very beautiful and pristine environment and which has only natural environmental pressures exerted on it at present. This area is of relatively low density population and until the Corrib Gas Field Development came along there were no developmental pressures on this Bay.

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## Chapter 3 The Submissions Received

### 3.1 Introduction

This Chapter deals specifically with the Written submissions (WS) received by ABP from Observers. Submissions by Prescribed Bodies are dealt with separately in later chapters.

The submissions to ABP regarding the proposed modified development are an important element within the E.I.A. process. For the purpose of clarity the following sets out where the submissions received have been considered in this report.

#### Prescribed Bodies

Mayo County Council	Discussed in Chapter 4
DCENR	Discussed in Chapter 12
DEHLG NPWS DAFF	Discussed in Chapter 13
An Taisce CER Inland Fisheries Ireland	Discussed in Chapter 11
EPA HSA	Discussed in Chapter 14

#### Observers Submissions

Written Submissions	Summarised Chapter 3
Submission at OH	Summarised Chapter 15
Schedule of issues distilled from all observers submissions	Summarised Chapter 17

#### Written Submissions 2010 16.DA.0005

1. Diana Taylor
2. Sean and Mary Teresa Coyle
3. Eoin O Leidhin Rossport Solidarity Camp
4. Terence Conway
5. Laurence Coyle
6. Kathleen Noone
7. Patrick McAndrew
8. Teresa and Brid McGarry

#### Written Submissions from Prescribed Bodies 2010

1. Mayo County Council
2. Department of Communications Energy and Natural Resources
3. Department of Environment Heritage and Local Government
4. Department of Agriculture Fisheries and Food
5. An Taisce
6. Commission for Energy Regulation
7. Inland Fisheries Ireland
8. NRA
9. EPA

#### How to Find Observers' Submissions

##### *The Submissions*

##### Observers Written Submissions

2009	-	Appendix 4	2009 Report
2010	-	Appendix 3	2010 Report

##### Observers Oral Hearing Submissions

2009	-	Recording of Proceedings	2009 OH
2010	-	Recording of Proceedings	2010 OH

##### *Inspectors Summary of Submissions*

Chapter 3	2009 and 2010
Chapter 3	2010

Chapter 15	2009 Report
Chapter 15	2010 Report

### 3.2 Written Submissions 2010 16.GA.0004

1. Fr. Michael Nallen P.P.
2. Fr. Kevin Hegarty
3. J. McAndrew & T. McAndrew
4. Des Brannigan, DB Marine Research and Associates
5. Diane Taylor and others, Damhnait de Brun, Lucy Bingham Mc Andrew
6. Paula and Michael King
7. Michael Mc Garry, Turasóireacht Iorrais (Gabháltais) Teo
8. Michael O Heilai Chairman PEGG
9. Michael O Heilai Secretary Seirbhísi Curam Chill Chomain Teo
10. Martin Harrington
11. Brendan Conway
12. Jarlath and Teresa McAndrew
13. Donal Connolly and Paddy McGuire
14. Michael O Seighin Caitlin O Seighin Sean Mc Aindriu Nora Nic Aindriu JP Coyle
15. Ethel Corduff and Thomas Corduff
16. Eamonn O Coileain
17. Tom Philbin
18. John, Kathleen and Jonathan Barrett
19. Mary Meenaghan
20. Pat Meenaghan
21. Neil Mc Eleney
22. Sean O Geallachoir, Teach John Joe Teo
23. Vincent Mc Grath, Pobal Chill Chomáin
24. John Monaghan Brid Ni Sheighin
25. Catherine McAndrew
26. Peter Sweetman & Monica Muller
27. Fritz and Betty Schult & Others
28. Colm & Gabrielle Henry
29. Brendan Cafferty, Secretary Pro Gas Mayo Group
30. Sam Brown Finbar Cafferty Finbar Dwyer Kevin Gallagher Niall Harnett Padraig Kavanagh Kate Kirkpatrick Eoin Lawless  
Paul Lynch Eion O Leighin St John O Donabhain Nancy Serano Caroline Young Rossport Solidarity Camp
31. Niall King and Jerry Sheeran
32. Tony Mc Grath c/o Clarke and Flynn Solicitors
33. Sean Hannick Council for the West
34. Engineers Ireland
35. The Irish Academy of Engineering
36. Seán Staunton Erris Scholarship Board
37. Sean Murphy Chambers Ireland
38. Aidan O Sullivan Gaslink
39. John Brennan, Irish Business and Employers Confederation (IBEC)
40. Fergus Cahill Irish Offshore Operators' Association
41. M Mc Carron and Vincent Fahy
42. Maura Harrington
43. Terence Conway and others (320)
44. Jonathan Naughton
45. Pierce and Anne Finnegan
46. David Dendy and Clair Hynes
47. Teresa McGarry and Brid McGarry
48. Bord Gáis
49. Pollathomais N.S. Board of Management

The Schedule for the written submissions (2009 scheme) is as follows;

- 1 Mayo County Council
- 2 Dept. of Agriculture, Fisheries & Food
- 3 Dept of Communications, Energy and Natural Resources
- 4 Dept. of the Environment, Heritage and Local Government
- 5 National Roads Authority
- 6 Údarás na Gaeltachta
- 7 An Taisce
- 8 Turasóireacht Iorrais (Gabháltais) Teo
- 9 Bord Gáis Networks
- 10 Irish Business and Employers Confederation (IBEC)
- 11 Council for the West
- 12 Dara Calleary, TD
- 13 Councillor Harry Walsh
- 14 Fr. Michael Nallen
- 15 Erris Chamber of Commerce
- 16 Chambers Ireland
- 17 Irish Offshore Operators' Association
- 18 Engineers Ireland
- 19 Pobal Le Chéile
- 20 Pobal Chill Chomáin
- 21 Mícheál Ó Seighin & Others
- 22 Belmullet G.A.A. Club
- 23 Fritz and Betty Schult & Others
- 24 Rossport Solidarity Camp
- 25 Goodbody Economic Consultants
- 26 Shevlin Engineering Ltd.
- 27 Pro Gas Mayo Group
- 28 J. McAndrew & T. McAndrew
- 29 Cornelius King & Gerry Sheerin
- 30 Maura Harrington
- 31 Monica Muller & Peter Sweetman
- 32 Roadbridge Ltd.
- 33 DB Marine Research and Associates
- 34 Seán Staunton
- 35 Ethel Corduff and Thomas Corduff
- 36 John Monaghan
- 37 Brendan Hegarty
- 38 Mercury Engineering
- 39 Teach John Joe Teo
- 40 Paraic Cosgrove & Pdraig McGrath
- 41 Lennon Quarries
- 42 Teresa & Bríd McGarry
- 43 Catherine McAndrew
- 44 Tom Philbin
- 45 Colm & Gabrielle Henry
- 46 Terence M. Conway & Others
- 47 Kilcawley Construction

- **2009 Submission 6: Ian Mac Aindriu**, Údarás na Gaeltachta, Bothar Béal an Fheadha, Béal an Mhuirthead, Co. Mhaigh Eo.
  1. Ian Mac Aindriu is an elected member of Údarás na Gaeltachta.
  2. Údarás na Gaeltachta supports any development that will enhance the economic development of the area provided it does not compromise the social and cultural development of the area.
  3. The early operations of the Corrib Gas Partners had a detrimental impact on social and cultural development of parts of Erris. A lack of engagement and dialogue with the local community was evident.
  4. Some members of the community have genuine concerns about health and safety of the project. These must be addressed in a meaningful way.
  5. The submission asks that independent assessment of:
    - (1) The pressure valve proposed, as there is concern that the pressure reduction may malfunction and allow a situation where the pressure will rise to 345 bar.
    - (2) The construction in Sruth Fada Conn Bay as the issue of why it is possible to tunnel under the bay but not lay the pipe up through the inlet is not clear. Shell did not carry out technical work in the bay prior to submission of the application. ABP should verify that the tunnel system proposed will be successful.
    - (3) The benefit to the local community be made clear. How many permanent jobs will there be?
  6. The submission seeks to have the Second Level Scholarship Scheme extended beyond 2009.
  7. The submission outlines that the infrastructure in Erris water, roads, piers, sewerage, broadband is totally undeveloped and that this project should go some way towards closing the deficit.
- **2009 Submission 7: An Taisce**, The National Trust of Ireland, Tailor's Hall, Back Lane, Dublin 8.
  1. The application site affects Sruth Fada Conn Bay cSAC/pSPA part of the Blacksod Bay/Broadhaven Bay Ramsar site, and cuts through Glenamoy Bog Complex cSAC as well as peatland warranting Priority Habitat Status.
  2. Habitats Directive requires justification of the proposal and consideration of alternatives that would not impact on cSAC/pSPA.
  3. Where damage to SAC and species within SAC, then exemption possible only (a) where no other alternative (b) overriding public interest. This development does not fulfil either.
  4. Where there is a doubt about maintaining the integrity of the site, the precautionary principle must apply.
  5. The proposal is to cross and re-cross the bay and route through designated SAC Bog Complex. It is considered that the proposal has not been justified or that less intrusive (ecologically) routes have been properly assessed.
  6. As regards the 2 crossings of Sruth Fada Conn Bay which has salmon travelling through it, there is uncertainty with regard to the necessity for blasting.

7. The Circuitous Route on eastern side of Sruth Fada Conn Bay significantly and adversely effects the SAC Blanket Bog. The status of the non SAC peatland as a priority habitat is not adequately addressed in the proposal.
  8. The adequacy of information in E.I.S is a concern particularly regarding long term maintenance and security measures required at beach valve installation and along the pipeline. Further details in particular, of the long term compound and security measures at LVI are not provided.
  9. The LVI is overlooked by the communities of Pollathomais on a site which is difficult to secure. This is inconsistent with government and EU policy to provide for security of energy supplies.
  10. The site was selected on the drinking water catchment of 10,000 people and in breach of codes and standards.
  11. It is submitted that S.I. Act 2006 is in breach of EU Directive 35/2003 regarding public participation as the Act does not provide substantive appeal at reasonable cost.
- **2009 Submission 8: Michael Mc Garry**, Chairman Turasóireacht Iorrais Teo, Belmullet, Co Mayo.
    1. Erris Tourism is committed to the development of Tourism Facilities & Amenities in the Erris area.
    2. The proposal meets the highest international standards. The concerns which Erris Tourism had concerning Health & Safety have been allayed by independent reports and guarantees.
    3. The Advantica Report provides confidence that the pipeline is safe.
    4. Economically the gas field will be important, providing a large part of gas needs for the country over 15 years.
    5. Security of supply is important for FDI.
    6. In Europe the supply of gas from Russia/Asia can be disrupted.
    7. The economic benefits already are clear – employment, economic spin off, project gives hope to young people, local investments by Shell are welcomed, local support for “social investment” projects such as the GAA €200,000 and RNLI €200,000 are welcomed.
    8. The long term independent fund of €5,000,000 is welcomed. This has potential to transform Erris.
    9. Erris Tourism has attended the open days for consultation and has received responses in an open and up front manner from Shell.
    10. The issues – traffic management, upgrading of roads and health and safety are identified for attention in the context of a planning approval.
  - **2010 Submission 7: Michael Mc Garry**, Chairman Turasóireacht Iorrais Teo, Belmullet, Co Mayo.
 

Additional points 22/07/2010.

    11. The modifications to proximity distance (234m now to nearest house), operating pressure(MAOP 100bar onshore pipe), removal of pipeline from Rossport, tunnelling



in Sruth Fada Conn Bay to minimise damage to biodiversity of the bay, tunnelling in one direction to minimise potential construction impacts on the local area, all these modifications have addressed the concerns raised by ABP.

12. A considerable number of jobs are anticipated locally during the construction of the tunnel.
13. Erris Tourism supports the project and makes the point that Shell is supporting the local community with the social investment programme.

- **2009 Submission 9: John Barry**, Bord Gais (Networks), Networks Managing Director, PO Box 51, Gasworks Road, Cork

1. This submission identifies natural gas as the fuel used for c. 56% of electricity produced (2007) and 27% of total primary energy requirement. Five new gas fired power stations are proposed over the period 2008/09 to 2014/15 and a growth for gas demand of 1.6% per annum is forecast.
2. The submission points out that gas creates 25% less CO<sub>2</sub> emissions than oil, 40% less than coal and 51% less than peat creates. The submission identifies that Ireland was self sufficient in natural gas supplied from the Kinsale gas fields for 19 years. Ireland now is a major importer of natural gas from Great Britain, due to a combination of rising demand and declining Kinsale production.
3. In 2006/07, more that 90% of Ireland's gas demand was met by imports from Great Britain.
4. Corrib Gas field will meet c. 60% of ROI annual demand requirement in 2010/2011. The Corrib Gas link will connect into BG Networks transmission system. The construction of this link, the cost of which has been underwritten by the Corrib Gas Partners, has facilitated supply of gas to towns/cities in the west.

- **2010 Submission 48: John Barry**, Bord Gais (Networks), Networks Managing Director, PO Box 51, Gasworks Road, Cork.

**Additional points.**

5. In 2008/2009 natural gas accounted for 66% of the fuel used for electricity production in Ireland.
6. 94% of the gas demand in 2008/2009 was met by imports from UK.
7. Corrib gas field is projected to meet approximately 73% of Republic of Ireland demand from 2012/2013 onwards and will enhance Ireland's security of gas supply.
8. Corrib gas will also assist in meeting the impending EU directive which proposes legislative obligations on member states to ensure adequate facilities are in place to meet increased minimum standards of security of gas supplies.
9. The absence of or delay in Corrib gas supplies would potentially require significant additional expenditure on the existing natural gas infrastructure to meet Irelands increased security of gas supply obligations.

- **2009 Submission 10: Irish Business & Employees Confederation (IBEC),** West Regional Office, Ross House, Victoria Place, Galway.

1. IBEC supports this application.
2. 20 Large employers elected biannually represent the IBIEC West Region views. They support speedy completion of the project.
3. The pipeline is located in a socio-economic black spot. The Corrib Gas Partners have financed through a tariff the Mayo Galway pipeline. 12 Mayo and Galway towns are seeing local benefits from joining the BGE network.
4. The Irish economy needs the energy security that this scheme will provide.
5. The submission acknowledges that safety and community consent issues existed, but IBEC believe now that these have been reasonably addressed by the recommendation in the Advantica Report and mediation talks locally, whereby the pressure is reduced and the distance from the houses is increased.
6. The submission quotes Forfás 2006 report which stated that a secure uninterrupted energy supply at a competitive price is a requirement in providing a supportive environment for attracting foreign direct investment.
7. Corrib will supply 60% of Ireland's gas needs at peak production. The field is expected to last 15 years.
8. Provided the design of the pipeline is in keeping with environmental and technical best standards, IBEC encourage ABP to consider the application favourably.

- **2010 Submission 39: Irish Business & Employees Confederation (IBEC),** West Regional Office, Ross House, Victoria Place, Galway. **23<sup>rd</sup> July 2010**

9. The submission notes that Shell is seeking to re-route the pipeline through Sruth Fada Conn Bay as requested by An Bord Pleanála. Shell has reduced the normal operating pressure to 85 bar and the MAOP to 100 bar. The pipeline is now 234m from the nearest house three times the distance proposed in 2002.
10. The fact that there will be no construction activities in Rosspoint means that these residential amenities will not be impacted.
11. The submission re-iterates the point that the associated delays in this project mean delays in producing our indigenous gas supplies and further exacerbates our vulnerability in terms of security of supply. Ireland currently imports over 95% of its gas.
12. IBEC encourage the Board to consider the application favourably provided the design of the pipeline is in keeping with environmental and technical best practices.

- **2009 Submission 11: Sean Hannick,** Chairman Council of the West, Killala Business Park, Killala, Co Mayo.

1. The council for the West is a voluntary non political body of charitable status established in 1994.

2. The council for the West support the project and believe availability of gas in the West is essential as the electricity transmission system is inadequate.
  3. The availability of gas will make CHP plant capacity an option for industry..
  4. Many economic benefits already have been brought by the project.
  5. The council feel that the environmental and safety considerations have been dealt with adequately by Mayo County Council, DCENR, TAG, Advantica, Peter Cassells, An Bórd Pleanála, the EPA.
  6. A study by Dr Seamus Caulfield has shown that the population west of a line from Killala to Newport is the worst area in the country for population decline.
  7. Ireland is vulnerable regarding energy supply – 90% of our gas being piped long distances and 60% of electricity being generated by GAS.
  8. Corrib gas piped into our national grid will provide 60% of our gas needs over 20 years.
- **2010 Submission 33: Sean Hannick**, Chairman Council of the West, Killala Business Park, Killala, Co Mayo.

Additional points 15/07/2010

9. The proximity has been addressed and is now 234m from pipeline. The rerouting has also addressed the particular concern of proximity to Rosport housing.
  10. SEPIL's concern for the community has been demonstrated again in their proposal for a tunnel under the Bay and in proposing to construct the tunnel in one direction from Aghoos SEPIL will ensure there is no impact on the Bay as a result of either the construction or operation of the pipeline. The tunnelling in one direction will also limit the impact of construction phase to a smaller area.
  11. The approval process has taken years and it is now time that the process is concluded allowing the final phase of the Corrib pipeline to be constructed.
- **2009 Submission 12: Dara Calleary TD**, Pearse Street, Ballina, Co Mayo

1. I wish to make a submission in relation to the above planning application lodged by Shell E&P Ireland Limited in relation to the onshore section of the Corrib gas project.
2. As an elected representative of Mayo I would like to urge the Board to address the key safety and environmental issues which are of concern to the community.
3.
  - Pipeline safety – All issues of pipeline management, but particularly in regard to pressure and to its construction and ongoing maintenance in a peat based environment.
  - Environmental mitigation measures – Can the local community be assured that there will be a minimal impact on the local habitats, especially on Sruth Fada Conn Bay and the Glenamoy bog complex?
  - Visual impact – Have all the reasonable steps been taken to ensure that any impact on the landscape is minimised?

4. It is clear to me that the Corrib project has brought great economic benefits to the Erris area – particularly in relation to job creation.
5. At the moment there are 900 people working on the construction of the terminal site.
6. There have also been benefits to the local community through the use of local suppliers and contractors and through the inevitable knock on effect this has. 11 towns in Mayo and Galway are being connected to the national gas grid as a result of this project and I believe this will make the North West an increasingly attractive area for investment. Accordingly I am continuing to work to have further towns connected, particularly in the Erris region.
7. I would urge the Board to refer to Mr. Peter Cassells mediation report as forming a constructive basis for addressing the local community issues and moving forward.

I believe that the successful and safe delivery of this project will bring continuing benefits to Erris and to Mayo and would urge the Board to address all of the safety issues to the satisfaction of all concerned to that, this vital piece of national infrastructure can be delivered in a timely fashion.

- **2009 Submission 13: Councillor Harry Walsh, Kilmaine, Co Mayo**

1. Councillor Walsh has been a supporter of the Corrib Gas development for the past number of years. He believes that it will bring many benefits to Erris, Mayo and to the country.
2. Some of those benefits are already to be seen with gas being laid on to a number of towns in Mayo. He has campaigned to get BGE to bring natural gas to Ballinrobe.
3. To date, the Corrib Gas Partners have displayed an ability to develop this project in an environmentally friendly and safe way. The original pipeline was deemed to be safe by the Advantica Report. The new pipeline route will operate at reduced pressure and will be further away from homes.
4. It seems to Councillor Walsh that the developers have done all in their power to ensure safety and to adopt an environmentally correct approach, and he is pleased to support this project.

- **2009 Submission 14: Fr Michael Nallen, Parish Priest, Parish of Kilcommon, Erris, Co Mayo**

1. This submission outlines the impact on community life of the gas processing plant at Ballinaboy. The gas pipe is seen as bringing trauma, unease and insecurity to the people. The project is seen as diminishing the quality of life, devaluing property, restricting family members from building new houses and preventing them from living happily in a relatively safe environment.
2. The submission makes the point that the project while giving to the area and to the country, it also takes from the community. It states the project will replace peace of mind would be replaced by chronic anxiety. It identifies the robust opposition to the project as being due to fear for Health & Safety and acute concern for precious social and ecological structures.



3. The submission identifies the instability of the landscape in which multiple landslides have occurred.
  4. The manner of implementing the project in which segments are selected and proceeded with it says denies people access to a just process where full consultation can be engaged.
  5. The submission suggests that those opposed to the plans to bring unprocessed gas ashore and through their lands, are willing to accept a shore based plant in an uninhabited area (not SAC).
  6. The submission urges that a way be found which can allow the community to live life in normality and find a way of implementing the project.
- **2010 Submission 1: Fr Michael Nallen**, Parish Priest, Parish of Kilcommon, Erris, Co Mayo

Additional points 26/07/2010

7. As a member of the Board of Management of Pullathomas National School concern is expressed for the safety of the environment of the school, the playground and field owned by the school. The field extends 136m from the school yard wall towards the sea. There is concern also regarding places where people congregate- the church at Aghoos, the graveyard at Pullathomas, the local public house and guest house and the road between Glengad and Aghoos.
8. Concern is expressed that the psychological impact of the fear for the safety of children at the school would surely be debilitating and would undermine the formation of the young people in the school.
9. At Glengad the residents would be in a very perilous position. This will bring stress and anxiety and diminished quality of health into their lives.
10. Concern is raised that leaking gas will have no smell.
11. Concern arising from the out of control circumstances that people have seen occur in the Gulf of Mexico disaster.
12. Concern that a geological fault extending to Ballyglass Lighthouse and the strong currents and areas of deep holes in Sruth Fada Conn may not be identified sufficiently in site investigation work.
13. Concern at the intrusion into the trout and salmon fishing areas in the bay.
14. Concern at the intrusion of security personnel and construction personnel and the invasion of privacy involved.
15. The site investigation ongoing in the Sruth Fada Conn Bay in cSAC is considered scandalous, and a lack of integrity in preserving the environment.
16. It is considered that the human population of Kilcommon-Erris is no less entitled to be treated with care respect and the dignity they require to live in peace and security than the protection afforded to the natural environment.
17. The acquisition by compulsory acquisition is not acceptable and will restrict farmers moving in areas required for grazing according to stocking requirements.

18. The submission asks that methods of achieving the objectives of the project, and which are compatible with environmental preservation and whereby people would not be confronted with hazards to health and safety, should be explored.

**2009 Submission 15: Derek Reilly**, President Erris Chamber of Commerce, Main Street, Belmullet, Co Mayo.

1. This submission identifies the RPS consultation process as impressive.
2. It identifies that Shell has taken on Board concerns expressed previously by landowners concerning safety and the environment.
3. In particular, the submission welcomes that the Advantica recommendations are taken on board in relation to the pipeline, pipe density, depth of pipeline and proximity to people's houses.
4. The submission appreciates that Mr. Peter Cassells recommendations of moving the pipeline further away from the houses has been taken on board.
5. The submission is supportive of the application from the point of view of Ireland's gas needs and Ireland's social and economic development, and for the benefits the project will bring to the local area.

• **2009 Submission 16: Chambers Ireland**, 17 Merrion Square, Dublin 2

1. Ireland relies heavily on natural gas for electricity production, 96% of gas is imported, hence vulnerability of Ireland to international energy markets security of supply and price.
2. Ireland is most vulnerable in the developed countries in terms of security of oil and sensitivity to supply and price changes.
3. Corrib gas field can supply up to 60% of Ireland's gas needs, and this is critical to economic advancement of the country.
4. Given the long lead in time in planning and constructing facilities, everything should be done to ensure the infrastructure is put in place to meet our future needs.
5. The submission believes that the design of the project meets highest international standards.
6. The Advantica Report has made recommendations regarding the safety of the pipeline. The submission expresses confidence that the pipeline is safe and conforms to best international practice.
7. The revised route of the pipeline is further from the houses and the pressure has been reduced, this makes it even safer than before.
8. Helicopter crashes recently highlight the need to process gas on shore for the safety of the workers.
9. The pipeline has already brought economic and skills benefits to the area. The project will enhance the area for foreign direct investment.
10. The submission sets out the belief that the pipeline route is the best available following extensive research and studies.
11. SEPIL have embarked on a 2009 – 2012 €5 million long term independent fund for investment in the community.

12. Chambers Ireland urges all parties to participate fully in the planning process, and to accept the outcome – they believe it is essential for all companies that there is efficiency and certainty in the statutory process.

- **2010 Submission 37: Chambers Ireland**, 17 Merrion Square, Dublin 2

Additional points 13/07/2010

13. SEPIL are seeking to minimise the environmental impact on the Bay by proposing a tunnel.
14. By routing the pipeline at a minimum distance of 234m from the nearest occupied dwelling which is more than three times the distance proposed in the 2002 scheme SEPIL have indicated clearly the efforts to respond to requests made by ABP.

- **2009 Submission 17: Fergus Cahill**, Irish Offshore Operators Association, Tramway House, Darty Road, Rathgar, Dublin 6

1. The contribution that Corrib gas field can make to the security of energy supply and to the Climate Change clean energy policy is of national importance.
2. The submission identifies the risks associated with offshore exploration in Ireland. “...Ireland ... low success rate of exploration, drilling, harsh operating environment, lack of related infrastructure, all leading to a relatively low level of application for exploration licences”.
3. The delay in bringing development to production has it says not gone unnoticed internationally. It is now 13 years since discovery. Normal timescale for bringing project into production is six years.
4. The submission states the absolute priority is of safety considerations and protection of the environment.
5. The submission indicated the view that rigorous reviews of the project, reduction in the operational pressure on the pipeline, increasing the distance from the houses, all these have addressed all aspects of concern.
6. The local economic benefits of the scheme have already been seen. The availability of gas in the NW region would hardly have been economic without Corrib Gas.

- **2010 Submission 40: Fergus Cahill**, Irish Offshore Operators Association, Tramway House, Darty Road, Rathgar, Dublin 6

Additional points 21/07/2010

7. It is now 14 years since the well was discovered. In a recent round of licensing in the UK 350 applications were received. In Ireland in the most recent round just 2 applications were received. The uncertainty and unpredictability of the planning process has contributed to this most undesirable situation.
8. IOOA recognises the absolute priority of safety considerations and protection of the environment.

9. The most recent changes made increasing proximity to housing to 234m and necessitating the 4.9 Km tunnel has in I.O.O.A.'s view addressed all aspects of safety concern.
- **2009 Submission 18: John Power**, Director General, Engineers Ireland, 32 Clyde Road, Ballsbridge, Dublin 4
    1. IEI believe the design of the project meets the highest international standards.
    2. IEI notes that 96% of Ireland's gas needs are imported, that Forfas 2006 report identified a secure uninterrupted competitive energy supply as being important in attending high levels of foreign direct investment.
    3. IEI identifies that 25% of Europe gas comes from Russia and Asia and this can be disrupted.
    4. 60% of Irelands needs can be supplied from Corrib and the field is expected to last 15 years.
    5. The project has brought economic benefit to Erris which is an area that has suffered from high levels of unemployment and emigration.
    6. IEI set out that Shell has been active in supporting the local community.
    7. IEI indicate that the proposed location of pipeline appears to be the best available.
  - **2010 Submission 34: John Power**, Director General, Engineers Ireland, 32 Clyde Road, Ballsbridge, Dublin 4 **23<sup>rd</sup> July 2010**
    8. IEI express their total support for the speediest possible resolution to all the issues surrounding the Corrib Gas Pipeline project. From an Ireland Inc. perspective it is impossible to calculate the damage that has been done to our reputation as a location for major FDI projects and in the present economic climate we can ill afford further delays to the start-up of this crucial project.
    9. The submission notes that Shell are seeking to route the pipeline in a tunnel through Sruth Fada Conn Bay such that it poses the least environmental impact on the Bay.
    10. IEI believe that by any measure it is clear that Shell have listened to and are responding to all requests made of them.
    11. IEI welcome the fact that the Board has deemed that the UK HSE criteria should be applied to the Corrib pipeline, which is in line with what they understand the CER to be adopting for Irish upstream gas pipelines.
    12. IEI do not agree with the Board's request to use a consequence based criteria for the pipeline. Both the Technical Advisory Group (TAG) and the future Irish regulators, the CER, have made no reference to the consequence based approach as part of their decision-making framework for upstream gas pipelines. By seeking to apply this criterion the Board appears to be placing Ireland at variance with the rest of the western world in regulating pipelines and for no apparent reason or benefit. This has potentially serious implications for future hydrocarbon infrastructure development in Ireland and as such we would request that the Board reconsider their unique consequence-based criteria. The Board does not have statutory responsibility for the safety of upstream gas pipelines and as such should not be seeking to introduce



criteria when it will have no role in regulating pipeline safety in the long term. Flag I need to respond to this in my conclusions in Chapter 30

13. Concern is expressed at the unemployment rate in this country and the IEI urges that every possible effort be made to resolve all the issues and move the project forward.

- **2009 Submission 19: Ciarán Ó Murchú, Pobal le Chéile, Béal an Mhuirthead, Co Mhaigheo**

1. We wish to make a submission on behalf of our community group, Pobal le Chéile.
2. Pobal le Chéile is a community group representing all residents in the greater Erris area who have genuine concerns in relation to the location and design of the proposed pipeline and refinery in Ballinaboy.
3. Our community group is united in support of the proposal made by the priests from the parish of Kilcommon, that in the interest of community healing, the pipeline and refiners proposed for Ballinaboy should be relocated to a more remote and uninhabited coastal location. Our group firmly believes that this compromise offers a safer solution for the long established community of Erris.
4. It is our understanding that the majority of the community are not opposed to the idea of gas coming ashore, however, as previously stated, we have major concerns in relation to the location chosen for the proposed pipeline and refinery in Ballinaboy.
5. Glinsk is identified as a superior location for landfall. The submission questions why Glinsk was not evaluated as a site alternative.
6. Pobal le Chéile has clearly established that this pipeline does not have community consent. The fact that Compulsory Acquisition Orders are being sought further confirms that community consent does not exist. The use of force, which prioritise the needs of a private company over the needs of an Irish rural community sets an extremely worrying precedent, and will undoubtedly lead to an adverse reaction and serious resentment within our community.
7. The submission points out that the pipeline route traverses European protected sites SAC/SPA and NHA and will have a negative effect on the environment.
8. The submission expects that if permission is granted that community will feel obliged to protect their rural environment.
9. The submission asks that wellbeing of the community and protection of the environment should come before the benefit to a corporation.
10. We therefore respectfully request that An Bórd Pleanála refuses to grant permission to the elements of the project in front of the Board for consideration until a full independent review is conducted to determine the best development model for the Corrib gas project.
11. For the reasons outlined above, and in order to be given the opportunity to present our case in person, we request that an oral hearing be conducted.

- **2009 Submission 20: Pobal Chill Chomáin, Rossport, Ballina, Co Mayo**

1. This submission objects to the landfall valve installation at Glengad.

2. The terminal site was selected in breach of codes and standards referred to in Para 2.1.1 of the Non Technical Summary. The LVI site was identified following the selection of the terminal site.
  3. The terminal site is located within the drinking water catchment of 10,000 people. Complaints regarding the permission, licences, consents for the terminal have been lodged with EU & OECD. The OECD recommended a mediation process which has not commenced yet.
  4. The LVI is overlooked by the communities of Rossport, Glengad and Pollatomais. It will be difficult to secure the project without the consent of the local community.
  5. The LVI at Glengad without community consent is inconsistent with EU and government policy to provide for security of energy supplies.
  6. The S.I. Act 2006 does not provide for a substantive appeal at reasonable cost and so breaches EU Directive /2003/35. Check for sub
- **2010 Submission 23: Pobal Chill Chomáin**, Rossport, Ballina, Co Mayo  
**Vincent McGrath** – Additional points – 28/07/2010.
    7. The LVI site at Glengad does not meet the risk criteria set out by ABP. The QRA in Appendix Q does not include the analysis requested by the Board. Had the analysis been carried out it is most likely the site at Glengad would fail the risk thresholds set by ABP. Flag this for response in Chapter 28
    8. The security provisions of the code of practice were not considered by the developer when selecting the site at Glengad. Flag this for Chapter 26 response
    9. The tunnel construction is likely to generate vibrations and shock waves that could induce bogslide/ landslide on the adjacent steeply inclined landscape.
    10. The tunnel at 4 m seems overdesigned to accommodate a pipe of 0.5 m.
    11. As regards the site at Glengad there is no provision under P&D Act 2000 to 2009 or the S.I. act 2006 for the local authority to exempt this development from planning. The developer has not applied for planning permission for this site and ABP cannot grant permission for this site under the current legislation.
    12. The granting of planning permission by ABP under the S.I. Act 2006 is in conflict with EU Directive 2003/35 which requires provision for substantive appeal at reasonable cost.
  - **2009 Submission 21: Micháel Ó Sheighin**, Ceathrú Thadhg, Béal an Átha, Co Mhaigheo
    1. This submission on behalf of Micháel Ó Sheighin, Nora Nic Aindriú, JP Coyle, Caitlín Uí Sheighin, Sean Mac Aindriú.
    2. The submission contends that Shell have received a guarantee that planning permission will be granted for this application. The submission cites the fact that Shell will spend €4 million on road improvements to prepare for the construction of the pipeline as part of their reasoning behind the contention.
    3. The submission questions why ABP is forbidden to apply its jurisdiction to the first section of pipeline above the HWM and on land. [Note, this is understood as a

reference to the section of offshore pipeline that comes ashore and joins the onshore upstream pipeline at Glengad Landfall Valve Installation].

4. The submission seeks clarity so that ... “the connection between all parts of the project must be easily legible ...”. This refers also to the connection at Glengad between offshore and onshore pipeline.
5. The submission asks ABP to seek a decision of the Constitutional Court. It is not wholly clear on what issue, however, it is implied that “... knowledge or facility” available to one party (unclear assumed to be the applicant) is not available to the other party {Mr. O Seighin and his group of local people}. The implication is that the S1 Act 2006 is unconstitutional, although Petroleum Acts, Gas Acts, Continental Shelf Acts, are also referenced in this section of the submission.
6. The submission states that “... the legislation may not be safe ...” [SI Act 2006], and supports this with quotations from legal judgements.
7. The route selection process carried out by RPS is not considered objective and particularly the landfall site at Glengad is believed to have been given less that objective consideration in the alternatives discussed in the E.I.S.
8. The E.I.S is questioned in that the throughput of gas at the terminal is expected to be 350,000,000 CFGD and the gas field has a capacity of 1TCFG. It is claimed that (a) the terminal will only operate 140 – 190 days per year and (b) that the gas field will not supply the 60% of Irelands gas needs over 15 – 20 years as claimed.
9. The methane content in the gas is confused between Advantica (93 – 94%) and E.I.S. 97%.
10. What is the ownership status of SEPIL on the lands over which the planning application has been lodged? The issue is that the CAO is pending and the contention is that SEPIL has no authority over the lands until a CAO is granted. {Page 27}.
11. Attached to the comments on the application is an extensive review of the application which is very difficult to break down.
12. There is concern at safety due to number of gas incidents from pipelines all over the world, and due to the limitations of the Advantica Terms of Reference. There is concern that the Cassel’s mediation which recommended moving the pipeline away from houses, actually moved it closer to Rossport. The submission discussed the use of Acquisition Order procedure to enable a private company to develop the project, it is unclear what issue or point is being brought forward in this submission.

There is a substantial listing of the terrain of the route which includes designations, construction difficulties and threats including the threat to drinking water derived from Corrowmore Lake. The listing expresses concern at the 0.72 design factor for the pipeline at road crossings where it is suggested the factor should be 0.3 and which would require a pipe thickness of 62mm to achieve the 0.3 design factor.

There is substantial discussion about safety versus statistical risk. This submission provides a lot of information and depth of questioning of the project.

13. Details of accidents to pipeline are provided.
14. An extensive critique of the QRA system is presented.

15. The distance from an incident involving a pipeline explosion within a danger zone is considered and the 140m proposed by the applicant is compared with values calculated using US formula at 626 feet.

• **2010 Submission 14: Micháel Ó Sheighin**, Ceathrú Thadhg, Béal an Átha, Co Mhaigheo

Additional points 22/07/2010.

16. The modification brings the section of the project within Sruth Fada Conn Bay into the jurisdiction of Government (i.e. Foreshore Licence).

17. Concern is expressed at the timing of the borehole site investigation drilling in the Bay during a period that may have maximum conflict with migration salmon and sea trout.

18. Mr. O Sheighin implies that ABP by accepting “the current status of the overall Gas project” seem to be justifying permitting the development.

19. The submission questions the contribution that the state will receive over the life of the project. It is demonstrated using two gas prices \$5 per 1000 cubic feet and \$11 per 1000 cubic feet. The benefit to the state as calculated by Goodbody (contribution of €3 billion) is strongly questioned.

20. The submission does not accept that Corrib Gas Field can or will supply 60% of demand in this country. The contention is that the gas market is an open market and there are no guarantees who will buy Corrib Gas ultimately. It is contended that major Gas Wholesalers/Retailers have sourced gas requirements until 2025 and this questions where demand for Corrib Gas will come from.

21. Concern is expressed at the position of TAG who it is contended are advocates for SEPIL. The position of competent authority should be independent.

22. An issue is raised regarding whether SEPIL accept that the gas is a wet gas or not?

23. A number of comments are made concerning the modified scheme and concerning the consequences of specific alternations that people indoors will have increased safety, however the area is a rural farming area and the area has tourist potential there are outdoor activities.

24. The submission considers that work in Sruth Fada Conn is a direct threat to migrating Salmon and Trout but because the work is in the foreshore it may not be relevant to ABP.

25. The submission contends that 100bar is still very high pressure and asks why are pipelines even carrying market ready gas not allowed on land at these pressures?

26. The submission considers the Petroleum (Exploration and Extraction) Safety Act 2010 as “light touch regulation”



27. The submission raises the question that a consent (I believe this refers to consent to construct a pipeline under the Gas Act) is required and the modification to the proposed development now submitted by SEPIL requires a new consent as the original consent cannot be amended.
28. The submission considers the offshore pipe as laid into Glengad landfall has been moving and concern is therefore implied that the LVI when connected to the offshore pipeline will be at risk. It is contended that the outlet pipe broke free from the action of the currents.
29. Concern is expressed that the straight pipe concept might make a neater safer simpler landfall and that SEPIL has not accepted this.
30. The jurisdiction of ABP is contended to be subordinated at Glengad.
31. The need for a consent to that section of pipeline at Glengad above the HWM which has been laid as part of the offshore pipe is raised.
32. The question is raised what has made the 150 bar pipe possible now at Glengad?
33. The tunnel where it goes across from Cnocáin a' Chodlata Rosport it is under the hill of notable instability. This is cause of concern. A new set of vibration studies is required to consider the different materials and multiple interfaces involved and the Dóib which may be present
34. It is contended that no proposal is included for disposal of wastes arising from tunnel construction.
35. Concern is expressed that some interference with the Tidal Flow in Sruth Fada Conn Bay will lead to unknown changes there.
36. Advantica have not examined the proposed development and there is concern that neither Advantica nor other outside reviewer has produced a report on the present proposed scenario. Flag for Chapter 30
37. Concern is expressed that QRA'S do not take account of upset conditions and that 40% of pipeline failures occur during upset conditions.
38. The submission sets out that a better way to develop offshore Natural Resources would be for Government to ensure a fair deal and sustainable development of these resources.
39. It is contended that there is a better technology being developed for drilling processing and exporting gas all from a large purpose built ship.
40. Concern is expressed that NPWS have no ranger dedicated to the area. SAC's and SPA sites require an implementation of the duty of care for the environment which it is felt is not been given to the area over the last 6 years.

41. Mr. O Seighin attaches supporting documentation indicating that NPWS initially had a condition that required that construction work on Sruth Fada Conn Bay should take place in August 1<sup>st</sup> to September 30<sup>th</sup> period only to protect bird habitat.
42. Supporting documentation regarding the division of responsibility at HWM between local authority (landward side) and Department of Environment Heritage & Local Government (foreshore side). It is contended that planning permission must be in place before a foreshore license application will be processed by the Department. Concern at the consent that exists for the piece of pipe laid above the HWM, that it is not a proper consent.
43. Supporting documentation concerning codes used in the design of the pipeline and reference to a report by Andrew Johnson 28/3/2002, the point being made is that the Andrew Johnson Report had specific recommendations and Mr. O Sheighin indicated he has no idea regarding the implementation of those recommendations. The comments in this supporting documentation are taken from I believe, a set of comments made regarding the application for planning permission for the terminal. This is not clear in the submission related to these supporting documents. Flag Can I deal with Andrew Johnson Recommendations in Chapter 30?
44. In a separate submission dated 27/07/2010 in reference to the material in Appendix J1 omitted from SEPIL documents submitted on 31/05/2010 Mr. O Sheighin points out that he only had 4 days response time and that this is not acceptable.

The submission is accompanied by Appendices.

- **2009 Submission 22: Belmullet GAA Club**, John Gallagher Chairperson, Loor, Béal an Muirthead, Co Mhaigheo
  1. The catchment for the club has a population base of 4,500 people.
  2. The club supports the project but wants to make sure adequate health and safety arrangements are given due regard.
  3. The submission highlights the need for traffic management, noise, visual impact of landfill facility, access to commonage for shareholders as issues to be addressed.
  4. The most important issue for the community as a whole, is the quality of water from Corrowmore Lake which serves 60% of households in Erris.
  5. The submission traces the economic importance of the Corrib Gas Field for Ireland and the local benefits of the scheme.
  6. Erris does not have a high level of take up by students of higher education opportunities, for graduates in the area are scarce. The project will provide some graduate opportunities for the future.
  7. The submission details Shell community support grants. The club has benefitted by €380K from Shell and €756K from Údarás na Gaeltachta and now has a centre of excellence in sport.
  8. The Shell Social Investment Fund 2009 – 2012 is at €5 million.

9. The submission states that community liaison is very impressive and that the open days and site visits have provided information to the local community.
  10. The club support the project, but require those issues listed at 2, 3, 4 above, dealt with in consideration of the planning for this project.
- **2009 Submission 23: Betty Schult & Fritz Schult, Winnifred E Macklin, Pat McGuire of Pullathomas, Ballina, Co Mayo, Sadie Maher, Mary Keenaghan of Inver Barnatra, Ballina, Co Mayo.**
    1. The application incorporates modifications of the geology of the area, and an undermining of the social community.
    2. The submission points out the many gains that the applicant SEPIL has already made, or will make as a result of completing the development of the gas field, and points out that there is no gain in the project for the citizens.
    3. Questions are raised regarding the original pipeline proposed by Enterprise Oil and the significant impact that original proposal would have had on the environment, on the drinking water, on the local community as well as detail questions concerning the technical design of that original pipeline.
    4. The submission considers the issues (Point 3) remain the same in this application.
      - Inordinate pressure in a residential area.
      - No escape from Rossport in the event of an emergency.
      - No fire service of required standard.
      - No physical infrastructure – all roads are bog roads.
      - Proximity to houses and places of work in fields and on the bog.
      - Proximity of local internal road communication line from the community. There is no shelter in case of an incident.
      - Fragility of Glengad hills and the history of landslides in 2003 there.
      - Pollution dangers, noise, chemicals, 24 hour working.
      - Project splitting. The submission traces the progress on different schemes that comprise the Corrib Field Development and criticise the breakup of the project into different schemes and describes the sequence used by the state in advancing assessment of the project as impossible.
      - The submission has concern that the full plan for development of the overall scheme was not accessible to the public.
    5. There is concern that the location of the terminal refinery is a factor in this application and that the interaction of different factors including the terminal, needs to be assessed in coming to a decision on this application.
    6. The submission cites a report by Andy Scollick, a Marine Environment Consultant on behalf of An Taisce, who raised concerns in 2000 about the absence of environment ecological survey details and concerns that marine protected areas were not mapped out in a national plan. The message of the report being that Ireland was not prepared for marine hydrocarbon industry.
    7. The submission is critical of the political system and the manner in which the original plan of development was approved.

8. It is claimed that it is not possible to get a view of the interactions between the ever changing fractions of this development as required by EU commission.
9. The submission notes that in all, 6 planning applications have come all at once making it difficult for the receiving community to adequately deal with the variety of information.
10. The submission is critical that the application makes a request for a national risk based standard for judging the acceptability of a project in a residential area. The submission believes the consequence to the victims of failure in the pipeline should be used in judging the application.
11. The submission questions the method used whereby statistics from UK – an industrialised country, are used to come up with an acceptable risk figure for the pipeline in the parish of Kilcommon.
12. The submission makes references to accident report studies carried out by HSIE in UK, and by Lloyds and makes the point that disasters are normal – an integral part, not an exceptional part of pipeline operations.
13. The submission provides details of the disaster at Carlsbad New Mexico, where 12 people died 675 feet from the pipe rupture. The submission provides various data on distances, pressures and heat intensity, and sets out that at 144 bar pressure, the heat intensity threshold of 5000 btu/hr ft squared is reached at 626 feet from the blast (200 metres), and 100% mortality consequence in 89.3 seconds. The submission states that Advantica identified 190 metres as the acceptable separation distance for market ready gas transmission.
14. The submission has concerns regarding the untried, untested, uncertified technology proposed at the landfall valve installation. It also questions how the ramping up and down of demand in the pipeline will involve stresses that have not been dealt with in the application. It questions the lifespan of the components at LVI.
15. The submission points to the Advantica report where risk to the pipeline was considered, whereas what the local community are concerned with is the risk to them of a pipeline accident.
16. The submission uses extensive quotations from the Advantica Report to highlight
  - Limitations in the Advantica terms of reference.
  - That selection of the landfall and terminal sites and the subsea tie back proposed for the scheme are constraints which influence the route and safety considerations.
  - That societal risk should be considered as well as individual risk
  - That items of technical design and technical parameters of the original 2002 pipeline design required further evaluation
  - That in the QRA (Quantified Risk Assessment) the Corrib pipeline has the potential to generate a major hazard to the local population in the event of a failure.
  - That limited historical experience of thick walled onshore pipelines means that it is difficult to estimate appropriate failure frequencies.
  - Uncertainty in the consequence modelling at pressures above the range of validation of the models.
17. The submission raises the question about what is maximum pressure in the pipe on the landfall site between the sea and the actual valve itself 50m.

18. The submission concludes from the Advantica report that the complex analysis of the report supports the view held by the makers of this submission that the pipeline is intended to be safe while it is also just as likely to fail.
19. The submission asks on what authority is a risk based analysis being used to justify an Irish project.
20. The submission draws attention to the differences between the Advantica Draft Report and the final report. In particular, reference is made:
  - (1) to criticism by Advantica in the draft report of the now proposed HIPPS System for the LVI.
  - (2) To the Advantica reference in the Draft Report to inadequate demonstration of the reliability of the subsea pressure control and isolation systems.
  - (3) The issue of whether the fail safe system proposed at LVI will operate satisfactorily without communications or/and without power.
21. The submission is critical of the pipeline design report by J P Kenny and questions whether in reality, a design factor of 0.3 is being achieved in the design of the pipe.
22. The submission identifies the stone road proposed as a potential drain for the whole length of the pipeline and which will drain into the Sruth Fada Conn Bay.
23. The submission draws attention to the lack of clarity regarding whether micro tunnelling will be one way or from both sides.
24. The submission draws attention to the maintenance of the pipeline and the question of whether it will be possible to pig the pipeline at the landfall valve site and at the bends along the route is raised as a concern, any lack of monitoring of the pipeline is deemed unacceptable.
25. The question of the lower tunnel acting as a drain for the hill at Rossport is raised and the threat this drainage provides to the sand dunes is identified.
26. The submission presents quotations from OECD Environment Health & Safety publication relating to choices faced when designing pipelines in populated areas. The point is made that the QRA method of assessing acceptable risk could, if the pipeline is approved, impose a risk environment in what is now a benign environment at Rossport.

- **2010 Submission 27: Betty Schult & Fritz Schult, Winnifred E Macklin, Michael McCaughan**, of Pullathomas, Ballina, Co Mayo.

27. Fritz and Betty Schult object to the granting of permission to construct this experimental pipeline and all corresponding works.
28. In the ABP letter of 2<sup>nd</sup> Nov 2010, the Board stated that traffic flow for the previous route in Rossport “would constitute a traffic hazard and obstruction of road users”.  
The community in Glengad, Pollathomais, Aughoose, Leenamore and Bellanaboy deserve the same consideration.
29. They feel that the large volume of construction traffic going to and from the compound at Aughoose would significantly disrupt normal life in the area (over an



estimated 26 months with 236 truck round trips at peak traffic). This is considered unacceptable.

30. Michael McCaughan – Mr. McCaughan has particular concern for those living in the ‘kill zone’ should an accident occur. Over the past few years he has closely observed the events in the area and has chronicled the adverse psychological impact of the project on the lives and health of the local people. The erratic and changing plans, the lack of consultation have severely affected local people. He will go into further detail on this at the OH.

31. Winifred Macklin – I object to the granting of this experimental pipeline and corresponding works on the grounds of health and safety.

My husband and I are even more alarmed that Shell has begun and continues to push a plan that has not even been scrutinised or discussed with the local people. I look forward to expanding on these and other points at the next OH.

- **2009 Submission 24: Rossport Solidarity Camp**, Eoin O Leidhin, Aron Baker, Niall Harnett, St John Ó Donnabháin, Kate Kirkpatrick & Paul Lynch, Barr na Coilleadh, Pullathomais, Erris, Co Mayo

1. This submission expresses concern at the use of the SIA to process consideration of this project.
2. Concern is expressed at raw gas pipeline close to houses, through bog and through area of known landslides at high pressure.
3. Concern at lack of clarity on responsibility for each part of the pipeline – in particular, first 60 metres of pipeline after landfall.
4. The documentation is considered inadequate – surveys on Rossport Commonage, waste water discharge, pressure reduction at Glengad.
5. Concern that the country will receive nothing from Corrib Gas Field development.
6. E.I.S. does not show that community benefits are worth the risks being taken.
7. To date environment degradation has resulted from applicant’s actions – actions relating to a stone causeway last year where high levels of dust were present in stone laid at the beach.
8. E.I.S. is likened to a promotional brochure and the submission questions statements in E.I.S.
9. Submission questions transparency of route selection process. It is stated that routes eliminated were only vaguely justified.
10. The submission states that the route now proposed, does not address the issues raised by the communities.
11. Submission claims that quality of life has already been impacted for the worse and disagrees with E.I.S. in this regard.
12. The submission has concerns on safety and environment and on the undermining as it sees it of representative democracy by this project. The submission refers to the much bigger project of which this application is only a part.

The submission quotes David Aldridge PhD whose statement identifies an estimated potential blast of 4 kilotons TNT equivalent if there were an unconfined vapour cloud explosion.

The submission raises preliminary questions that the request be put at the oral hearing. The submission has safety concerns including reference to Mayo County Council Road Works where it is claimed a 200km long bog slide 3m deep took place. The submission quotes from Tobin's and Advantica's reports to substantiate the concerns for safety. The Kuprewicz report is also quoted and details of the LVI are said to be minimal at best. The submission questions Shell's record for safety and quotes Mr. Campbell, a Shell International Group Auditor who allegedly uncovered falsified safety records. The submission expresses concerns at environment damage that will occur and instances alleged breach of standards, conditions and regulations by Shell in allegedly illegally drilling bore holes in the SAC, and a report from Laren Gaynor, Coastal Ecologist for NPWS on damage to fixed dunes that is caused by traffic. The Sand Martin colony is at risk. The submission has concerns for the blanket bog through which the 'stone road method' will be used to lay the pipeline. There is concern about the Sruth Fada Conn Bay crossings and how much information is available now to support the proposed construction methods. There is concern for birds, both common and protected species and otters. An attachment of a presentation on behalf of the Friends of Rosspoint is submitted.

13. A request is made for an oral hearing and a series of questions are posed for that oral hearing.
14. Safety concerns are raised concerning the construction in peat particularly, where peat stability is an issue.
15. The peat failures in the area are a cause of concern and a question is raised regarding the stability of the peat if exceptional rainfall occurs in the area.
16. The submission indicates limitations in the scope of the Advantica Report, and concern that additional gas fields will be connected to the pipeline.
17. Concern is expressed at the Caveats in the Advantica Report, particularly relating to the integrity management plan for the pipeline during its lifetime.
18. The submission refers to pipe failure in Mexico from internal corrosion.
19. The submission is concerned at the lack of detail in the landfall valve installation submission.
20. The report questions the applicant's safety record and refers to deaths on Brent Bravo platform. Figures are supplied which show the number of deaths among Shell employees over 2003 – 2006 period relative to other oil companies.
21. The submission states that all the lands involved in the application were not surveyed.
22. The submission relates activities that took place when the applicant drilled trial holes at the landfall valve site and indicates that the assurances of the applicant that work on sensitive ecological area will be carried out with respect are not acceptable.
23. The submission highlights the expected impact of construction at the landfall valve site, and refers to large excavation proposed and heavy construction machinery proposed to carry out construction in the ecological sensitive area.
24. There is concern expressed at damage that may have been caused by nets installed by SEPIL at the Sand Martin colony and potential future damage as a result of the works.
25. Concern is expressed that the SAC Glenamoy Bog Complex intact blanket bog habitat will be damaged and that the stone road method of construction the priority habitat, has not been clearly enough addressed.

26. There is concern that the Sruth Fada Conn Bay crossings in the SPA will interfere with birds protected in the area at the four proposed launch pits, and at possibly one other or more intermediate pit. The work will extend over 10 months and involve 24 hour working with lighting which is an issue.
  27. Concern is expressed at discharges into Broadhaven Bay, and potential damage there to marine mammals and other species. Concern is expressed regarding the proposed pumping of water 90km through 26mm pipes.
  28. Concern is expressed that wildlife mortality will take place and the question of mortality risk to protected species is raised. Birds, Sand Martins and otters are considered as particularly at risk.
  29. The submission concludes that granting permission will allow a potentially dangerous and environmentally destructive project to proceed.
- **2010 Submission 30: Rosspport Solidarity Camp**, Eoin O Leidhin, Aron Baker, Niall Harnett, St John Ó Donnabháin, Kate Kirkpatrick & Paul Lynch, Barr na Coilleadh, Pullathomais, Erris, Co Mayo

**Additional points 27/07/2010**

30. The submission strenuously object to the granting of this experimental pipeline and corresponding works on the following grounds:
  - They believe ABP (in 2009) actively facilitated illegal development being carried out by Shell in Glengad by not stating where the application began.
  - They have recently heard that Shell and RPS didn't give them the full EIS when purchased from Shell/RPS. They have so far been unable to read the omitted information. And as a result request further time to make submissions on the omitted information. They also request that the OH be delayed on the same grounds.
31. Preliminary Questions (to be answered by the OH)
  - a) Where does the application start? And where does ABP remit begin and end?
  - b) How come Shell and subcontractors can now say that well head pressure will not hit Glengad, whereas previously they could not guarantee this?
  - c) What would be the consequences of a debris flow from a landslide hitting the LVI?
  - d) What volume of debris could hit the pipeline? What does "medium impact on onshore pipeline" mean?
  - e) If there were a gas leak on Glengad beach how long would it take for gas to pass through the pipe and thus stop leaking at Glengad?
  - f) How can it be said that 26 months construction work on tunnel and pipeline would not "*seriously injure the residential amenities of the area and the development*"

*potential of lands in the designated rural settlement of Rossport”, Glengad, Pollathomais, Aughoose, Leenamore, Bellanaboy and other townlands?*

- g) We request that Transocean are at the OH to answer questions about the subsea installation which now is being used to control the landfall pressure. How can we be sure that Transocean haven't cut corners in a similar fashion to the Macondo field?
- h) Reference is made to an article on [www.royaldutchshellplc.com](http://www.royaldutchshellplc.com) entitled “Leaked Shell internal emails reveal concern over Corrib subsea wells” which states that some Shell people have concern over well ownership and issues relating to long term suspension of subsea gas wells. These concerns need to be brought into the open.

### 32. Planning process

- a) The submission makes reference to ABP's mission statement and argues that this project is the very antithesis of any rational view of 'sustainable development'.
- b) The planning process has been a shambles and unfair to the people who oppose the project in its current format.
- c) They feel the planning process for this project has been closed and is characterised by political interferences and negotiations that the public and receiving community are not privy too. The submission expresses concern that DCENR Principal Adviser effectively petitioned for laxer safety standards to be adopted on the onshore pipeline.
- d) The submission points that Shell's strategy has been to split and fragment the planning process so that nobody gets to assess the whole project. The submission has concerns that ABP is being influenced by other sections of the project rather than just the one before it.
- e) If the community had not objected to Shell's original plans that are now agreed as unsafe, where would we be today? Why has it been left to ordinary people to highlight the grave errors in Shell's planning documents? Must we wait for another Gulf of Mexico before Shell's plans are properly scrutinised?
- f) Shell claim to have all the necessary consents since 2004 but the IPPC licence was only granted in 2007. Although Shell now include the pipeline section laid from sea to the High Water Mark, there is no mention of the fact Shell have laid the pipeline on land to LVI. Where is the consent for this?
- g) There is no proper plan for the decommissioning of the gas pipeline in 15-20 years time. This must be added by Shell before and decision is made.
- h) How is it possible for Shell to submit the pipeline tunnel application without knowing the result of the relevant survey work on the estuary?

### 33. Safety Concerns

- a) Shell had repeatedly said that it was not possible to reduce the pressure in the pipeline. However the latest EIS offers lower figures of 150 bar to the LVI and 100 bar to Bellanaboy without an explanation of how this has suddenly become possible. How can we trust Shell to stick to this lower pressure?
- b) Transocean has done much of the subsea work relating to the Corrib Gas field. Their work has now come under serious question following the BP oil spill in the Gulf of Mexico.
- c) The baseline noise study which listed *church bells ocean noise birdsong and children playing* indicates that construction work and noise pollution will be completely out of character with the area.
- d) Landslides – Reference is made to The Tobin Report carried out by Mayo County Council on the 19<sup>th</sup> September 2003 following 40 separate landslides around Dooncarton. The report states there is “*elevated residual risks of further landslides of material*”. We view AGEC assertion that “*it is highly unlikely that a debris flow on the open slope would reach the pipeline route or landfall valve installation*”, as not particularly comforting.
- e) What would be the consequence of a debris flow from a landslide hitting the landfall valve installation. There is concern that a section of roadway within 50m of the proposed pipeline was damaged and a 6 foot drop in ground level took place there.
- f) The submission points out that the pipeline is not in a remote location and so many people could still be put at risk as local houses are often used for gatherings of people at wakes /parties.
- g) The emergency procedure is wholly inadequate and the EIS does not demonstrate that the pipeline is safe. The EIS should contain the emergency procedures for the area.
- h) The emergency response plan claims that Shell ‘*will liaise with all residents living within a pre-determined emergency planning zone*’. Why have we not been informed of where this zone is?
- i) Shell’s previous record in contacting the community does not inspire confidence that people will be properly informed even though they may be in great danger. They claim the risk scenario carried out (90% time spent indoors) was unrealistic where most people spend the majority of their time outdoors. There are no shelters where people could seek shelter in the event of an explosion.
- j) Shell’s statement that ‘it is not possible to plot any risks zones for the pipeline’ (p68 Appendix Q 8.6) suggests that the serious risks have not been properly analysed.
- k) The submission strongly dispute Shell’s claim that the LVI is in a remote location and disputes the system of telephone links proposed for use in an emergency situation. The submission questions Shell ability and track record at dealing with emergencies and provides example of diesel spill in 2007 where response was delayed until local pressure forced Shell to pump out the stream.



- l) Due to financial cuts, Belmullet hospital is under severe pressure and will be downgraded. If the Irish government nationalised this project then the profits from the gas could fund our failing healthcare system. The funding cuts mean that the nearest hospital will be in Castlebar, 2 hours away. Who will pay for Belmullet hospital to be ready to deal with emergencies?
34. Disturbance to local community
- a) The submission feels that the new traffic management plan is far more disruptive than the previous plan. Shell have transferred the problem across from Rosspport to the community of Aghoos, Pollathomais and Glengad. There will be two compounds in Glengad and one compound in Aghoos.
  - b) With regard to air quality, the submission feels Shell try to underplay all harmful emissions as by the sweeping statement that ‘Greenhouse Gas emissions arising from the construction of the onshore pipeline in the context of the national emission levels is negligible’. This is unacceptable and ABP must not allow Shell to make such weak statements.
  - c) Local people in the affected area do not feel like they have been adequately listened to and their concerns have certainly not been addressed. At local consultation there were no experts who could be questioned and to whom the local concerns could be conveyed.
  - d) No local landowners or archaeologists were consulted for the archaeological section of the EIS. We believe this is crucial and needs to happen before any decision is made. Concern is expressed at SEPIL PR providing benefits to local people.
  - e) We dispute the claim that we have not engaged in the consultation process.
  - f) The majority of the local community do not consent to the project and have protested. We have been met with a violent response from the Gardaí and Shell’s private security firm IRMS. The recently published Frontline human rights report strongly condemned the Gardaí and upheld the complaints from the community.
  - g) Shell acknowledges that tourists are attracted to the region by its ‘tranquility’ and ‘relatively unspoilt landscape’. The suggestion that the construction activity could be a ‘focus of local and visitor curiosity’ is simply considered absurd.
  - h) We believe that if this project is allowed to go ahead, the culture and way of life of this community will be severely and irreversibly changed for the worse. Shell will be changing an area of tourism, fishing and farming with a strong community, tradition and Irish culture into an industrial zone with the potential for gas explosions, leaks and accidents. We do not accept that the short term payments handed out by Shell can ever compensate for this loss. People have been told by estate agents that their property has lost value since SEPIL arrived.
  - i) The project is short term 15-20 years but the damage to the community will be long term.
  - j) We do not believe Shell will comply with their own mitigation measures. Shell have frequently breached planning conditions, we have tried to contact the relevant people but have not been taken seriously. Examples are provided. Local experience has been that previous construction periods have been very disruptive and incredibly difficult.

- k) Shell continues to include Bangor (10km) and Belmullet (17.5 Km) as ‘local’ and focuses on the impact the project has on the two towns rather than the directly affected community.
- l) The submission raises concerns about Shell’s plan’s to source ‘approx. 120,000m<sup>3</sup> of quarry stone’ from local quarries. Already these quarries have overproduced in a completely unsustainable way. The landscape has been overstretched and the resource depleted.
35. The proposed development poses unacceptable risks to habitats and species in two cSACs and one SPA. In particular the Glenamoy Bog Complex cSAC covers the entire route (in the bay). This is an internationally important area of lowland Atlantic bog with two annex 1 habitats and 6 annex 1 bird species. The LVI will be located within this cSAC as well as the tunnel. The Broadhaven Bay SPA includes Sruth Fada Conn Bay. Broadhaven Bay candidate SAC borders the mouth of Sruth Fada Conn Bay. It is contended that Ireland has a poor record of protecting the habitats and of protecting wild birds and that this has been confirmed by decisions of the European Court of Justice.
36. The submission refers to habitats that are at risk from the development proposed and expresses concern that an intervention pit may be necessary in the Bay which would have adverse effects. Reference is made to the eroded blanket bog at Aghoos Annex 1, Salt Marsh at Leenamore River Annex 1, Estuarine and Tidal Habitats in Sruth Fada Conn. Other habitats are in close proximity salt marsh Glengad fixed dune grasslands intact blanket bog.
37. It is contended that SEPIL have understated the risks to protected species from the construction activities proposed.
38. SEPIL have applied for a foreshore licence for the construction of intervention pits in the bay. In the EIS they claim that these are highly unlikely to be needed but admit that if they are used they will damage the integrity of the estuary. ABP should not grant SEPIL permission for any intervention pits as the likelihood that they will damage the integrity of the SPA is too high.
39. The submission lists Badgers, Otters, Atlantic Salmon, Amphibians, Common/Arctic Tern, Golden Plover, Ringed Plover, Snipe, Twite, Bar-tailed Godwit, Seals, all as being protected species at risk from the proposed development.
40. The submission refers to SEPILs own reduced route evaluation matrix (June 2009) where it states: - the potential impact on habitat and species of conservation value/environmentally designated areas is **medium/high** as a long section is within Sruth Fada Conn Bay/Glenamoy complex. It also refers to the potential impact on fauna, and potential impact on salt marsh will be **moderate-significant**. These results contributed to SEPIL ruling out this route previously. However, SEPIL now claim there will be little impact on terrestrial, freshwater and marine environments.
41. The submission refers in detail to Shell’s experience in other countries such as Argentina, Barbados, Canada, Nigeria, USA, UK, and Russia and considers that “*Shell is bleeding communities dry and \$20 billion is just the beginning in quantifying Shell’s true environmental damage.*”

42. The submission refers to fines incurred by Shell following the Buncefield disaster where it is contended that Shell were found by HSE not to have followed their own procedures for running plant and for failing to fix faults on safety equipment.
  43. The submission contains many examples of deficiencies in Shell run operations worldwide where leaks or accidents have taken place.
  44. The submission raises concerns of Shell working with subcontractors with poor records in health and safety namely Transocean and ICOP.
  41. The submission questions the strategic importance of the project in its current state.
  42. The submission claims Shell have never answered the question of extensification of the Bellanaboy site despite being asked by ABP to do this. Currently Shell and Transocean are drilling for more oil and gas close to the current Corrib Gas field. Where will this oil and Gas go?
  43. The submission questions why is the current deal not renegotiated to the benefit of the Irish people, for economic benefit and energy security?
  44. The submission concludes that this project is totally unsuitable for this area. It places people in the locality in unnecessary danger.
- **2009 Submission 25: John Finnegan**, Principal Consultant, Goodbody Economic Consultants, Ballsbridge Park, Ballsbridge, Dublin 4
    1. This submission highlights the economic benefits of the Corrib project and provides an attachment – copy of the Goodbody Economic Consultants “Economic Assessment of the Corrib Gas Project” November 2007.
    2. The report was commissioned by the Corrib Gas Partners.
    3. The report highlights the following benefits from completion of the Corrib Project.
      - A contribution of 3bn Euro to GDP and equivalent reduction in imports.
      - Significant contributions to employment and incomes in the north west.
      - The ability to meet up to 60% of Irish natural gas needs from a domestic source.
      - Improving the attractiveness of the North West as an investment destination.
      - Supporting the development of other domestic energy users.
  - **2009 Submission 26: Cathal Shelvin**, Shelvin Engineering Ltd, Belmullet Industrial Estate, Belmullet, Co Mayo
    1. Cathal Shelvin as a contractor with an engineering background indicates that pipeline and terminal design meets the highest international standards. The submission welcomes the fact that the developer has taken on board the Advantica recommendations on pipeline safety. The submission comments on the weld procedures proposed for the pipeline which are considered to be of the highest standards available.
    2. The submission welcomes the economic and job creation benefits for Erris and comments favourably on the public consultation process.

- **2009 Submission 27: Brendan Cafferty, Secretary Pro Gas Mayo, Quignamanger, Ballina**

1. The submission is made on behalf of the Pro Gas Mayo Group. The group is an amalgamation of ordinary people who have no connection with Shell or its agents.
2. The submission refers to the high standards of safety and design observed at the construction of the Terminal and in the deposition of peat from that site. The group has visited pipelines in Netherlands and has discussed the distance of the pipeline from houses and the safety of the pipeline with farmers and people in Netherlands.
3. The group supports the pipeline, but has concerns for the environment and expects their concerns to be met.
4. The submission outlines financial contributions made towards local community facilities.
5. The submission identifies the need for the project from an Ireland energy perspective.
6. The submission supports the route now chosen for the pipeline, but wants health and safety aspects given due regard. The group also wants traffic management, upgrading of roads, social contributions handled properly in the approval process for the project.
7. The submission sets out that in times of recession and uncertainty that the scheme takes an added urgency.
8. The submission sets out that the terminal site at Bellanaboy is the best available.

- **2010 Submission 29: Brendan Cafferty, Secretary Pro Gas Mayo, Quignamanger, Ballina**

**Additional points 27/07/2010.**

9. The group feel that the new proposals meet highest international standards and best practice.
10. The submission points out that drilling and tunnelling under the Bay will require major technological expertise and will involve delay, and they feel unnecessarily so.
11. The group were quite satisfied that the pipeline applied for was quite safe and seemed to be rejected, as Mr. Bob Hanna of DCENR said, on the basis not of an accident happening, but on the dangers that might arise following an accident.
12. The group hope that the new alterations will be approved by the Board as soon as possible.

- **2009 Submission 28: J Mc Andrew / T Mc Andrew, Leenamore, Pullathomais, Co Mayo**

This submission makes a number of points related to the following issues:

1. Rights of the local community: There is no process which allows for meaningful public participation in the project as an integral totality.
2. Breaches of European Directives: The application is incompatible with the special areas of conservation designated – Broadhaven Bay, Sruth Fada Conn Bay and Glenamoy Bog.

3. Project splitting: The project has been divided into different parts. The Scheme in separate applications has then been submitted for approval. Members of the local community not versed in the intricacies of such matters were effectively excluded from the process.
4. Health and safety issues: The proposal raises major Health & Safety issues. The health and wellbeing of people in the area, the contamination of waters, pollution of rivers and lakes, destruction of basic infrastructure, destruction of pristine environment fear, security, dust, road accidents etc.
5. Environment: Areas in the vicinity of the proposed route are of immense importance in relation to key marine/coastal habitat, unusual marine species and communities, wintering wildfowl, the Corrowmore lake drinking water source is in the catchment of the scheme. Fisheries and beaches will be affected. The bog through which the route passes is totally unsuitable ground.
6. General: Tourism is the main industry in the area. The natural beauty and pristine environment is out of line with the proposed development.
7. This submission objects to the scheme on significant health and safety concerns and negative social environmental and economic impacts.
8. The submission questions the use of the Strategic Infrastructure Act for this project. The submission asks ABP to advise on whether grounds exist for a legal appeal against the project being included under the Strategic Infrastructure Act procedure.
9. The submission raises questions about the community criteria and maximising safety, about minimising impact on people and about minimising environmental impact on wildlife/habitats. The submission says the E.I.S. and the project fails in these matters.
10. The submission raises the possible failure of the pipeline due to vandalism or bog fire or bog slide, and seeks assurance that these will be no risk to the local community from the pipeline.
11. The submission asks ABP to investigate the authenticity of all Shell statements in the E.I.S.
12. The submission raises a number of questions as follows:
  1. Claim that refining gas onshore is industry “best practice?”.
  2. That the proposals are similar in design to Ormen Lange Field in Norway and Casino Field in South East Australia. Do the pipelines in these examples pass through bogland and areas of special conservation and alongside private dwellings?
  3. Are the current Government regulatory codes and standards adequate for a raw gas pipeline? Which government agency has responsibility for ensuring that Shell adheres to planning criteria?
  4. Following on from the later question, is Bord Pleanala confident that Shell will adhere to planning criteria, given that Shell has already breached a number of planning criteria, including unauthorised work in a Special Area of Protection and unauthorised assembling of onshore pipelines?.
  5. Would the construction of the pipeline breach the Special Area of Protection legislation?



6. Are the facts and figures Shell supplies in relation to the economic need for the project correct? Where is the independent research to corroborate? Should the 8.9 million cost of policing be deducted?
7. Can the report “*Economic Assessment of the Corrib Gas Project*” by Goodbody Economic Consultants be deemed independent research, given that Shell commissioned, set the research parameters and paid for the research? If it is not deemed independent, should its findings be ignored for planning purposes?
8. Are the facts and figures Shell supplies in relation to the gas field output correct? Where is the independent evidence other than that research paid for by Shell?
9. Shell refers to adhering to Peter Cassell’s recommendations but the parameters of Peter Cassell’s report were restrictive and did not consider the cumulative impact of the project in its entirety, including the onshore refinery. Even Shell acknowledges that the “*combined impacts during the construction of the Terminal and Onshore Pipeline will give rise for the potential of cumulative impacts*” (Shell E.I.S., page 32). Is it therefore fair to reference Peter Cassell’s report to support the proposed raw gas pipeline route? Does Board Pleanála consider the aforementioned to be project splitting?
10. In their environmental impact statement Shell distinguishes between construction and operational environmental / social impact? The suggestion being that the negative impacts of construction work are only short term and therefore not an issue in terms of planning approval? Does An Bórd Pleanála recognise this distinction between construction and operational impacts and does it share the latter interpretation?
11. Shell states that there will be no long term environmental damage resulting from the construction of the proposed pipeline. Can An Bórd Pleanála stand over this assertion, and is their independent research to corroborate?
12. What happens if there is environmental damage, can parties take legal action against Shell / Board Pleanála?
13. Can Board Pleanála offer a guarantee that a landslide (common within bogland areas) will not rupture the pipe?
14. Does Board Pleanála view the proposed project as being compatible with Government Strategy in terms of reducing greenhouse emissions?
15. Shell states that “Climate Change is an issue of global rather than local and regional nature, and this contribution is minor in the context of Ireland’s total emission of Greenhouse Gases” (quote from page 26 of Shell E.I.S.). Does Board Pleanála agree with this statement in its entirety?
16. Shell states that “an assessment of the development potential of the study area has been carried out” and that “development potential along the route of the proposed onshore pipeline is extremely limited” (quote from page 27 of Shell E.I.S.). Where is the independent evidence to support this assertion? Does An Bórd Pleanála agree with assertion and why? Given the scenic beauty of the area, is there not major potential or tourist activities?

Without answering these questions and verifying Shell’s assertions in their Environmental Impact Statement with independent evidence, I do not believe it is possible to reach a “fair”

planning decision. I do not believe that there can be a fair planning consultation process if Shell puts forward a large number of statements that one citizen cannot verify are true or false or incomplete. Therefore, in the interest of fairness I would ask An Bórd Pleanála to provide me with written answers to all of my questions. I would ask that you send me these written answers in advance (minimum of 4 weeks) of any proposed hearing so that I have an opportunity to prepare for such a hearing. Please note that if I do not receive answers to my questions, I will look at the legal avenues available to appeal against what I would deem in those circumstances of being left at an information deficit and therefore fair planning procedures not having been adhered to.

I ask that you acknowledge receipt of this letter and that you state your intentions with respect to my requests. I look forward to hearing from you at your earliest convenience.

Yours faithfully

Thomas McAndrew

- **2010 Submission 3: J Mc Andrew / T Mc Andrew**, Leenamore, Pullathomais, Co Mayo

Additional points 15/07/2010

17. The McAndrews object to the preposterous proposals made by the applicants for the above project.

18. The proposed works would destroy the environment and the local communities in the area.

- **2010 Submission 3: Jarlatt & Teresa McAndrew**, 25/07/2010

1. Concern is expressed at Safety of the Mc Andrew's house and lands close to the pipeline, also proximity to National School and playing field where the McAndrew children attend.
2. Concern is expressed that no emphasis has been placed on surveys on Barnacullev?
3. It is felt that moving the pipeline has shifted the problem from one community to another.
4. Noise, vibrations are evident now as site testing drilling rigs are now working in Sruth Fada Conn Bay. It is clear noise and vibration are going to be a major problem.
5. Will this pipeline affect household insurance?
6. How can the pressure now be reduced when it was clearly stated previously that it was necessary to have 144 bar in order to stop build up of slugs in the pipeline.
7. Concern is expressed that the traffic plan was not adhered to last time and there is an amount of construction traffic involved.

- **2009 Submission 29: Cornelius King & Gerry Sheerin**, Aughoose, Pollathomas, Ballina, Co Mayo

1. Legislation, Habitats Directive, Wild Life Act, and Flora Protection Order 1999, and SAC, c SAC SPA and RAMSAR designations on the site.
2. The submission refers to conflict between the Habitats Directive and the development (Sand Martins netting at LVI) and refers to the Mayo County Council Landscape

Protection Policy and states that the development is in conflict with policy. “This area is visually distinct in Co Mayo landscape terms, as it incorporates in a relatively small area, two dramatic landscape types being a steep and rugged shoreline and mountains rising immediately above. These elements make it desirable for visitors and particularly sensitive to inappropriate development”.

3. The outfall pipe will discharge toxic heavy metals - mercury, cadmium, chromium and have a negative impact on Broadhaven Bay and local fishing industry.
4. The submission indicates that public consultation was not realistic in the parish of Kilcommon. RPS did not attend public meetings to which they were invited in the parish.
5. The submission indicates that the thick wall of the pipe proposed is not invincible and can be subject to corrosion or other failure threats.
6. The submission questions the safety provided by the remote valve in the event of a leak and quotes Richard B Kuprewicz as an independent analyst that the valve on the boundary is not really a true “safety” in the event of pipe failure because of the inventory of gas that will escape before the pipeline can be depressurised. The submission indicates concerns at the operating pressure and the safety to locals in the event of a failure.
7. The submission does not agree that Corrib Gas will reduce Ireland’s vulnerability to “supply disruption and imported price volatility”. The submission contends that government policy not to undertake exploitation of natural resources directly is responsible for such vulnerability.
8. The submission states that they do not oppose the bringing to the market of the gas, but that they still demand that it be done properly with due regard to their safety.
9. The submission refers to the Advantica Report and limitations in the terms of reference of Advantica. It goes on to say that Advantica judged the risk to the pipeline, what the submission is concerned with is the risk to the local community of a pipeline accident.
10. The submission quotes extensively from the Advantica report to demonstrate that Advantica had many reservations about the project.
11. The submission sets out differences between an upstream raw gas pipeline and transmission pipelines, and identifies elements of proposed pipeline and elements of the constituents of the gas which give rise to concern.
12. The submission states “the exceptionalism of this pipeline” is not normally appreciated or its implications taken into account in normal discourse.
13. The submission questions why BGE is regulated and only allowed to transmit gas at 30 bar and distribute gas to 16 bar to towns, and at 4 bar through towns and at the same time the proposed pipeline will operate through the Rossport community at 144 bar.
14. The submission states that the quantified risk assessment as a computer based technique which is being used to quantify the risk of failure to the pipeline has been discredited (by its use in the destruction of the international banking system).
15. The submission states that problems with the Scheme as follows were brought to the attention of the political system inordinate pressure no escape from Rossport, no fire service, no physical infrastructure, (roads), proximity to houses, proximity to internal

communication lives, (roads, beach, shoreline), fragility of Glengad hills, dangers of pollution, project splitting.

16. The submission refers to E-0378/07EN which draws attention to the requirement of 85/337/EEC that provision be made “for assessing the interactions between different factors” and expresses concern that no assessment of integrity can be made (of the pipeline project) given that the terminal location has been fixed.
  17. The submission comments on aspects of the E.I.S. and does not agree with and does not agree with RPS conclusion that the pipeline will not have a significant effect on the environment.
  18. The submission states that the HIPPS system now proposed for the LVI was considered unsuitable in 2002.
- **2010 Submission 31: Niall King & Gerry Sheerin**, Aughoose, Pollathomas, Ballina, Co Mayo

**Additional points 25/07/2010**

19. The submission refers to the Boards letter to SEPIL on 2/11/2009 with regard to invitation to make alterations to the proposed development. They feel that the Boards assurance to Shell with regard to the approval of laying pipeline through Sruth Fada Conn Bay bears witness to the continued downward spiral of an unfair and biased procedure in the planning laws.
20. The submission refers to Natura 2000 sites that will be affected by the proposed development. Concerns are raised of potential devastation and degrading of these sites if construction should go ahead.
21. The submission refers to concerns with regard to turves for the Stone Roads in the Deep Bog. They point out that the storage of the turves on the surface of the bog is likely to severely damage the bog habitat vegetation beneath along with the stored turves themselves.
22. The submission refers to salt marshes in Mulranney where signs have been erected on the beach informing visitors about this rare and endangered habitat. The signs describe Mulranney as being Machair. There is far more Machair in Kilcommon (Sruth Fada Conn) and this is being allowed to be destroyed irrevocably by Shell solely for profit. This habitat is being falsely described as agricultural grassland.
23. The submission refers to archaeological facts of Michael O’Connell from his article; Early Environment and the First Settlers. The article indicates that the Sruth Fada Conn estuary was a prime site for Mesolithic settlement. The submission feels that the principle objective of the developer is to complete this project in a way they see fit come hell or high water. The community’s main concern has always been the health and safety of themselves and their environment. They feel that the archaeological degradation of their environment is not an acceptable compromise to achieve this goal. Glengad and Aughoos, the two sites with recorded archaeological monuments are to be the main compounds of construction for the proposed new route. I need to deal with this in my conclusions
24. The question is asked as to why hasn’t there been a gradiometer survey of all lands in the zone of visual influence and essentially reveal a full map of ancient landscape?

25. The submission again refers to ABP's letter on 2<sup>nd</sup> Nov. 2009 "*the impacts on local community during the construction and operational phases of the development which would seriously injure the residential amenities of the area and the development potential of lands in the designated settlement*". Surely the same rights and considerations will apply to the community in Glengad, Pollathomish, Aughoose, Leenamore and Bellanaboy.
26. The submission refers to the Stockholm Declaration, Principle 1 – '*Man has the fundamental rights to freedom, equality and adequate conditions of life...*' and Principle 8 which states that '*Economic and social development is essential for ensuring a favourable living and working environment for man and for creating conditions on earth that are necessary for the improvement of the quality of life*' and Article 7 of the ICESCR which provides that States are obliged to ensure just and favourable work conditions in particular safe and healthy working environment.
27. The submission comments on the potential devaluation of property as a result if this project going ahead. An element of danger is introduced by the project and people do not seek this risk that is ever present and not confinable in space and time. The major attractiveness of the area to native born and potential new residents alike is its safety. The overall fixed property assets of the area lose a major part of their utility when an environment of deadly risk is introduced and potential buyers re-act accordingly.
28. The submission quotes a paragraph from Michael O'Seighin's submission to ABP dated 19/06/2008. It remarks that the only truly independent review of this project by a recognised planning expert was the initial report by ABP inspector which concluded that this was the wrong site for such a project (Terminal).
29. We believe Shell is in breach of EU Directive 85/337 on environmental impact assessment, and its amendment 97/11P.
30. The submission states that the community have continuously stated that the pressure in the experimental pipeline places the community at unacceptable risk a school, church, graveyard and public house and road users will be close to the pipeline. The submission asks how is it possible to state the MAOP now when it was not possible previously?
31. The submission refers to the LVI as still putting the people under unnecessary danger. There is concern that Transocean who installed the fail safe devices in the Gulf of Mexico also installed the pressure devices that limit pressure coming to landfall at Glengad.
32. Shell's track record on safety, environment and human rights is well documented worldwide and should mean that they are unfit to carry out this experimental project so close to our community.
33. The submission states that Shell previously ruled out the route of the tunnel on environmental and technical grounds.
34. The new route is actually closer to the area under Dooncarton Mountain that was devastated by over 40 separate landslides in 2003.
35. The EIS admits that the 15 month long tunnelling operation will cause vibration that will be felt in surrounding houses. The submission notes that the worst affected areas (around Glengad) corresponds with the area directly affected by the landslide in 2003.



36. The submission raises concerns over the damage an intervention pit would cause to the Bay (within a cSAC) if in the unlikely event one was required.
  37. The submission has concerns about political interference with the project. They feel they deserve a chance to question both Bob Hanna and Eamon Ryan on their interference in the planning process and also to seek answers on the effect these representations have had on the Board.
  38. The submission has concerns as to the continued wasting of taxpayers' money, and because ownership of Corrib gas was given to Shell and Statoil, it will mean that the country will receive virtually nothing from it.
  39. The EIS does not show that any perceived benefits for the community or the country are worth the risks being taken. We all have a responsibility towards sustainability and future generations.
  40. The submission has concerns that the whole progress of this project thus far has undermined representative democracy which is vastly more important than any of the limited benefits that will accrue from the project.
  41. The submission has concerns that this is just part of a much bigger project (some of which is not in the public domain) and, as a whole, is the antithesis of "proper planning and sustainable development". Currently Shell and Transocean are drilling for oil and gas close to the existing Corrib Gas Field.
  42. The submission feels that this project is another step in facilitating the rip-off of Ireland of its oil and gas by multinational companies, contrary to our Constitution. Getting the gas ashore is not of strategic importance in providing extra revenue for the State. The total State take will be small, limited to 25% profits tax, and will be long delayed since taxable profits will only be declared after all exploration and development costs have been written off.
  43. The submission asks how can it be possible for Shell to submit the pipeline tunnel application without knowing the results of the relevant survey work on the estuary?
  44. In conclusion they ask that this application be refused in light of the points made above.
- **2009 Submission 30: Maura Harrington, Dóchas Centre, Mountjoy Jail, North Circular Road, Dublin 7**
    1. The submission makes the point that the LVI is subject to human error, system failure, terrorist attack. If ABP accepts assurances from the company that the LVI will not fail, there still is no fair or equitable return to the state or to serve the common good.
    2. The submission has concerns about the material damage irreparable to the SAC's/SP.
    3. The submission has concerns about the alternative sites and alternative methodologies that the applicant says do not exist. The submission states that argument is untenable.
  - **2010 Submission 42: Maura Harrington, Doonama, Ballina. 26/07/2010**
    4. The issues regarding "part of the pipeline route which is onshore..." between HWM and the cliff face were not addressed in a timely manner. ABP notes the omission in

the F.I. request on 2/11/2009 it is contended in the submission that that occurred after Shell had completed their work constructing that pipe.

5. The Boards reference to the current status of the entire Corrib field development undermines the impartiality of the Board in its consideration of the current application.
  6. It is considered that ABP should not have notified all concerned about the date of the OH until after the submissions had been made.
  7. The E.I.S. is considered not a fit and proper E.I.S. – refer to Appendix J1 omissions.
  8. The implications of EPA licence application PO738-02 (25/03/2009) and WO256-01 (29/01/2009) should be assessed by ABP.
  9. ABP is urged to establish the ownership/liability status of Corrib Wells.
  10. It is contended that the borehole information being sourced by SEPIL at the present time in the Bay is necessary for the assessment of the application.
  11. The overlapping functions of the Board and the Department of the Environment (foreshore licence) in relation to transparency of process is considered unclear and Ms. Harrington requests that this be clarified at OH.
  12. It is not considered that the proposed development is of strategic importance to Ireland.
  13. The Board is reminded of the precautionary principle and reference is made to the Gulf of Mexico disaster in that regard.
  14. Fail safe devices do fail. When they do it is consequences that matter.
  15. Concern is expressed at the unhealthy close relationship between oil companies and U.S. Dept. of Interior (Minerals Management Service) and concern is expressed that it would be naïve to think matters are different in Ireland.
  16. The submission contains attachments about 120 pages of news updates from internet sources concerning the BP Gulf of Mexico disaster. The information provides an insight into the scale of the disaster and some of the factors that may have caused the disaster.
- **2009 Submission 31: Monica Muller & Peter Sweetman**, Rossport South, Ballina, Co Mayo
    1. The site notices were not legally erected.
    2. The application is invalid as there is no application for the retention of the unauthorised works carried out in 2008 on the land pipeline route.
    3. Information presented in E.I.S. was gathered in Glenamoy Box SAC in contempt of Court Order.
    4. ABP should have regard to ECJ Ireland Case C – 418/04 “...development should not affect the integrity of that site...” [note refers to designated site].
    5. Conditions under the peat cannot be determined until the detailed site investigations pre-construction were undertaken.
  - **2010 Submission 26: Monica Muller & Peter Sweetman**, Rossport South, Ballina, Co Mayo

#### **Additional points 17/07/2010**

Additional points submitted by M. Muller, P. Sweetman & The Swans & The Snails Ltd. On 02/07/2010.

6. The submission refers to the Judgement of the European Court (Second Chamber) of 3 July 2008. (European Court of Justice) Case C-215/06. Commission of the European Communities v Ireland. Failure of a Member State to fulfil obligations – No assessment of the environmental effects of Projects within the scope of Directive 85/337/EEC – Regularisation after the event. The submission also attaches parts of the Circular Letters PD 2008/5 and 2008/6 from the Minister for the Environment interpreting the judgement.
7. The submission states that it is a matter of fact that the pipe the subject matter of the present Application, from chainage 83+400 to the High Water Mark of Glengad which is within a SPA and cSAC has already been constructed by SEPIL, without planning permission and without assessment under Article 6 of the Habitats Directive.
8. In light of the points made above the submission find it strange the Board of ABP have ordered SEPIL to advertise the application for submissions to be invited from and by the public, when the rulings of the European Courts of Justice specifically declare that consent for this development is contrary to both the terms of the Directives and to the findings of the European Court of Justice.
9. The submission points that the developer has stated that it will commence the drilling of 80 boreholes in Sruth Fada Conn Bay, a SPA and SAC within the next few days. As the developer has submitted the EIS for the pipeline in the bay, these works cannot be considered to be investigation works for the gathering of information for the EIS. These works are therefore part of the proposed development and have not been subjected to Environmental Assessment. Should these works commence it will further render it impossible for ABP to either consider the issues relating to the proposed Pipeline or to issue a valid consent, in compliance with the EIA, Habitats and Birds Directives of the European Union.
10. The submission has attached a copy of the 'Explanation of proceedings for non-compliance with Community law' and submits that the Board should not postpone a decision on these matters pending a final decision on the proposed development but rather should decide these issues now. It also refers to a list of Commission documents which explain the Commission's general approach of the management of correspondence and complaints.

Additional points submitted on 17/07/2010

11. The submission refers to the section of offshore pipeline laid at Glengad under a Section 40 consent (Gas Act 1976), and the newspaper advertisement which states "The section of the pipeline from chainage 83+400 to the High Water Mark of Glengad has been included within the development application" It is contended that this section of pipe has been laid without planning permission, and the submission refers to Section 9 of Planning and Development Regulations "Restriction on exempted development by reason of material

widening of a means of access to a public road". The contention is that exemption cannot apply to the 2002 consent accordingly.

12. The submission makes the same point in relation to compound SC4 in the 2010 modified proposed development where it is contended that the current application before the Board Books of Drawings DG 0306 shows the opening of the 2002 pipeline route (50x80 metres) onto Pollathomas road and double gates. The current application shows the same area as proposed compound (SC4) 80x40 metres for the proposed 2010 route.
13. It is put to the Board that the provisions of the P and D Regulations 2001 Article 9, de-exempted the Corrib Onshore gas pipeline of 2002, from the HWM, from being exempt development and required planning permission for the onshore pipeline and all associated works including the laying out or material widening of a means of access to a public road, the constructed stone road (clearly visible on drawings DG 0306 ) after the crossing of Pollathomas road and construction works carried out at Glengad landfall and the construction of the pipeline from HWM at Glengad to the proposed valve facility.
14. It is contended that the existing works, construction of the onshore gas pipeline from the HWM between Chainage 83+390 and 83+400 and all associated works, the construction of the stone road and the opening of the onshore gas pipeline onto the Pollathomas road were carried out without the benefit of planning permission.
15. In view of above it is considered that an Oral Hearing is a waste of time as the rulings of the European Court of Justice forbid granting of consent after the event. Therefore the only legal option for the Board is to refuse permission.

- **2009 Submission 32: Jim Mulcair**, Roadbridge Ltd, Civil Eng & Building Contractors, Head Office Ballyclough, Ballyseady, Co Limerick

1. Roadbridge Ltd was awarded the contract to complete the earthworks on the Ballinaboy Bridge Gas Terminal site. Jim Mulcair is a director of Roadbridge. Roadbridge has laid over 500km of gas pipeline in the past 20 years in Ireland.
2. The submission outlines the elements of design construction and operation as being critical in assessing the safety of any pipeline.
3. The submission supports the design proposed and identifies the 25mm wall thickness (actually this is not correct thickness) as being an additional safeguard over the normal standards.
4. The submission identifies the greatest risk to the pipeline as being struck by third party (excavator or rock breaker). The puncture strength of the pipeline is related to the grade of steel and the thickness of the pipe. It states that the pipeline has been over designed.

5. The submission identifies the experience of Roadbridge in dealing the safety on the contracts with Shell. It says safety is clearly the number one priority for the company and comes above everything else.

- **2009 Submission 33: DB Marine Research & Associates**, 318 Ballsbridge Terrace, Dublin 4

1. Specialists in Maritime History & Development.
2. DB Marine define their functions as conducting marine research projects.
3. The submission is based on material provided by Lloyds Marine Intelligence Unit (MIU).
4. 1200 Casualties resulting from pipe line fractures of which 61 occurred in 2008.
5. An attachment is entitled “Details of International oil pipeline fractures causing casualties to personnel, injury to wildlife and damage to the environment”.
6. The attached lists oil fractures between 1998 – 2008, and presents (1) The casualty number (a reference number) – 63 reference numbers are given. (2) Casualties, a number of casualties [totalling over 1300 in all] per reference number. (3) Page number – a page reference number per listing is given. (4) Comments – in three cases comments.
7. The submission states that as well as the casualties, there was substantial damage to the environment in many cases.
8. That injury and damage to wildlife feature in many of the incidents.

The pipeline fractures involved 52 countries around the world. 19<sup>th</sup> Aug to here.

- **2010 Submission 4: DB Marine Research & Associates**, 318 Ballsbridge Terrace, Dublin 4

Additional points 27/07/2010

9. The substance of the submission to the OH will be based on references to
  - NDP 2007-2013
  - Joint Committee on Communications Energy & Natural Resources review of energy June 2006
  - Towards a Sustainable Energy Future for Ireland DCMNR Government Green Paper.
  - Delivering a Sustainable Energy Future for Ireland DCMNR Government White Paper.
  - References to the information contained in the E.I.S.

- **2009 Submission 34: Sean Staunton**, Knockfin, Westport, Co Mayo

1. The submission is made on behalf of the Independent Scholarship Board set up by Shell Exploration and Production Ireland Limited, as part of that company’s commitment to social investment in Erris.



2. Mr. Staunton has had an interest in this project for some time and has been supportive of the project. He believes it will be of benefit to Erris, Mayo and country generally. There is no need to labour the point that Ireland badly needs the reassurance that Corrib Gas can provide in relation to the country's security of energy supply.
  3. It is most unfortunate that some members of the community continue to raise objections to the development.
  4. While mistakes were made in the past, there is now an acceptance that Shell is doing its utmost to meet the concerns of the community and bring the maximum benefits possible to the local area. The scholarship Board has played a part in bringing some of those benefits to the young people of the area.
  5. At present 21 local students are each receiving a scholarship as part of the SEPIL Social Investment programme. 10 Further students will benefit in 2009/2010.
  6. Because of the role Mr. Staunton has been asked to play, he has informed himself more fully about the project and am aware of the steps taken by SEPIL to address the concerns of residents on the health, safety and environment issues.
  7. The Advantica Report on the original pipeline is an expert vindication of the safety standards applied by SEPIL. The recommendation to reduce the pressure and the decision to reroute the pipeline introduce a margin of safety that is at least on a par with the highest standards anywhere in the world.
  8. The Scholarship Board supports the project.
- **2010 Submission 36: Sean Staunton, Chairman Erris Corrib Gas Scholarship Board, Knockfin, Westport, Co Mayo**  
20/07/2010
9. This pipeline as now proposed is among the safest anywhere in the world.
  10. SEPIL in selecting the route through the Bay and through a tunnel have sought to minimise any potential environmental impact in what is an environmentally protected area.
  11. There has been considerable local benefit from the construction work on the scheme and many local people have been employed. The entire Erris region has benefitted by supplying services to the onshore workers involved in construction of the scheme.
  12. The young people are very enthusiastic about the scholarship programme. Also the local communities are doing good work with support from the local grants programme and Erris Development Fund.
- **2009 Submission 35: Thomas & Ethel Corduff, 10 Malcolm Road, Woodside, London, England, SE2 55HG**
1. This submission indicates concern for health and safety, effects on the environment, effects of the proposed development on proper planning and sustainable development, and as landowners, concern at restrictions that the pipeline will place on the ability to refurbish a derelict house for which a planning application is now pending a decision.

2. A major disaster is likely due to the pipe being in blanket bog. The emergency response plan would be impossible to operate due to the remoteness of Erris and the limited facilities (no A & E unit, one ambulance, no hydrant in Rosspport, no pressure in water mains).
3. The submission is concerned with safety in the pipeline, which now has multiple bends and which will operate at 144 bar.
4. The submission indicates the concern at the safety where landslides and forest fires may affect the pipeline and cause explosions.
5. E.I.S 3.4.11 “proximity to housing had not been used as a criteria to select one route over another”. This seems strange when safety is a priority.
6. The water main at Rosspport south will be difficult to repair with additional danger involved should it leak where the gas pipe crosses.
7. The pipeline is still too close to houses.
8. At the LVI the above ground construction will not be safe. Any interference with the LVI will make it unsafe.
9. There will be loss of habitat.
10. The submission indicates that aluminium from the sub bog layers will be excavated and may pollute water courses and drinking water sources.
11. The bog land as part of the heritage – no money can compensate for loss of fuel, grazing and heritage.
12. In 2008 a forest fire raged for 4 days near Bunally near Glenamoy. A major disaster would have occurred in pipes had been laid there.
13. The submission has environmental concerns regarding the danger to the pipe from the strong currents in Sruth Fada Conn Bay.
14. Access, temporary haul roads, acquisition orders will be required.
15. Construction will impact on flora, fauna, water quality.
16. The climate brings much wind and rain added to construction activity. This will impact on soils, geology, accidental spillage, peat and silt disturbance in an area of great beauty.
17. Traffic will cause problems.
18. Construction has been poor. Landowners with an address elsewhere did not receive Community Update Brochure January 2009 and hence were not aware of deadline for submissions to Minister of Communications, Energy & Natural resources.
19. The Corduff’s have a derelict property [not numbered in the proximity to houses maps] 45 metres from the pipeline. The boundary is 26m from the pipeline.
20. The Corduff’s disagree with Shell statement “development potential along the route of pipeline is extremely limited”.
21. The submission comments on political positions taken by the Minister for Communications, Energy and Natural Resources.
22. The submission expects that oil could also be involved in the future use of the pipe in Rosspport.
23. In conclusion it is stated that route C1 does not address the community, environmental and technical criteria as claimed in the E.I.S.
24. The submission is accompanied by copy of the map showing the proximity of houses to the pipeline [2 of 7].

- **2010 Submission 15: Thomas & Ethel Corduff**, 10 Malcolm Road, Woodside, London, England, SE2 55HG

**Additional points 21/07/2010.**

25. Health and Safety, not everybody will be able to shelter in their home as most people work out of doors or on the sea and use roads.
26. The Qualitative Risk Assessment is scary, showing in the analysis 112 threats (causes), 30 potential consequences and over 1000 control measures.
27. In QRA the risk of umbilical failure should be high not medium risk.
28. The potential causes of a release from a landfall valve are frightening and include ground instability, extreme weather, and dropped objects.
29. There is only one ambulance at Belmullet and no casualty department locally. Castlebar hospital is 70 miles away Concern is expressed regarding Emergency services available in the area. This major project would require a hospital on site.
30. The submission raises the question are the standards set out in the ABP letter on 2/11/2009 superior to TAG standards?  
Which standards are being adopted by Shell?
31. Concern is expressed at the tunnel route moving closer to Dooncarton Hill, which is considered very fragile and subject to inclement weather.
32. The Corduffs wish to have a number and distance from the pipeline reference for their property.
33. The submission shows concerns that the tunnel machine and tunnelling operation will cause disturbances noise and vibration at Aghoos, Glengad and will affect peoples sleep.
34. The heavy traffic volumes and the narrow route (L1202 is the route referred to here) would be a traffic hazard and would obstruct road users. The submission notes that month 2 as the busiest month for traffic and 236 HCV round trips to and from the compound at Aghoos and 331 daily car/bus trips. The L1202 is narrow and unsuitable for this traffic.
35. The compulsory acquisition will lead to heartache and discord and friction between neighbours.
36. The Bay was formally a forest and there are strong currents in the Bay. Tunnelling will be difficult due to the tree roots. The tunnel construction will cause silt to rise and choke fish and marine life including otters. The currents will eventually affect any tunnelling. Atlantic Salmon, Golden Plover Otters and Seals will be effected.
37. Fishing will be affected and polluted over the two years of tunnelling.
38. The effects on bird life will not be avoidable despite mitigation measures.
39. Previously Shell rejected the route through the Bay for environmental reasons – it is contended the environmental impact will be there from the modified proposals. It is contended that the pSPA and cSAC designated sites will be affected by the development.
40. There is concern about the removal of peat to Srahmore and the possible release of Aluminium into rivers and streams. The stone road is considered not to be a well tried and tested method. It is considered the stone road might collapse in the Bog.

41. Concern at the loss of forestry and potential for a forest fire.
42. The issue is raised that a renovation and reconstruction of an existing cottage and plans for a new septic tank and proprietary wastewater treatment unit by the Corduffs was refused by ABP (insert ref. No. for Pl. Perm.) and was considered a danger to public health. The Corrib Gas pipeline is considered by the Corduffs to be a danger to public health. This is considered to be extraordinary.
43. It is considered that Belmullet should be included in the transmission network for gas.
44. The Corduff's ask "Is it right that ABP should have told Corrib Gas that if certain alterations are made to the proposed development it would be appropriate to approve the proposed onshore pipeline development?"

- **2009 Submission 36: John Monaghan**, Glengad, Pullathomas, Ballina, Co Mayo

1. The submission questions the acceptance of the application under the Strategic Infrastructure legislation.
2. The submission requests refusal of the application for the following reasons:
  - Risk and public health and safety.
  - Irreversible damage to several protected environments, even though viable alternatives exist.
  - Non conformity with codes of practice.
  - The pipeline and valve assembly are experimental.
  - The E.I.S. is deficient in ignoring the devastating effects of overpressure.
  - Copies of E.I.S. were not available at locations at the specified dates.
  - Risk to drinking water.
  - Damage to SAC at landfill site.
  - Disruption and removal of blanket bog SAC.
  - The pipeline inputs cannot be assessed in isolation from other parts of the scheme.
  - Future expansion of the development will increase the safety risk.
  - Unsatisfactory consultation.
  - Disregard by developer for environment, community and laws of the land.
  - Proximity of houses within what the submission calls the kill zones of the pipeline and valve installation.
  - Land use alterations and reduction in natural amenities of area.
  - E.I.S. is seriously flawed.
  - S.I. Act is subject to legal challenge.
  - There is no evidence of HSA involvement in the scheme.
  - Interference with long term fishing rights of local families.
  - No independent assessment of the need for this project.
  - Recent all island policy recommendations propose to reserve the Corrib resource.
  - Road works required are largely omitted from the project.
  - The terms of reference of Advantica & Cassell's Reports were inadequate.
  - A significant proportion of the pipeline route has been surveyed in defiance of court order.

- Heavy traffic movements and major excavations are involved in an area prone to landslides.
  - Industrialisation of an unspoilt landscape.
  - Damage to quality of life by the project.
  - Requests an oral hearing be held.
- **2010 Submission 24: John Monaghan**, Glengad, Pullathomas, Ballina, Co Mayo  
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3. The significant and devastating effects of overpressure have been entirely ignored in the E.I.S.
4. The proposed development would ensure a long term security presence would be in operation in the local community and would ensure a continued atmosphere of fear and intimidation for local people.
5. The proposed rerouting would bring the pipeline and attendant hazards closer to locations where people congregate i.e. church, national school, graveyard at Pollathomas.
6. There has been a willful misrepresentation of the local community by the developers.
7. Parts of the E.I.S. were only published within the statutory consultation period with insufficient time to properly evaluate the proposed development.
8. Several aspects of the project are currently subject to High Court challenges, the outcome of which may affect the legal position of this application.
9. Key parts of the project have been carried out in direct breach of ministerial consents planning laws and EU directives.
10. There is no evidence of Mayo County Council. having a meaningful input into the proposed project.
11. The long term tunnelling operations would induce major hazard for road users over an extended period including school runs and would impede access for emergency vehicles.
12. A significant proportion of the entire pipeline route has not been physically surveyed and the associated environmental impacts cannot be predicted with any accuracy.
13. Concern is expressed that approval of this application would establish a dangerous engineering precedent and this would expose other communities to unacceptable treatment at the hand of self interested corporations.
14. The project would cause a continuation of damage to the local community human rights and quality of life.

- **2009 Submission 37: Brendan Hegarty**, Bangor, Erris, Ballina, Co Mayo

1. Mr. Hegarty has been involved with the project since 2006, he employs 29 men in his work with SEPIL.
2. The project has 1000 employed in construction of the terminal and is making a real contribution during the economic downturn.



3. The project offers long term employment to the local community.
  4. The level of environmental and safety standards enforced on the workforce are extremely high. This is indicative of the respect SEPIL have for the workforce and community.
  5. The Advantica report into the safety of the pipeline concluded that if the recommendations were followed, it would meet or exceed international best practice.
  6. The pressure in the pipeline has been reduced and the pipeline has been moved further away from housing than before.
  7. The pipeline route has gone through rigorous consultation.
  8. The submission urges approval for the project.
- **2009 Submission 38: Aidan Bird**, Mercury Engineering, Mercury House, Ravens Rock Road, Sandyford Business Estate, Dublin 18
    1. This submission supports the application and states that the design meets the highest international standards.
    2. Mercury Engineering has been working on this project from the beginning and health and safety and quality of the installation has been paramount from the outset.
    3. The Corrib will supply 60% of Irelands gas needs and is critical to the economic advancement of the country.
    4. The local economy has benefitted from the employment created and Mercury Engineering has employed a number of apprentices from the area.
    5. Mercury Engineering and Shell have supported the local community. The Shell support for the Secondary School Scholarship Programme has been continued in 2008 & 2009.
    6. The route was chose after examining many options, and it is the best available route.
  - **2009 Submission 39: Seán Ó Gallchóir**, Teach John Joe Teo, Eachléim, Fód Dubh, Béal an Átha, Co Maigheo.
    1. This submission supports the pipeline and requests ABP to take health and safety into account, also traffic management, air pollution, water quality from Carrowmore Lake is most important.
    2. Mr. Ó Gallchóir is chairman of the local group water scheme with 500 connections. The supply for the group comes via Mayo County Council from Carrowmore Lake and perfect standard of water quality must be maintained from that lake.
    3. The construction of the terminal has brought employment opportunities for the people of the area and has benefitted Mr. Ó Gallchóir's business.
    4. The submission highlights the benefit of scholarship from SEPIL for a local student.
    5. Upwards of 400 are renting houses in the Belmullet area while working on the terminal.
    6. The vintners in the area have benefitted from the work on the terminal.
    7. Even though this business is 20 miles from the site, Mr. Ó Gallchóir benefits from the development.

- **2010 Submission 22: Seán Ó Gallchóir**, Teach John Joe Teo, Eachléim, Fód Dubh, Béal an Átha, Co Maigheo.
  8. This submission supports the application because it takes consideration of the local views and the environmental concerns.
  9. The submission identifies the need for this gas, the need for the local employment to keep communities and families together.
  
- **2009 Submission 40: Pádraig McGrath**, Rossport South, Ballina Co Mayo and Páraic Cosgrove, Cloontakilla, Bangor, Erris, Ballina, Co Mayo
  1. We would like to make a submission on the proposal by Shell, EPIL, to construct a gas pipeline through the townland of Rossport and their application to An Bórd Pleanála in respect of a strategic infrastructure development.
  2. The Corrib Gas was found in 1996 and it should be brought ashore for the use of the people of Ireland. Planning permission was granted by Mayo County Council in 2004 and the processing plant is almost 70% complete by now.
  3. We believe that the design of this project complies with the highest international standards and as such we give it our full support. We believe that Shell are doing their utmost to guarantee absolute safety and their open invitations for all to see, and for the people who live along the route to visit similar installations elsewhere operating safely. We have visited and studied other similar pipelines in the Netherlands and are sure that the safety distance of the pipeline from houses is more than adequate.
  4. Having spoken to farmers and residents in the Netherlands, we believe that this pipeline exceeds best international practice.
  5. This project provides very welcome employment for the Erris region of North Mayo who have had to endure very high levels of unemployment and emigration for the past 60 years. The project has given renewed life to the Erris region and has the potential to transform the area through local investments and developments.
  6. We enclose our DVD made while in Holland, for your perusal to back up our claims (No DVD was enclosed with the letter).
  7. We look forward to a positive outcome to your deliberations on this application, and a successful completion of the pipeline for the benefit of Ireland generally, and for our local area specifically.

Inspector's Note: A submission made by Mr. McGrath and Mr. Cosgrove to 16.GA.0001 in the 2008 Scheme was accompanied by a DVD professionally produced which was made in Holland where Pádraig McGrath and Páraic Cosgrove visited the Nam Gas Company and gas fields and pipelines developed, and being developed (partnership between Exxon and Shell) and facilities which include extraction and transport of raw gas through farmlands to treatment stations.

- **2009 Submission 41: T J Lennon**, Glencastle, Bunnahowen, Ballina, Co Mayo

1. Since 2004 Erris has seen a significant rise in employment. The development has brought more people to live in Erris which has greatly improved our infrastructure and services.
  2. It is important for Ireland to provide supportive environment for foreign direct investment. A secure and uninterrupted energy supply at a competitive price, and our capacity to deliver such energy supply is important. At present, Ireland imports 96% of it's gas needs.
  3. Corrib will provide 60% of gas needs at peak production.
  4. The design meets the highest international standards.
  5. The submission supports the project unreservedly, but seeks that due regard is given to health and safety, traffic management, access for shareholders to Commonage.
  6. The Advantica Report on safety of this pipeline concluded that if their recommendations were followed, it would meet or exceed international best practice. The pressure has been reduced since that report and the pipeline is further from housing, so it is even safer now.
  7. Shell has been active supporting local initiatives and scholarship programme for secondary schools, investment in GAA and RNLI.
  8. The proposed route has gone through rigorous consultation.
- **2009 Submission 42: Teresa McGarry and Brid McGarry**, Gortacrager, Rosspport, Ballina, Co Mayo
    1. The submission objects to the high risk, pressurised production pipeline complex carrying raw gas in their community.
    2. The submission requests that the previous submission made by them under GA0001 2008, and its contents be applied to this application.
    3. RPS consultants were instructed to select a new pipeline route under narrow terms of reference instead of assessing the deficiencies in the overall proposal.
    4. The trend over the last 9 years has not been of high standards from the Applicant as any amendments to the proposals have only come after the public have highlighted the deficiencies or inadequacies.
    5. The sanctioning of this application will have a detrimental impact on the environment in the community and the many regions designated SACs.
    6. Project Splitting results in the proposal never being examined as one whole unit.
    7. Properties will be devalued as a result of the pipeline on the proposed route
  - **2010 Submission 47: Teresa McGarry and Brid McGarry**, Gortacrager, Rosspport, Ballina, Co Mayo

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8. This submission objects to the “unique unprecedented pipeline complex” containing raw or unprocessed gas being placed anywhere in the community.
9. It is considered that the true reality of the proposed development is a deeply flawed endeavour with potential devastating and detrimental consequences for the inhabitants living in its midst.
10. It is considered that the applicant lacks credibility.

- **2009 Submission 43: Catherine Mc Andrew**, Barnacullen, Pullathomais, Ballina, Co Mayo
  1. The pipeline will pass directly below Ms Mc Andrew's house.
  2. The safety of this family and future generations are affected by the risk to this pipeline of accident explosion.
  3. The geological formation of Dooncartin Hill is the same as Sruth Fada Con Bay, the concern is that the (tunnel) pipeline under the bay will cause consequences for the hill.
  4. Rain was not the only cause of landslide in Co Leitrim, where works were being carried out on a windfarm as landslide occurred.
  5. The submission requests a geotechnical survey on Dooncartin Hill before any discussions are made on this pipeline route.
  6. Ms Mc Andrew's son was refused planning permission for a house beside her house.
  7. The reason for refusal was visual impact, however, Mr. Mc Andrew has documentation showing the real reason for refusal was fear of future landslide.
  8. What security will be put in place for this pipeline route to prevent sabotage and the consequences for safety of Ms Mc Andrew and her family.
  
- **2010 Submission 25: Catherine Mc Andrew**, Barnacullen, Pullathomais, Ballina, Co Mayo.
 

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  9. The validity of the E.I.S. is questioned, noise monitoring locations are questioned. Drilling at present is causing major disturbance day and night without regard for local people, their mental health and safety.
  10. Residents will have difficulty obtaining property insurance with such high pressure so close to the village of Barnacullew. It is already difficult to get insurance after the 2003 landslide.
  11. The effect it will have on the structure and value of Ms. Mc Andrew's property.
  12. The pipeline was deemed unsafe to homes in Rossport but now the pipeline is just as close to homes in Barnacullew. This is not acceptable.
  13. It is contended this route was ruled out initially because of close proximity to school, church, graveyard how is it now acceptable?
  14. The rules applied by ABP regarding planning permissions for one off houses and pipeline routes should be unilateral i.e. refused or granted.
  15. Concern is expressed at the major construction project on an already unstable location following a major landslide in 2003.
  
- **2009 Submission 44: Thomas Philbin**, Rossport, Ballina, Co Mayo
  1. The pipeline is unacceptable because it is part of a totally flawed project.
  2. The pipeline should not be allowed through cSACs Sruth Fada Conn And Rossport Commonage. To do so would make mockery of the system for environment protection.
  3. The proposed production pipeline (unodorised gas) would be operating at an unsafe pressure in close proximity to homes and people working in the area.

4. Any gas leak or explosion would carry too high a risk of fatalities and injuries (Carlsbad New Mexico August 2000 incident which killed 12 people at over 206 metres from the pipeline at a lower pressure of 46 bar).
5. The Corrib Gas pipeline with much greater pressure would pose a greater damage over greater distance.
6. The umbilical pipelines carrying methanol, hydraulic fluid and the outflow pipe carrying contaminated water with mercury and other toxic metals pose an unacceptable risk of pollution along the 9km of land, also to Sruth Fada Conn and Broadhaven Bay.
7. Permission should not be granted because of the unknown risks from future use of the pipeline to carry gas from wells other than Corrib.
8. The no definite lifespan of the pipeline is a safety issue.
9. Mr. Richard Kuprewicz clearly showed in 2005 that unsheltered individuals @ 400m from the pipeline are at risk of fatality/injury.
10. A low pressure treated and odourised pipeline would have a much lower risk to residents.
11. The majority of land owners and residents would prefer a low pressure clean pipeline. Mr. Philbin is a land owner affected by the compulsory acquisition order.
12. There is no community consent for this scheme.
13. The submission refers to the use of high tech weapons to try to intimidate and manipulate the local population.
14. There is a copy attached of an e-mail to Minister for Justice regarding mobile phone type device monitoring.
- **Submission 17: Thomas Philbin, Rosspoint, Ballina, Co Mayo (21/07/2010)**
  15. The project is unacceptable and flawed, refer to Kevin Moore's Report.
  16. The pipeline should not be allowed to run through SAC's.
  17. The un-odourised gas would be operating at unsafe pressure close to houses and people working in the area.
  18. Any gas leak would carry too high a risk of causing fatalities and injuries, refer to Carlsbad New Mexico August 2000, where 12 people were killed 206 m from the pipeline at pressure of 46 bar. The Corrib pipeline at up to 345 bar pressure would pose a danger over a much greater distance.
  19. Any leaks in umbilical, methanol, and hydraulic fluid and outflow pipe carrying contaminated water would be impossible to remedy and would pollute the 9 Km stretch of land and Sruth Fada Conn Bay.
  20. There is concern at potential unknown risks related to carrying gas other than Corrib Gas and to the indefinite life span proposed for the pipeline.
  21. The fact that the pipeline is now to be placed in a tunnel is considered to be confirmation that SEPIL have accepted that there are unacceptable dangers posed by the pipeline.
  22. The application cannot be considered complete without the geology data from within and under the Estuary.
  23. It is unacceptable to cause noise and disruption over 3 year span of construction on 24 hour per day basis.



24. The section of pipe already laid onshore and not approved by ABP should be removed.
  25. The refinery is located in an unsafe and unacceptable place at Ballinaboy and that remains the core issue.
  26. Kuprewicz 2005 showed that risks of fatalities and injury to unsheltered individuals existed at 400 m from the proposed Corrib pipeline.
  27. The majority of landowners and residents would prefer a low pressure clean gas pipeline. They are against this proposal and hence the need for compulsory acquisition.
  28. There is no community consent for the project.
  29. It is considered that the project has virtually tortured people in the locality to date. It is contended that such would not have been required had the proposal by SEPIL any merit.
  30. The submission makes a point about concern locally that by electronic surveillance SEPIL have harassed the local community.
- **2009 Submission 45: Colm & Gabrielle Henry**, Glengad, Pullathomas, Ballina, Co Mayo
    1. This submission raises concerns at the H & S issues, the impact of the pipeline on unstable terrain, lack of consultation, reduced property values, loss of public amenities in the area.
    2. The landfall valve installation site includes flood lighting, security fencing, CCTV equipment and round the clock security presence. The concern is that these would infringe the basic rights and privacy of the Henry's.
    3. This submission comes from the Henry's who live within ¼ mile of the LVI. They are concerned at the experimental nature of the LVI. They are concerned at the high operating pressure 144 bar and possible 345 bar wellhead pressure in the pipeline.
    4. The submission states that the works by Shell in 2002 ripping rock and excavation contributed to 20 individual landslides at Dooncarton the following year. They are concerned at the proposed tunnel in proximity to their house. They are concerned at the potential damage of the beach and the Brent Geese and the Bottleneck Dolphins. The submission expresses concern that the LVI will become out of bounds having been an area of beauty and peacefulness for them and their children.
    5. The Henry's have felt tremors and vibrations when excavation was being carried out.
    6. They are concerned at the devaluation in the value of their property and because of the pipeline there will be a disincentive to purchase property in the area.
    7. They indicate that they have never been properly consulted. The submission is accompanied by a series of titled photos to support the concerns.
    8. The Henry's state that their house was not included in maps related to the development until February 2009.
  - **2010 Submission 28: Colm & Gabrielle Henry**, Glengad, Pullathomas, Ballina, Co Mayo

Additional points 29/07/2010.

9. The Henry's strongly object to the assertions in the May 2010 EIS for the following reasons;

- The retention of the valve system (LVI) – still in close proximity to our home – is our primary concern. We do not feel that previous points on this matter have been addressed by the revised plans, and the project continues to be an unacceptable infringement on our basic rights and privacy.
- It is confirmed in the updated EIS that the planned valve system remains experimental, and we do not accept the unknown risks that we would be forced to live with every day should the proposal go ahead.
- The new information is not clear on the proposed pipeline pressures at Glengad. The risk analysis appears to be based on pressures lower than the stated maximum operating pressure at the LVI and much lower than the design pressure 345 bar.
- The issue of landslides in the area is of continuous concern to local residence. The planned tunnelling over an extended time will only add to our fears in this area.
- The clean and sandy beach that we previously enjoyed no longer exists. Pipeline work at Glengad has rendered this area unrecognisable and unsafe.
- The Corrib development will negatively impact the value of their house and this is not recognised in the application.
- No proper consultation only propaganda has been engaged upon by SEPIL.

The Henry's intend to voice their concerns directly to the applicant at the oral hearing in August 2010.

• **2009 Submission 46: Mr. Terence Conway, Inver, Barnatra, Ballina, Co Mayo**

1. The submission requests that the application be rejected.
2. The project would be an overall risk to the community running close to dwellings, through bog and through an area of devastating landslides.
3. The H & S of nearby residents must be paramount importance.
4. The proposed plan includes experimental pressure reduction and will lead to noise pollution, light pollution, increased traffic, security and risk of fatality from the onshore pipeline with a design pressure of 345 bar, contrary to main recommendation from the Advantica Report.
5. The development would interfere with environmentally sensitive areas Broadhaven Bay SAC Mullet /Blacksod Bay SAC, Glenamoy Bog Complex SAC, Sruth Fada Conn Bay SPA, Carrowmore Lake SAC and SPA. Broadhaven Bay is also a designated Shell fish Growing Area and must be afforded the highest possible level of protection.
6. This submission expresses dissatisfaction with the consultation process.

7. The project proposed would have a negative impact on Carrowmore Lake, the regions drinking water supply.
8. The submission requests an oral hearing.

- **2010 Submission 43: Mr. Terence Conway, Inver, Barnatra, Ballina, Co Mayo**

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9. Concern is expressed that SEPIL recruits and trains personnel in some way related to international terrorism.
10. The submission contains a petition signed by about 320 people in which the following points are brought to the attention of ABP.
11. There is no community consent for the project and it is believed SEPIL is in breach of EU Directives 85/337 and 97/11.
12. Concern at high pressure raw gas pipeline close to houses through an area with a history of landslides.
13. It is unacceptable that local people will be disturbed over 26 months by the construction traffic hazard obstruction of road users. The community in Glengad Pollathomais Aughoos Leenamore and Bellanaboy deserve the same consideration as ABP gave to the community in Rossport (refers to letter of 2/11/2009 to SEPIL).
14. How is it possible for SEPIL to state the MAOP now when it wasn't previously?
15. The pipeline will run close to a school, church, graveyard and local roads all this will put local families at unnecessary risk going about their daily business.
16. The LVI still puts people in unnecessary risk. The example of fail-safe devices which fail to operate in Gulf of Mexico disaster is quoted.
17. Concern is expressed at Shell's track record worldwide. It is considered Shell are unfit to carry out this experimental project close to the local community.
18. The tunnel is considered unacceptable on environmental and technical grounds as it traverses two SACs and one SPA.
19. The modified route is now closer to Dooncarton (40 landslides in 2003)
20. It is contended that the EIS admits that vibrations from the tunnelling will be felt in the surrounding houses. This tunnel will run about 40 m from an area where a 6 foot crater was left after the 2003 landslide.
21. Concern is expressed at the possible need for an intervention pit and potential damage to the environment that could be caused and concern is also expressed at the very few details provided about the intervention pit.
22. Concern is expressed at political interference and the effect of representations to ABP by DCENR on the Boards consideration of the project.
23. The E.I.S. does not show that any perceived benefits for the community and the country are worth the risk being taken. Concern at the economic return nationally which it is contended will be small.
24. Concern that representative democracy has been undermined by the process so far on the project.
25. Concern that more Gas Fields will be connected and that the terminal will be used for treating gas from other fields.

26. Concern that the results of relevant survey work are not available and will not be available until October 2010. It is contended that proper planning and sustainable development should require that if it is necessary to survey within a cSAC and SPA then those results should be part of the planning application.

- **2009 Submission 47: Kilcawley Construction, Strandhill Road, Sligo**

1. The design exceeds highest world standards and has the support of Kilcawley Construction.
2. The submission requests consideration be given to noise, pollution, visual impact onshore, full access to the commonage, traffic.
3. Kilcawley Construction believe the pipeline is safe and that the distance proposed exceeds similar pipelines elsewhere.
4. The Advantica Report and its recommendations, if followed, will lead to a pipeline meeting and exceeding best international practice.
5. The submission indicates the importance (60% of gas needs at peak output) of Corrib Gas and quotes the 2006 report regarding a supportive environment [secure, uninterrupted, competitive energy] being necessary for Foreign Direct Investment.
6. 25% of Europe's gas comes from Russia and Asia, which can be disrupted.
7. It is 13 years since Corrib was found.
8. The submission highlights the benefits of Corrib Gas to the Erris area – 1000 people employed in terminal (peak), huge spin off in area, scholarship programme for secondary school, GAA grant €200,000, development of facilities, RNLI €200,000, long term independent fund that will operate over lifetime of project.  
The submission indicated that the open days were informative and helpful and answered all questions.

- **2010 Submission 35: Gerry Duggan, The Irish Academy of Engineering, 22 Clyde Road, Ballsbridge, Dublin 4**  
**28<sup>th</sup> July 2010**

1. The Irish Academy of Engineering was founded in 1997, has its overall objective the advancement of science and practice of engineering as an essential element in the enhancement of living standards on the island of Ireland. A particular focus of the Academy is to ensure that Ireland has access to secure and competitive energy supplies while complying with its international obligations in relation to Greenhouse Gas abatement and renewable energy development.
2. This submission has been made to highlight the critical importance of granting planning permission to enable development of the Corrib gas field be completed, as quickly as possible.
3. In 2009 92.5% of Ireland's natural gas supplies were imported. All of this gas was transmitted through a single 49 Km pipeline section in Scotland. At present this is the single most critical element in Ireland's energy supply infrastructure.
4. The submission refers to Bord Gais Networks Gas Supply Security submission to CER. *BGN's have put in place contingency arrangements... which are designed and tested to allow single pipeline repairs in Scotland to be completed within 48 hours, or*

*up to 7 days should a failure occur at a rail or river crossing... This latter condition though extremely unlikely, could see the capacity to maintain supplies to 'non-interruptible' customers exceeded and would have to be addressed, were it not for the planned development of the Corrib field.*

5. The Academy is of the view that it would be totally unjustifiable and economically irresponsible to have to twin the 49 km onshore pipeline section from Cluden to Brighthouse Bay because of a failure by ABP to grant planning permission for 9km onshore pipeline section in Mayo.
  6. ABP should be aware that the consequences of failure to supply 'non-interruptible' customers can include the risk of air entering the gas distribution system. The subsequent elimination of this hazard could result in prolonged loss of supply to customers with no alternative source of heating or cooking facilities.
  7. The submission points to the risk of a total interruption of gas supplies to electricity generators as also being very serious. Ireland is one of the countries in the EU with the highest dependence on gas fired generation.
  8. The dependence on linepack in the interconnector system to provide a supply cushion in the event of a failure of the Cluden to Brighthouse Bay pipeline section requires that pressures in the interconnector system are maintained at much higher levels than are necessary to transmit the amount of gas required from Scotland to Ireland. This increases the gas usage at Brighthouse Bay compressor station considerably, thus adding to transmission costs and reduces the scope to use linepack to balance diurnal variations in demand.
  9. In conclusion, the Academy is of the view that granting approval for the completion of the Corrib field development is the single most important step that can be taken to improve Ireland's energy supply security and reduce gas transmission costs.
- **2010 Submission 32: Tony McGrath**, c/o Clarke and Flynn Solicitors, Bury Street, Ballina, Co. Mayo. 27<sup>th</sup> July
    1. Mr. Tony McGrath lives adjacent to Sruth Fada Conn Bay separated only by the road from Aghoos to Glengad and by some family land between that road and the seashore. Mr. McGrath has a license from the Department of Fisheries for the cultivation of oysters in Sruth Fada Conn Bay adjacent to the line now being taken by the applicant(SEPIL) for exploratory boring in connection with the application to put the pipeline under the Bay.
    2. Mr. McGrath is most concerned that his oysters beds (shown on a map attached with submission) will be adversely affected by the proposed operations.
    3. The submission refers to Mr. McGraths concerns that any disturbance to the sand and mud in the course of tunnelling operations may adversely impact the bed of the Bay and seriously affect his oysters. The oysters are filter feeders and quite apart from direct risk of destruction of the oysters, their marketability and their chances of thriving could be drastically affected for periods of time by excessive sand in the water.
    4. The submission also refers to Mr. McGraths concerns for his own safety and the safety of his property a licensed premises overlooking the bay.



- **2010 Submission 44: Jonathan Naughton**, Barhauve, Rossport, Ballina, Co. Mayo. 18/07/2010
  1. The submission objects to the proposed development in an area protected by cSAC pSPA NHA legislation.
  2. Mr. Naughton is a local resident with an honours degree in Geology and three years experience in engineering geology
  3. The time allowed for scrutiny of this application on this scale of development is totally unacceptable.
  4. It is believed that the development is highly detrimental to the ecology and archaeology of the entire Sruth Fada Conn Bay area and that there are suitable alternatives.
  5. The scope of the project has limited proper investigation of these alternatives.
  6. The overall project has been split which is contrary to EU law.
  7. The route is still undefined in a 100m wide corridor. The definition of the route awaits the results of the borehole site investigation.
  8. Mr. Naughton is a qualified engineering geologist. Using diagrams Mr. Naughton has shown how unstable deposits could exist where the proposed pipeline route is located and any future movement could overstress the pipeline.
  9. Concern is expressed that fault lines trending directly perpendicular to the pipeline and one fault line dissecting Dooncarton Mountain which is steeply sloping could cause risk to the pipeline.
  10. Mr. Naughton's submission contains Figures 1, 2, 3, 4, 5, 6 as prepared by Mr. Naughton himself. It is not very clear whether Mr. Naughton's figures are factual or theoretical. These figures identify possible threat to the pipeline in the tunnel in an event where the tunnel is located within layers of deposits from Landslips of Dooncarton which the deposits are themselves subject to movement. The figures also show potential threat to the pipeline in the event that landslides undermine Dooncarton Mountain itself thus causing the mountain to become unstable and collapsing and potentially sweeping away the pipeline.
  11. Mr. Naughton questions, was a baseline study of the Bay carried out prior to the 2003 landslide? He asks where did all the sediment go from the landslides?
  12. Why did Shell previously rule out a tunnel on technical grounds?
  13. Mr. Naughton considered that the examples and diagrams presented show a plausible and serious threat exists and a potential catastrophic occurrence is possible in the area.
  14. Mr. Naughton also attaches in Appendix A figures showing the landslide area and the geology of the area on which the fault lines have been marked. In a further attachment Appendix B a section of the Tobin Report on the Landslides is provided this extract gives the site description and land topography
  15. It is considered that the Bedrock Geology and Quaternary Geology is not mapped in any great detail. It is considered that the schist and psammite bedrock is overlain by till and peat which are vulnerable to landslide.
  16. It is considered that the 2003 landslide probably weakened the bedrock geology along probable faultlines.

17. Concern is expressed at the potential for site investigation boreholes and the drilling of the tunnel to cause vibrations that could destabilise Dooncarton.
18. The submission presents two diagrams (5) & (6) which show possible mountain collapse scenarios both of which it is believed would damage the pipeline.
19. It is contended that no proper geohazard analysis, no apparent borehole, or seismic study have been done on Dooncarton Mountain.
20. It is considered that there is evidence near Rinroe of rebound movement of a sea stack there. It is contended that rebound of 1cm per year is possible leading to 10cm over 10 years. Has the contractor accounted for movement on this scale?
21. The submission asks that the project be deferred until it can be properly and safely planned.
22. The submission has attached in Appendix B copies of pages from a report detailing hazard and risk terminology by Porter Esford and Savigny?

- **2010 Submission 45: Pearse & Anne Finnegan, Quarry Lane, Westport, Co. Mayo.**

1. As land owners the Finnegans are of the opinion that the laying of the pipeline will materially affect the enjoyment of the land and reduce the value of the land.
2. The Finnegans intend building on their land and have a temporary mobile chalet on their lands. They fear as its construction consists of wood and plastic that it would not withstand the heat in the event of an ignited release of gas.
3. The Finnegans will not retire to the area as a result of the danger and psychological burden should the proposed development go ahead.
4. In an emergency situation the emergency services are located 20 miles from the proposed pipeline. The fire and rescue service is only a part time service equipped only to meet the present infrastructure. The ambulance service is very limited and the nearest hospital for dealing with emergency cases is 50 miles away. It is considered that the emergency procedures fall far short of an acceptable standard.
5. It is considered that at a minimum the Irish Aviation Authority Manual for Aerodrome licensing standards for emergency services should be applied to this project. It is the view of the Finnegan's that the project carries a risk that would be similar to an aircraft with a full payload of fuel exploding and the dangers associated with same. Flag obtain these
6. The submission has attachments
  - Aerodrome Licensing reference to memorandum A.L.M. 002
  - Maps showing the property on Rossport side of the estuary
  - Drawings of the proposed building design for their site.

- **2010 Submission 46: David Dendy & Claire Hayes, The Old Rectory, Pollatomish, Ballina, Co. Mayo. 26/07/2010**

1. The submission objects to the proposed developments on the following grounds; Health and Safety, Environmental Protection, Community Welfare, National & Economic Interest.

- **2010 Submission 49: Pollatomish National School, Pollatomais, Ballina, Co. Mayo.**  
26/07/2010
  1. Concern is expressed in relation to the Health and Safety of pupils, staff, parents and anyone who has access to the school or its grounds including the field which runs practically down to the shores of Sruth Fada Conn Bay. The main concern is the close proximity of the pipeline route to the school and school property.
  2. The school is seeking a guarantee that health and safety and wellbeing of all be assured should planning permission be given for the proposed pipeline.
  
- **2010 Submission 30: Niall Harnett, Rossport Solidarity Camp, Barrana, Coille Pollatomais, Erris.** 25/07/2010
  1. The submission objects to the proposed development and refers to Mr. Kevin Moore's report on the original planning application for the terminal that concluded it was the wrong project in the wrong place.
  2. It is considered that the "three pillars" of sustainability are (1) social and cultural needs of the local community (2) the integrity of the natural environment, (3) economy.
  3. It is considered that the proposed development undermines these three pillars for no good reason and that all the objections to the project come from that fact.
  4. It is considered that the high pressures involved and proximity to local residents bring Health & Safety risks to the local community. The Compulsory acquisition orders and high security involved in the construction of the project are considered conflicting with the social and cultural needs of the local community.
  5. The change of use of the 500 acre site at Ballinaboy from sustainable forestry to use as a Terminal site and the change of ownership from public (Coillte) to private (SEPI) are considered breach's of the second pillar of sustainability (the integrity of the environment). The question is raised does the change of use of the Ballanaboy lands from forestry use to a use for fossil fuels industry not conflict with sustainability?
  6. The Sandmartin nests on the cliff face at Glengad were removed to facilitate the pipeline works. This was a Specially Protected Area, a Priority Habitat and a Special Area of Conservation. It is considered this also breaches the second pillar of sustainability.
  7. It is contended that the terms under which licences for Corrib Gas field were granted are not beneficial to the Irish economy.
  8. Questions are raised about who benefits and who suffers as a result of the proposed development. ABP is urged to consider these questions in making its decision. Does local community benefit or suffer? Is the development of Corrib a wise stewardship of all our natural resources? Does the economy benefit or suffer? Is the law being used strategically to benefit a third part only SHELL?
  9. It is considered that force be it administrative, bureaucratic, psychological, legal or physical force is being used to compel the project forward.

10. It is contended that ABP is being put under enormous pressure to allow the onshore pipeline. The pressure comes from the existence of the terminal and the offshore pipeline as already laid to the landfall.
11. ABP is asked is this not planning by stealth, project splitting, is it lawful?
12. It is considered that the mistakes which Shell and Government have agreed happened before 2005 still remain to be dealt with.
13. It is considered that the principles of fair and proper participation are not being applied by Government and reference is made to the Aarhus convention.
14. It is contended that ABP should not look only at the onshore pipeline in this application but at the impact of the whole Corrib Gas Field Development. It is contended that in reality ABP is under pressure to complete the whole project by approving the last “bit”.
15. The submission is critical of Government and Ministers for Energy and critical of the Forum established to discuss the issues and problems associated with the project. The criticism is that the Forum terms of reference did not extend to review the mistakes of the past.
16. It is considered that oil and gas infrastructure will continue to be developed on the Bellanaboy site where only 50 acres of the 500 acre site is being used for the terminal. It is considered that further development will bring associated environmental degradation and social problems. It is considered that Erris will become like Aberdeen a huge industrial zone.
17. It is considered this type of development is foolish from a Climate Change perspective and that fossil fuels should be strategically used to develop sustainable energy producing technologies.
18. It is contended that ABP should reject this development and force a rethink of the project.

- **2010 Submission 2: Fr. Kevin Hegarty**, Carne, Belmullet, Co. Mayo. 27/07/2010

1. Fr. Hegarty is chaplain and teacher in Our Lady’s Secondary school Belmullet and is a member of the scholarship Board for Erris third-level students sponsored by Shell. 31 students have benefitted from the scheme so far.
2. Many parishioners of Kilmore-Erris are working or have worked on the building of the terminal at Bellanaboy.
3. Mistakes have been made in the past including the jailing of the Rossport five. Enterprise Energy Ireland and Shell were sometimes cavalier in their responses to the safety fears of local people.
4. Since 2005 it is felt that Shell has made significant efforts to communicate meaningfully with the community. There is now a sense that the majority of the community are supportive of Corrib Gas admittedly with varying levels of enthusiasm.
5. The protesters have fears about the safety of the pipeline however these have been grossly inflated. It is considered that those who wish to prevent the delivery of gas on ideological grounds have inflated those fears.

6. The protesters are supported by eco warriors who are impervious to any constructive dialogue on progress of the project.
7. There is considered to be a tendency of some protest leaders to apply, in a simplistic way, the complexities that attend the Nigerian oil and Gas exploration, to Corrib gas and this is a source of obfuscation rather than clarification.
8. There are stringent Irish and European standards governing the operation of pipelines and gas plants. It is considered that these give confidence and it is considered that Shell have been assiduous in its adherence to them.
9. Shell in the latest submission have sought to address the issues raised by ABP and to minimise environmental impact by building a tunnel in one direction up underneath Sruth Fada Conn. The pipeline will now be 234 metres from the nearest occupied house that is three times the distance proposed in 2002. The project now proposed ensures that Rossport is a construction free zone.
10. The hope is expressed that the project can progress to safe completion of the pipeline and that overall progressive development of economic, social, technological and cultural infrastructure can be achieved for Erris and Mayo. The hope is that similar high tech environmentally friendly industry will follow and make Erris an energy hub for Ireland through the development of wind and tidal power.

- **2010 Submission 5: Diana Taylor & others. 26/07/2010**

1. This submission deals with some irrelevant issues relating to an aviation station, Ocean Wave energy development, Business Corporate Education, and Wind Energy Development.
2. This is an objection to the use of Kilcommon parish for raw gas pipelines when there is no use for it in the area.
3. North Mayo is important in the development of alternative energy resources and it must be used for these purposes in terms of national infrastructure.
4. The submission is strongly critical of the revised E.I.S. and in particular the Appendix J(1) data omitted from the submission of 31/5/2010.
5. The submission highlights difficulties in dealing with a corporation like Shell where profit takes precedence over welfare, work, sustainable future and environment.
6. Refer BH 10 Box 3 of 6, [Irish Drilling Ltd (2008)], 10.7 m deep “hazelnut shells fragments were identified” .... Mr. Taylor seeks further information on what “further analysis” SEPIL have conducted. The point being that it is considered at a depth of 10.7 m silt and mud is less than 8000 years of age? It is believed that carbon dating hazelnut shell fragments found in borehole material (now missing) could confirm the age of these sediments.
7. It is believed that these organic remains will date from Mesolithic Period and will signify that that it is highly likely that Mesolithic People lived and hunted gathered food and fished along the shores of the river which ran into Broadhaven Bay.
8. It is considered an act of “unprecedented stupidity” to bore a tunnel through mud silt and clay in Sruth Fada Conn Bay.



9. Borehole No. 8 (in Bay below Aghoose) m/c @ 14.7 m is 119%. The contents of the borehole are described as having “extremely high plasticity”.
10. Borehole No 10 m/c 312% at 13.1 metres described as “high plasticity”.
11. It is contended that all fourteen boreholes (2008) show silt mud sand and the very best ones have gravel. None of them have stable solid rock substrate.
12. Concern is expressed that the unstable mountains will subside and fill the proposed tunnel.
13. It is considered very poor policy to site an infrastructure project like Corrib Gas Project in a green field site. Both sides of the Bay are heavily populated.
14. Comhar Dun Chaochain Teo has carried out much work preserving the Irish language and Heritage of the Area. The culture traditions heritage and folklore of the area have not been considered and are at risk of being destroyed by the project.
15. Archaeology, the expertise and knowledge of Kilcommon Archaeology among the archaeologist consultants listed by Shell is questioned. It is considered there are no known reports on Kilcommon archaeology from any of the consultants listed by Shell.
16. Concern is expressed that excavation work was carried out in the past without proper archaeological supervision. Some recent archaeological surveying by a CE participant in Kilcommon has located many previously unknown and unrecorded archaeological sites.
17. It is contended that during construction at Bellanaboy Terminal that an Archaeologist was not available on site.
18. It is considered that there is an archaeologically rich mountainside in the parish and that geophysical investigation is required in Kilcommon Parish.
19. It is contended that the societal risk at Glengad has not been provided as requested by ABP. Figure 14 is considered as not representing “fully documented”.
20. The proposed development will have a profound impact on the population and demographic profile of the area under these headings; Air pollution, Noise and Traffic pollution, Light pollution, Sea and River pollution, Land pollution, Surveillance & Freedom of Movement. Duration of the project 25-30 years, loss of ownership, culture and heritage. The submission disagrees with the EIS Para 6.6.1 and Para 6.6.2 which says that the proposed development is not predicted to have any likely and significant impacts during construction and during operating phase of the development.
21. The clean fresh air, low traffic and noise pollution, breathtaking landscape, unspoilt waterways, and quality of life, these are the qualities of the area most threatened. It is the culture to harvest from the shore and the land and that makes Kilcommon a very special demographic area and a reserve for old traditions.
22. There is an anxiety that the enjoyment and freedom that the community now has to use the bay and beach for recreation, fishing, kayaking, horse riding, will be curtailed because of intimidation, fleets of boats and equipment used by SEPIL.
23. The use of surveillance by SEPIL is a violation of human rights and human dignity. There is no recognition of this surveillance in the EIS. Reference is made to an ex-IRMS security member who was shot dead in Bolivia whop had been stationed on beaches in Kilcommon.
24. There is concern that pollution incidents will happen.

25. Failure of the mitigation measures could result in significant impacts on wildlife and wetlands habitats. There is also concern that the fresh water environment will be contaminated.
26. A population decline is predicted on the basis people will move away from the area due to the risks associated with the proposed development. There is concern at the impact of the development which it is considered will only serve to push the trend downward negatively (refers to house values).
27. There is concern that the use of best technology can not predict and control the power of nature e.g. Gulf of Mexico disaster.
28. The gas should be treated at sea. There is no objection to gas being piped ashore in the normal way.
29. There is nobody from the area on the project monitoring committee. It is felt that the existing community representatives are ill equipped and have not sufficient competence or knowledge of the complexities of the Corrib Gas Project to monitor the project satisfactorily.
30. It is contended that ABP in seeking further information did not take issues of culture, traditions and impact on other towns and villages other than Rossport into account. It is contended that natural wilderness has a value for the area which is not recognised in ABP letter of 2/11/2009.
31. Most people in Kilcommon choose to live there and rear their children there and they object to SEPIL spreading their corporate business into their community with values that are related to shareholders not local communities.
32. Global destruction is being caused by multi national corporations in order to get more money for their shareholder investors.
33. The people most affected in Kilcommon have not been “left behind” they choose to live there. The people most affected receive none of Shell’s literature even when this has been requested. This submission indicates that some breakdown in communication distribution by SEPIL is taking place.
34. The submission presents maps of SPA and SAC and NHA protected areas in Kilcommon Parish.
35. It is contended that the Natura Impact Statement reads like a tissue of half truths where five species of marine mammals are not present nor are bats frogs lizards hares present.
36. It is contended that SEPIL have mislabelled the machair as agricultural grassland. It is contended that SEPIL’s treatment of the lands (at Glengad landfall site) contrasts in an unbelievable way with the Rossport Solidarity Camps use of lands where the letter had to comply with NPWS request to vacate the lands.
37. Concern is expressed at the hazard of Bentonite breakout and its effect on fish.
38. Concern is expressed at the possible noise levels from tunnel operations 125dB to 160dB.
39. The nomenclature used and measurement units used in the E.I.S. are considered confounding for ordinary people with less than a month to examine the document. This seems particularly to refer to information in Sruth Fada Conn and relates to chainages and borehole log nomenclature.

40. Issues other than those included in QRA Qualitative Risk Assessment should have been considered – Climate Change, rising sea levels, change in prevailing winds, inability to work in Sruth Fada Conn Bay during inclement weather.
41. There are errors in Appendix Q. Reference is mixed up between Q2 and Q3 in the Appendices.
42. There is no confidence in SEPIL's ability to deal with a major incident e.g. BP in Gulf of Mexico. Concern is expressed regarding possible contamination to waters in Carrowmore Lake the drinking water source in the area.
43. The work on the beach between the HWM and the cliff has been substantial and involved a causeway and heavy construction. The people of Glengad have not had the opportunity to object to those works and the causeway construction there. It is contended that SEPIL have inaccurately described the onshore area. The location of the HWM is questioned.
44. Concern is expressed that people's residences and lands on the Inver side of Glengad are not included in mapping and distances from the Corrib Pipeline (sea pipeline there). These people in middle Glengad have been caused severe distress from the 24 hours working at Glengad over many years.
45. Part of the submission repeats the point related to the wilderness aspect of the receiving environment. It is amplified on the basis that the proposed development fails to recognise the intrinsic value of wilderness and also fails to accept that other organisms apart from humans do have interests and are important.
46. It is argued that restoration is not the same as conservation, once disturbed the eco system will remain disturbed. It is contended that there is so much about how systems work that we do not understand.
47. It is felt that further options to develop the resource should be explored, one more effort at negotiation with inclusion of the interests and values of all concerned.
48. SEPIL have not answered ABP's question regarding a straight pipe at Glengad.
49. The distance of houses shown at Glengad area is misleading being distance from LVI where the actual distance from the pipeline would be less. Some houses at Glengad are missing.
50. The conditions along the site are different to conditions pertaining to the reference pipelines shown in Holland – weather storms, peat under Sruth Fada Conn Bay, different rock types, Blanket Bog, dangerous waters at Sruth Fada Conn Bay where the pipeline enters the Bay.
51. Concern is expressed at how a leak may manifest itself or be seen in rough weather.
52. Using extracts from Mayo County Council landscape protection policy it is considered that Shell's location for onshore pipeline and associated construction site could hardly be in a worse place. It is contended that Mayo County Development Plan does not provide for the decimation and destruction of a vulnerable magnificent and sensitive part of the county.

- **2010 Submission 6: Paula & Michael King, Aughoose, 23/07/2010**

1. Concern is expressed for safety at their house 413 m from the pipeline and at the school 647 m from the pipeline. Concern also at the fact that the pipeline crosses the L1202 near where a ground subsidence took place.
  2. Concern that the Kings use their access to their house which is closer( 50 metres) to the pipeline, and that their children at school use the playing field which is closer (100 metres) than the building to the pipeline.
  3. The Kings want this beautiful place which is an SAC and which is safe to remain without interference from a pipeline and a tunnel.
- **2010 Submission 8: Micheal O hEalaithe, Cathaoirleach, PEGG.**
    1. The submission supports the project.
    2. Ireland needs the security of its own natural gas supply as 95% of gas needs are imported. Corrib can meet 60% of the country's gas needs for the next 15 to 20 years.
    3. The tunnel proposed while costly is a clear and costly attempt to minimise the environmental impact of the laying of pipeline in Sruth Fada Conn Bay and to increase the minimum distance to homes in the area.
    4. By reducing the pressure to MAOP of 100 bar SEPIL has further addressed the safety issue our understanding is that normally the pressure will be 85bar similar to the BGE transmission lines.
    5. Constructing the tunnel in one direction minimises the impact from construction at Glengad. At Aghoos there are few houses in close proximity to the works compound.
    6. SEPIL has done all that it can to resolve the safety issues around this development. Erris has benefitted with a mini boom due to the economic spin off from the project and business generated by 1000 construction workers while the rest of the country has suffered because of the economic downturn.
    7. 30 young Erris people have benefitted from the scholarship programme established by SEPIL. A huge number of local social, community, sporting, and development groups have also benefitted from the small grants programme.
    8. 130 long term jobs will be generated by the project which is a major boost to Erris.
    9. The submission states that the project well exceeds the best international practice in relation to design, construction and health and safety and the submission supports the project.
  - **2010 Submission 9: Micheal O hEalaithe, Secretary Seirbhísí Cúram Chill Chomáin Teo**
    1. This submission supports the SEPIL application for consent to construct the Corrib Gas Pipeline under the Strategic Infrastructure Act (16.GA.0004).
    2. The submission is made on the belief that this development is good for Erris good for Mayo and for the country in general.
  - **2010 Submission 10: Martin Harrington; 26/07/2010**
    1. This submission objects to the project.

2. The overall danger of this experimental pipeline with raw gas running through the community with high pressure close to houses in an area of landslides has not been addressed.
3. The project has never had the consent of the local community and is in breach of E.U. Directive 85/337 E.I.S. and En 97/11
4. The traffic, 236 truck round trips from Aughoo is unacceptable. The work will last for 26 months and disrupt normal life in the area. The people in Glengad Pollathomais Aughoos Leenamore and Bellanaboy deserve the same consideration as the people of Rosspart (refer to ABP letter of 2/11/2009)
5. The submission questions why MAOP was not previously stated.
6. There is concern at the safety of local community, school, church, graveyard, public house and at the road crossing from danger of this experimental raw gas pipeline at high pressure.
7. The LVI is considered a threat and the failure of fail safe devices in the Gulf of Mexico adds to the concern. Transocean installed the subsea system which SEPIL now are now relying upon to limit the pressure coming to landfall. SHELL's track record on safety environment and human rights is well documented world wide it is considered they are unfit to carry out this experimental project so close to the community.
8. The tunnel is unacceptable on environmental grounds as it traverses two SAC's and one SPA.
9. The new route is closer to Dooncarton Mountain (40 separate landslides in Sept. 2003)
10. Concern is expressed at vibrations from the tunnel that will be felt in the houses, and the proximity (40m) to a 6 foot crater left from the landslides.
11. The potential construction of the intervention pit in the SAC is worrying. Very few details are given on this possible intervention pit.
12. There is concern at representations made to the Board by Government Departments. There is concern that representations lobbied ABP not to seek some of the safety requirements they were looking for with regard to the onshore pipeline.
13. It is claimed there will be little benefit to this country. The perceived benefits to the community are not shown in comparison to the risks involved in the project. The submission states that "we have a responsibility towards sustainability and future generations".
14. It is claimed that the process has undermined representative democracy.
15. There is concern at the possible extensification of use of the project for other Gas fields. Particularly that Bellanaboy will be used for further gas and oil finds.
16. Concern is expressed that the project is not strategic and that Ireland will gain very little from this project after all costs have been written off.
17. A question is posed regarding how SEPIL can submit the pipeline tunnel without knowing the results of the relevant survey work in the Estuary. If the results are not necessary then why have SEPIL been allowed to continue with this invasive and damaging work in SAC and SPA. This cannot be called "proper planning and sustainable development".



- **2010 Submission 11: Brendan Conway**, Leenamore, Pullathomas. 27/07/2010.
  1. The Conways live in Leenamore close to the proposed pipeline route.
  2. Concern is expressed that the proposed development will sterilise Mr. Conway's land from future building. The Building Burn Distance (180 metres and 216 metres) and the Building Proximity Distance based on I.S. 328 upstream of the LVI 63 metres affect his land. This is considered unfair to landowners.
  3. Mr. Conway believes that it would be impossible to sell sites in the area given the controversy with this project.
  4. Mr. Conway makes reference to Vol. 2 of 3 Book 6 of 6 Appendix Q-T Figure 7.3 it is unclear which figure is referenced. There is a figure 3 of 7 in Appendix Q6.5 (ii) which shows the Building Burn Distance and the Escape Distance for the pipeline. I expect that is the figure referenced although this is not definite.
  5. Mr. Conway believes it is unfair for a multi-national company to be able to devalue people's property without any consideration for ordinary people.
  
- **2010 Submission 13: Donal Connolly**, Fidaí, Rossport, **Paddy McGuire**, Pullathomas, 23/07/2010
  1. The submission objects to this experimental pipeline on the grounds of health and safety, environment destruction and community damage.
  
- **2010 Submission 16: Eamon O Coileáin**, Pollathomais, Ballina. 27/07/2010.
  1. This submission objects to this pipeline bringing raw gas into under or over the SAC bay that is in front of the O Coileáin house.
  2. This submission objects to the proposed development and Mr. O Coileáin believes it is a question of "when" not "if" the pipe leaks.
  3. The gas is considered a chemical deadly in nature and concern is that it would wipe out the whole area at 144bar pressure.
  4. A further issue is raised where an oil pipeline went on fire in China and melted stone houses and building in China at Yellow Sea.
  
- **2010 Submission 18: John, Kathleen & Jonathan Barrett**, Baar na Coilleadh, Poll an Thomais, Ballina. 26/07/2010.
  1. The people in Glengad Pollathomais Aghoos Leenamore and Bellanaboy deserve the same consideration from ABP as the people in Rossport (refer ABP letter of 2/11/2009 to SEPIL)
  2. At peak traffic the 236 truck round trips from the proposed compound at Aghoose will disrupt normal life over 26 months. This road (L1202) is not wide enough and there are no footpaths making walking a hazard. Haulage has disrupted sleeping patterns over the last 2 years. It is unacceptable that local people will be disrupted for 26 months.

3. The Barrett's home was devastated by the 2003 landslides, and they had to move out for four months. There is concern that their home is between the landslide potential area and the high pressure pipeline. ABP is asked will they accept responsibility if works contribute to another landslide?
4. Vibrations from trucks hauling materials to Glengad in 2009 have structurally damaged Barrett's front garden wall.
5. The Barrett's consider that SEPIL's conclusion that "there will not be a significant negative impact from tunnelling vibration..." is an unproven statement and they are concerned that such vibration could trigger further landslides.
6. If an intervention pit is required the construction of such a pit would ruin the SAC and SPA. Are ABP willing to take that risk?
7. Concern is expressed at safety of users of route (L1202) daily. Concern is expressed at how SEPIL will limit the offshore pressure. Concern is expressed at how failsafe the LVI actually will be quoting the Gulf of Mexico disaster. The Barrett's ask are they supposed to live with these threats for the rest of their lives.
8. It is considered that proper planning should require consideration of the whole scheme together not just the pipeline. It is considered that proper planning should require that the site investigation work in the Estuary should have been completed before submission of this application.
9. The Barrett's urge ABP as a matter of natural justice to reject this application.

- **2010 Submission 19: Mary Meenaghan, Pollan Thomais, Ballina. 26/07/2010.**

1. Ms. Meenaghan was forced to leave her home following the 2003 landslide, she now lives in Pollathomais. She is concerned that the proposed pipeline runs under the site of the landslide, and that debris from a landslide could reach the pipeline.
2. Why put an experimental high pressure raw gas pipeline in the path of a potential landslide?
3. The pipeline will run close to a school, church, graveyard, public house and also crosses a road, local families will be put at unnecessary risk while going about their lives.
4. Traffic will disrupt normal life over the 26 month period – peak traffic 236 trucks per day at Aghoos. The community in Glengad Pollathomais Aghoos Leenamore and Bellanaboy deserve the same consideration (as the Rossport community received in ABP letter of 2/11/2009)
5. Traffic to Glengad construction site with many more lorries will cause nuisance and danger to road users and vibrations could cause another landslide.
6. Is the Board willing to take the risk that an intervention pit will not be required? Such a pit it is believed would be inviting disaster on the Estuary. It is considered that SEPIL would have an interest in downgrading the SAC so that future oil and gas pipelines could go there.
7. It is considered that proper planning should require consideration of the whole scheme together not just the pipeline. It is considered that proper planning should require that the site investigation work in the Estuary should have been completed before submission of this application. If it is not necessary to have these results

then why have SEPIL been allowed to conduct this invasive and damaging work to the SAC.

- **2010 Submission 20: Pat Meenaghan, Barr na Coilleadh, Poll an Thomais, 26/07/2010.**
  1. ABP should be guaranteeing my safety while I am out at any point on my farm or on the road. I am being asked to live with a pipeline that if it failed could burn my home with me in it.
  2. At peak traffic the 236 truck round trips from the proposed compound at Aghoose will disrupt normal life over 26 months. This road (L1202) is not wide enough and there are no footpaths making walking a hazard. Haulage has disrupted sleeping patterns over the last 2 years. The Board should give the people of Glengad Pollathomais and Aghoos Leenamore and Bellanaboy the same consideration as the people of Rossport received in 2009 (letter of 2/11/2009).
  3. Mr. Meenaghan's farm was left devastated by the 2003 landslide. The land above his home has been left scarred and is visibly unstable. Concern is expressed at vibrations from traffic and tunnelling which could increase the odds of another landslide. ABP is asked will they take responsibility if the works contribute to another landslide?
  4. It is considered that the additional vibrations from Traffic to the construction at Glengad and the 24 hour tunnelling where vibrations cumulatively could increase the odds and contribute to another landslide, should conditions similar to the 2003 landslide occur.
  5. Is the Board willing to take the risk that an intervention pit will not be required? Such a pit it is believed would be inviting disaster on the Estuary.
  6. It is considered that proper planning should require consideration of the whole scheme together not just the pipeline. It is considered that proper planning should require that the site investigation work in the Estuary should have been completed before submission of this application.
  
- **Submission 21: Neil McEleney, Aghoose, Pullathomas, Ballina. 24/07/2010.**
  1. Concern is expressed regarding proximity of the pipeline to homes in Aghoose and Pullathomais. The distances documented by SEPIL are questioned.
  2. There is concern about the stability of Dooncarton Hill.
  3. Mr. McEleney feels it is imperative that any works are monitored stringently. He feels this is not the case.
  4. He requests an independent conditional survey on his new property and on any property in the vicinity of the works. He indicates that he can speak with conviction given his current position.
  5. He objects on grounds of traffic, noise and vibration.
  6. If the project is unsafe in Rossport. He feels that moving it closer to Barnacullew and Pullathomas does not give peace of mind.
  7. He objects because the route is in an SAC.

• **2010 Submission 41: M McCarron and Vincent Fahy, 28/07/2010**

1. “Appropriate mediation” is a phrase used a lot in the E.I.S but this is not explained.
2. Concern is expressed at potential for oil spills and potential use of detergents which just cause oil to sink.
3. It is contended that the deepest benthic sample was taken at 20 cms below the mud surface in the Benthic Fauna Survey. It is considered that oil spills have potential to decimate the local shell fish industry.
4. There is concern at the “lip service” paid to the effects on Salmon and Sea-Trout runs.
5. Concern is expressed at the extent of documentation involved in this application.
6. Ms. McCarron feels that ABP, by inviting SEPIL to modify the route to corridor C, have increases responsibility and accountability in respect of the proposed development.
7. Concern is expressed at the 24 hour working, 7 days over three tourist seasons in the most habituated scenic strip of road land water and coast where school, church, graveyard and beach are used by the local community.
8. It is considered that the argument in favour of the project - security of supply- is not justification for CAO, as the life of the gas field is short.
9. Concern is expressed that political interference will interfere with the integrity of the planning process and ABP is urged to maintain integrity in this process.
10. Hazard distance has increased from 70 to 140 to 230 metres and pressure has been reduced from 345 to 144 to 85 bar all on the word of experts. Concern is expressed that SEPIL made such miscalculations in their initial application. ABP is urged to confront the mindset of SEPIL and ensure that the application is worth the time and money expended in dealing with this proposed development. Otherwise ABP is at risk of being seen to collude in shoddy work.
11. The psychological cost to the community has been enormous.
12. Concern is expressed that Human Rights have not been protected and that the State has not adopted the Aarhus Convention. It is considered that the Habitats Directive protects habitat and flora and fauna and animal life but that no such thoroughness protects human rights.
13. The point is made that the proximity distance has changed as a consequence of the actions of the local community. The local community has filled gaps left by the State in matters of governance and continue to do so.
14. It is contended that a pipeline has been forced through human space and villages in Nigeria and sees a parallel with that in the development of the Corrib route.
15. A question is raised is there a case for a damage distance and hazard distance, in this context ABP is asked to count up the number of houses in the 200-300, 300-400, 400-500, range right up to 1000m?
16. A question is raised are national resources and local populations being abused within their specialised eco habitats by weak planning regulation supported by biased media and political influence. A question is raised would the well head, the offshore pipe and terminal have survived the same rigorous ABP (examination)?

17. Concern is expressed that the Local Grants Scheme by SEPIL is contributing to community divisions. ABP is urged to ensure that its primary function is to decide the optimum for the common good in the consideration of this latest SEPIL application.
18. The submission contains attachments
  - Report of an international fact finding delegation to County Mayo. Feb 2007.
  - A report on protests held June 2009
  - Table Report No. 2 March 2010
  - A frontline report on the Corrib Gas dispute
  - Newspaper cuttings and press statement

- **2010 Submission 38: Aidan O Sullivan, General Manager, Gaslink 13/07/2010**

Additional points.

10. 95% of Ireland's gas demand is met by imports from Great Britain the remainder being provided from Kinsale.
11. Corrib gas field will initially meet 60% of the Republic Of Irelands annual demand.
12. EU parliament and council have proposed regulation to safeguard security of gas supply and recognise that diversification of gas sources is essential to improving security of supply and that member states should facilitate diversification of supplies.
13. Gaslink welcome the proposed addition of a new supply source and would welcome the speedy granting of planning permission to accommodate completion of this strategic project.
14. Gaslinks 2008 annual review was attached which outlines the statutory responsibilities for operation maintenance and development of Bord Gais transmission and distribution system.



## Chapter 4 **Local Planning Policy: The Mayo County Development Plan**

### **4.1 Mayo County Council Submission of 28th July 2010.**

The submission was prepared by Mr. Ian Douglas senior planner. The submission deals only with those matters that the council considers are materially different from the council's original submission dated 25/06/2009 which was discussed in the 2009 report. In all other respects the observations and comments of the original submission remain unchanged; the following are the matters where difference arises.

#### **4.1.1 Relevant Planning History**

Information is provided on four planning applications.

#### **4.1.2 Waste Policy**

The material difference between this proposal and the previous E.I.S. relates to the waste tunnel arisings. See Chapter 31 Waste, where this is considered.

#### **4.1.3 Adequacy of public water supply**

Mayo County Council confirms that adequate water supply is available for the proposed construction. In a worst case scenario, water required by the proposed development can be sourced from the Erris regional water supply where there is adequate capacity. Water in quantity will be required for hydrostatic test of pipe, for site sanitary/canteen facilities, for preparing the bentonite mix drilling fluid/ lubricant for TBM.

#### **4.1.4 Landscape Visual Impact.**

It is Mayo County Council's view that if the mitigation measures in section 10.5 of the E.I.S. are carried out in full the visual impact of the development when completed will be negligible and the landscape status will not be impacted.

The visual impact of the temporary compound at Aghoos is considered by Mayo County Council to be significant but temporary and of short duration. Mayo County Council also considered the lighting at the Aghoos compound, they consider that the proposed lighting will be noticeable but with the mitigation will minimise light spill and visual impact of the temporary compound at night. It is considered that the impact from the lighting on the nearest residence will be slight. Landscape impact and visual impact is dealt with in detail in Chapter 42 of this report

#### **4.1.5 Road Network Carrying Capacity**

It is considered that the road network serving the proposed development- R314, L1202, L1204,- is adequate providing the measures outlined in the Traffic

Management Plan are carried out and that the roads are maintained to a proper standard. It is considered that a pre-construction and post construction survey should be carried out and that the developer should pay for restoration of the road network to its pre-existing condition. Furthermore it is considered the developer should pay for any maintenance work necessitated because of damage to the road network by the developer's construction vehicles. The issues regarding Traffic and Haul Routes are covered in chapter 44 of this Report.

#### **4.1.6 Environment Carrying Capacity**

##### **The environment carrying capacity of the subject site and surrounding area and the likely significant impact arising from the proposed development if carried out**

Mayo County Council consider that the majority of impacts will occur during the construction phase of the development and these impacts are considered to be of temporary and of short-term nature.

Mayo County Council consider that providing the mitigation measures, as set out in Table 18.2 of the E.I.S. and more particularly as set out in Chapters 6 to 10 of Volume 1 of the E.I.S., are carried out, there will be no significant environmental impacts from the carrying out of the development and that the environmental carrying capacity of the area will not be adversely effected by the development.

#### **4.1.7 View of Mayo County Council on the Decision by Board**

##### **View of Mayo County Council in relation to the decision to be made by the Board**

It is Mayo County Council's view that the Board should satisfy itself that the development as now proposed, during both the construction and operational phases of the proposed development;

- Complies with National Policy (on Energy, Climate Change, Sustainability and the National Spatial Strategy)
- Complies with the West Regional Planning Guidelines 2010 - 2022
- Complies with Mayo County Development Plan 2008 – 2014
- ABP should satisfy itself whether the development as now proposed will have significant effects on the Natura 2000 sites in the area, particularly on the Glenamoy cSAC Site Code 000500
- Whether the impact of the development on the amenity of dwellings in the area is acceptable, taking into account the mitigation measures outlined in the E.I.S. in terms of:
  - Traffic,
  - Air Quality,
  - Noise and Vibration,

#### Landscape and Visual Impact

- Whether the development as now proposed will have significant effects on the cultural heritage of the area
- Whether the development as now proposed will have significant effects on the Natural heritage of the area in terms of Terrestrial, Marine and Freshwater, ecology, Soils Geology, Hydrogeology and Hydrology,
- Whether the development as now proposed will have significant effects on the Material Assets of the area in terms of:  
Existing Land use,  
Use of local natural resources

The overall assessment of the E.I.S. is considered in Chapter 46 of this report. The Board should satisfy itself that the development as now proposed meets the highest international standards in terms of engineering design, construction and safety of the general public.

It is the Council's view that the development as proposed is in compliance with National Policy, that it will not adversely affect the Natura 2000 site, that any impact on the residential amenities of dwellings in the area is temporary and of short duration, that the proposed development will not have a significant impact on the landscape or visual amenity of the area. Taking the above into consideration it is the Council's view that the proposed development is required in the national interest and is consistent with the proper planning and sustainable development of the area.

#### 4.1.8 Mayo County Council – Community Gain Conditions

##### **Mayo County Council's view on Appropriate Community Gain Conditions which may be applied**

Mayo County Council recommend that a planning condition similar to conditions 42 of P03/3343 ABP Ref. PL 16.270212 is an appropriate community gain condition.

The council is of the opinion that the transport of materials [peat 75000m<sup>3</sup> for disposal off site, 68000 m<sup>3</sup> tunnel arisings] will have an impact on the community. The council considers it is reasonable that the developer should contribute towards the cost of environmental, recreational or community amenities which will help to mitigate the impact of the peat and materials haulage. (Community Gain condition is considered in Chapter 48 of this Report and in Mr. Stephen O'Sullivan's report copy in Appendix I)

#### 4.1.9 Section 48/49 Development Contribution

Mayo County Council's development contribution scheme covers water services, sewerage services, surface water services, amenities, roads, footpaths, public lighting community open space and recreational facilities and carparking. It is Mayo County

Council's view that the development will not be availing of these council's services and consequently it is not appropriate that the Development Contribution Scheme be applied to the proposed development.

#### 4.1.10 Special Contribution Conditions

Mayo County Council request that the appropriate mechanism for payment of the requisite financial contribution for road maintenance or improvements is an agreement made under Section 47 of the Planning and Development Act 2000 (as amended).

#### 4.1.11 Views and Recommendations of all relevant Departments and Personnel

Reports are provided in Mayo County Council submission as follows:

Environment Mr. L Walsh S.E. Scientist  
Westport Region P. Walsh Senior Engineer  
Archaeologist G. Walsh  
Heritage Officer D. Cunningham.

### 4.2 Mayo County Council's clarification at Oral Hearing

1. Mayo County Council confirmed at the Oral Hearing that the Ministers direction had been implemented by way of variation to the County Development Plan. Mr. Douglas also confirmed that the Minister's direction related to Rural Housing Policy only and would have no effect on the Application for the onshore pipeline that was before ABP for decision. Mr. Douglas confirmed that there were no other changes in Mayo County Development Plan that have arisen since Mr. Douglas gave evidence at the 2009 OH.
2. Mr. Douglas clarified a number of word processing errors as contained in the Mayo County Council's submission to ABP as follows.

<u>Location</u>	<u>Correction</u>
Section 1 (d)	correction to planning reference number P10/633 is the correct number.
Schedule of conditions	
4(e)	delete the first 4(e), the correct paragraph is the second 4(e).
19	Delete the word Bellanaboy
20	Delete the ... Condition 20

3. Mayo county Council confirmed at OH that the Project Monitoring Committee was an effective committee and that the community representatives had been chosen by the Community Enterprise Section and that the Council is satisfied that they are representative of the community.

### **4.3 Planning Authority's considered view on the proposal**

It is Mayo County Council's view that the revised proposal as outlined in the E.I.S. submitted on 31<sup>st</sup> May 2010 in response to the Board's letter of 2<sup>nd</sup> November 2009 is acceptable for the following reasons:

- It is in accordance with National, Regional and County Development Plan policies regarding the development of the Corrib Gas Field
- It has minimal impact on designated sites and does not affect the integrity of those sites,
- The impact of the development on residential amenities in terms of traffic, noise, air quality, light pollution etc will be during construction and as such will be temporary and of short duration,
- Minimal use of public water supplies is proposed,
- There will be minimal visual impact on the landscape from the completed pipeline and LVI and that the most significant visual impacts will be during construction and as such is a temporary impact.

Furthermore, the revised proposal, as did the original, meets the requirements of the Cassel's Report [Item 7.2 Recommendation 1] regarding proximity to dwellings.

### **4.4 Schedule of Proposed Conditions**

Mayo County Council has included a schedule of proposed conditions which have to be considered in the event that ABP decide to approve this development. This is discussed in Chapter 51 of this Report and the Conditions Proposed by Mayo County Council are considered there.

### **4.5 Inspectors Conclusions**

Mayo County Council's County Development Plan policy remains the same as in 2009 other than the change in rural housing policy as outlined above. Therefore the conclusions contained in the Inspector's 2009 report stand and are repeated below.

#### **4.5.1 Mayo CDP 2008-2014**

It is clear from the Mayo CDP 2008 – 2014, that the Planning Authority supports the realisation of the Corrib Gas Field.

*“It is an objective of the council that it fully supports the realization of the Corrib Gas Field find and any other gas finds in the County either on or offshore”*

#### **4.5.2 Mayo CDP 2008-2014**

It is also clear that the Mayo CDP 2008 – 2014 provides protection for the significant landscape resources in the County. Proposed development needs to be assessed and



applicants need to demonstrate that landscape impacts have been anticipated and avoided to a level consistent with the sensitivity of the landscape.

*“It is the policy of the Council, through the Landscape Appraisal of County Mayo, to recognize and facilitate appropriate development in a manner that has regard to the character and sensitivity of the landscape, to ensure that development will not have disproportionate effect on the existing or future character of a landscape in terms of location, design and visual prominence, and that development will have regard to the effects of developments on views from the public realm towards sensitive or vulnerable features and areas. In this regard, proposals for development that have the potential to impinge on the integrity of significant landscape resources will be assessed having regard to the guidelines set out in Section 4.18 of the Development Management Guidelines.”*

#### **4.5.3 View and Prospects**

Views and prospects should not be adversely affected by the development.

Map 10 of the Mayo CDP 2008 – 2014 indicates the scenic views in the County. This shows the view from L1202 at Glengad looking towards Garter Hill and down to Broadhaven Bay as highly scenic. This also shows views from Ceathrú Thaidhg south and from L1202 north onto Sruth Fada Conn Bay as highly scenic views.

#### **4.5.4 Mayo CDP 2008-2014**

The Mayo CDP 2008 – 2014 Policy is to protect and enhance and conserve cSAC's and natural habitats. [Mayo CDP 2008 – 2014 Policy P/EH-NH1, P/EH-NH3].

#### **4.5.5 Mayo County Council**

It is clear that Mayo County Council are of the view that the consent under Section 40 of the Gas Act 1976 (as amended) by the Minister for Communication, Marine and Natural Resources on 15<sup>th</sup> of April 2002 established in principle that natural gas was to be brought ashore to a landfall and that the gas was to be piped to the gas terminal along a route on the north side of Sruth Fada Conn Bay.

#### **4.5.6 Planning Authority's View**

It is the Planning Authority's view that these underlying principles have not changed. It is Mayo County Council's view that the changes in detail leading to this 16.GA.0004 application have come about through acceptance by the developer of the recommendations of the Cassells Report (with regard to the relocation of the pipeline) and the recommendations of the Advantica Report (with regard to the re-design of the LVI).

#### **4.5.7 The 2009 Scheme Mayo County Council's Considered View**

It was clear in the Mayo County Council submission in 2009 that the Council supported the 2009 proposed development and at that time Mayo County Council recommended to ABP that permission be approved for the 2009 scheme subject to ABP satisfying itself as regards certain matters.

#### **4.5.8 The 2010 Scheme Mayo County Council's Considered View**

It is again clear in the Mayo County Council submission for the modified 2010 proposed development that Mayo County Council consider the revised proposal is acceptable. Mayo County Council recommend to ABP that permission be approved for the 2010 modified proposed development scheme subject to ABP satisfying itself as regards certain matters outlined above.

#### **4.5.9 Mayo County Council have Provided a Substantial Submission which details:**

- (1) The Reasons why the Council considers the proposed development is acceptable.
- (2) A range of detail conditions which are recommended in the event that ABP decides to approve the application.
- (3) A monitoring and overseeing procedure is proposed whereby the development would be controlled in the event that ABP decide to approve the application.
- (4) In reality the proposed development will during the construction phase have requirements for (a) Water Supply: In the operational phase of the onshore pipeline there will be no water required. A separate condition [Section 47 Agreement] is proposed in relation to Council services that may be required during the construction phase of the development. (b) Roads: A separate condition [Section 47 Agreement] is proposed by Mayo County Council related to payments by the Applicant for special road maintenance and road improvement costs which Mayo County Council may incur and which are required directly to facilitate the proposed development (c) Waste: A separate condition [Section 47 Agreement] is proposed in relation to Council services that may be required during the construction phase of the development. In the operational phase of the onshore pipeline there will be no waste generated by the proposed onshore pipeline. (d) Waste Water: A separate condition [Section 47 Agreement] is proposed in relation to Council services that may be required during the construction phase of the development. In the operational phase of the onshore pipeline there will be no waste water disposal service required.

### **4.6 Inspectors Recommendations**

In the event that ABP decide to grant permission for the proposed development the proposals put forward by Mayo County Council have been considered and are

incorporated into the conditions which I have attached to my Final Recommendation in Chapter 51.

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## Chapter 5 Regional Planning Policy

### 5.1 New Regional Planning Guidelines 2010 – 2022

The Regional Planning Guidelines 2010-2022 were adopted by the West Regional Authority on 19<sup>th</sup> Oct 2010.

#### Background and Previous RPG's 2004

The RPG's 2004 were relevant when the original application was submitted in February 2009 and when the modified proposed development for the onshore pipeline was submitted on 31/05/2010.

It was clear from the 2004 RPG's that regional policy supported the development of the Corrib Gas Field and that the potential of the proposed gas field was seen as a major benefit to the region for the future.

### 5.2 Region in Context

The functional area of the West Regional Authority extends some 13,801 square kilometres and incorporates four local authority functional areas:

- Galway County Council
- Galway City Council
- Mayo County Council
- Roscommon County Council

It also includes Ballinasloe, Loughrea and Tuam Town Councils (County Galway); Ballina, Castlebar and Westport Town Councils (County Mayo); and Boyle Town Council (County Roscommon).

The West Region is bound by the Border Region, Midlands Region and the Mid-West Region and the counties of Sligo, Leitrim, Longford, Westmeath, Offaly, Tipperary and Clare. The region spans from the west coastline of Mayo and Galway to the River Shannon and Lough Ree on the eastern side of Roscommon. Galway City is a key national economic location. Other main urban centres include Tuam, Ballinasloe, Loughrea (County Galway), Ballina, Westport, Castlebar (County Mayo) and Roscommon Town (County Roscommon).

There is one 'Hub' (Tuam), one 'Linked Hub' (Ballina – Castlebar) and there is one 'Gateway' (Galway) within the West Region as designated by the National Spatial Strategy; however Monksland in South Roscommon is located along the Midlands Gateway (Athlone).

The Galway Gateway has the largest population concentration and is the main economic driver of the region. The population of the region was 414,277 in 2006 (CSO: 2006), with a density of 30 persons per square kilometre. This accounted for 10.2% of the national population. The population of the West Region increased by 33,086 persons from 2002-2006



(of which 72% accounted for net in-migration with the remainder accounting for natural increase).

### 5.3 Regional Policy

The following are selected extracts from the RPGS 2010-2022 which are considered relevant to the application for the proposed development.

- The regional planning guidelines support a framework which incorporates a network of growth nodes creating an Atlantic Development Corridor which will enhance economic, social and environmental opportunities and will enable the western seaboard to compete successfully with other economic corridors, thus benefitting the people of the whole region. This will be achieved through proper planning and sustainable development, ensuring minimal environmental impact and taking full account of the presence of the Natura 2000 sites within the Atlantic Development Corridor area and the requirement to protect these by subjecting all plans and projects to Habitats Directive assessment, where appropriate.
- In relation to the implementation of the Habitats Directive where projects when implemented, have the potential to result in negative impacts on one or more Natura 2000 site then issues may arise under Article 6 of the EU Habitats Directive. Such issues will require Appropriate Assessment at ‘lower plan’ or project level. Where such ‘lower plan’ or project level Appropriate Assessment concludes significant negative impacts, alternative solutions which comply fully with Article 6 of the EU Habitats Directive may need to be considered.
- Population trends in the region are set out in the following table:

**Table 3: Population Trends in the West Region and the State**

	2006	% Δ 1996 – 2002	% Δ 2002 – 2006	2006 Pop. Density Persons per Km <sup>2</sup>
<b>State</b>	4,239,848	+8.0	+8.2	62
<b>West</b>	414,277	+7.9	+8.9	30
<b>Galway County</b>	159,256	+8.8	+11.2	26
<b>Galway City</b>	72,414	+15.0	+10.0	1419
<b>Mayo County</b>	123,839	+5.3	+5.4	22
<b>Roscommon County</b>	58,768	+3.5	+9.3	23

Source: CSO (2006) Census 2006

- There is a major transformation under way in energy markets and energy supply that will give rise to opportunities and challenges for Irish enterprises over the coming years. The fundamental impetus for this transformation derives from resource depletion in hydrocarbons and the concerted global approaches being taken to address Climate Change. The global energy goods and services sector is forecast to grow significantly in the coming years. Potential activities range from the design, manufacture and

installation of advanced equipment and infrastructures, project management and engineering services and solutions, as well as the operational management of energy assets and infrastructures.

Given the location of the West Region and its natural resources and the existence of the Corrib Gas Fields, it has the potential to harness opportunities in Wind and Wood energy and related technologies in the more immediate term and has longer term potential in wave energy.

- Regional Flood Risk Appraisal :The precautionary approach should be adopted in carrying out Flood Risk Assessments and the following key guiding principles should be followed in all instances:
  - Avoidance of development in areas at risk of flooding by not permitting development in flood risk areas unless fully justified and capability exists to manage risk without impacting elsewhere;
  - Application of a sequential approach to flood risk management based on  
Avoidance  
Reduction  
Mitigation of flood risk  
in assessing the suitability of locations for development;
  - The incorporation of flood risk assessment into the process of making decisions on planning application and planning appeals.

## 5.4 Regional Policy Regarding Energy Infrastructure - Gas

The following extracts (RPGs 2010-2022) summarise relevant regional policy guidelines:

The Corrib Gas field is a 230 million year old reservoir, situated approximately 70 kilometres off the Mullet peninsula in Co. Mayo. It was located in 1996. The reservoir is 3,505 metres (11,500 ft.) beneath the seabed and the gas field, if developed, has the potential to produce gas for between 15 and 20 years. **The discovery of the Corrib gas field represents a major opportunity for the West Region. The development of the necessary on shore facilities to enable the potential of the gas field to be utilised in the region and national context is supported.** Into the future, the potential of this very important natural resource can be of enormous benefit to the region as a whole and is seen as a project of large scale potential development for the region.

To enable the region to extract the full benefit of this natural resource, a major distribution network serving all major urban centres in the region must be constructed. This will enable a competitive choice of energy sources to potential entrepreneurs as well as providing a cheap clean residential energy supply.

#### 5.4.1 Objectives relating to Gas Infrastructure

**IO51:** Support the construction of distribution networks serving all urban centres in the region with the bundling of towns as necessary to achieve implementation

**IO52:** Support the construction of a small number of gas fired electricity generating stations in the West Region at appropriate locations having regard to the proper planning and sustainable development of the area

### 5.5 An Ghaeltacht and the Islands

The West Region has a significant strength in its Gaeltacht and islands communities which have a distinctive culture situated in a unique natural landscape of outstanding beauty. Many of the Gaeltacht and Island areas are also home to an abundance of biodiversity (flora and fauna). Some of these flora and fauna are protected at National and European level. The protected locations, which are generally peripheral, continue to face significant challenges. These relate to connectivity, the sustainable development of infrastructural, economic and social needs which are mindful of the need to protect the landscape (this includes the legal requirements to protect Natura 2000 sites/network, designated species and their habitats).

Gaeltacht areas are found in County Galway, in Galway City and in County Mayo. Based on the 2006 Census of Population, the Gaeltacht of County Galway has a population of 40,052 which represents 47% of the total Gaeltacht population and 26% of total Gaeltacht land area. The largest settlement areas are An Spidéal and An Cheathrú Rua. In 2008 there were 2,963 people employed in a full-time capacity in Údarás na Gaeltachta client companies in the Galway Gaeltacht.

The Gaeltacht in Mayo has a total population of 10,868 (Census 2006) which represents 11.5 per cent of the total Gaeltacht population and 19% of the total Gaeltacht area. Belmullet is the largest town in the Mayo Gaeltacht and in 2008 there were 864 people employed in a full-time capacity in Údarás na Gaeltachta client companies in the Mayo Gaeltacht.

The sustainable growth and development of the Gaeltacht areas has significant potential for the Irish language, cultural heritage, enterprise and employment, recreation, leisure and for tourism within the West Region.

### 5.6 Inspectors Conclusions

1. It is clear that the RPG's place strong emphasis on the protection of the environment and on the conservation of landscape resources in the region.
2. The RPG's confirm that EU Habitats Directive requirements should be implemented in full. In particular where development is located in Natura 2000 sites or where there is the potential for development to impact on the conservation objectives of Natura 2000 sites the Habitat Directive should be implemented in full.

3. The RPG's identified the tourism sector as a key part of the economy of the west region. Marketing of the landscape, archaeology, architectural heritage, biodiversity and of the environmental resources is supported.
4. The RPG's have introduced policy on Regional Flood Risk Appraisal for implementation in accordance with the guidelines proposed jointly by DEHLG and OPW on Flood Risk Assessment for Planning Authorities.
5. The RPG's support the development of a small number of gas fired electricity generating stations in the west region.
6. The RPG's support "...the development of the necessary onshore facilities to enable the potential of the Corrib Gas Field to be utilised in the Regional and National context. The potential of this very important natural resource can be of enormous benefit to the region as a whole and is seen as a project of large scale potential development for the region.
7. The RPG's state that the sustainable growth and development of the Gaeltacht areas has significant potential for the Irish Language, Cultural Heritage, Enterprise and Employment, Recreation, Leisure and Tourism within the West Region.
8. Planning authorities are asked to support the provision of energy networks provided that adequate technological standards and acceptable development standards are achieved.

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## Chapter 6 National Planning Policy Government Policy for Gas Infrastructure Development

### 6.1 National Development Plan (NDP) 2007 – 2013

The NDP 2007 – 2013 sets out the national investment plan and priority spending areas. The €8.5 bn investment in energy over the plan period is aimed at underpinning the security of supply, a competitively priced energy market and environmental sustainability. In the section of the NDP dealing with the energy programme the following strategic context is set out;

*“The ability of the economy to perform successfully depends critically on the supply of adequate, affordable and environmentally sustainable energy. Security of supply is of paramount importance to ensuring the continued economic development of the country and the spending under this Plan will help ensure that objective. Without an expectation and delivery of a secure supply of energy, investment and output of the economy will suffer. Therefore, during the Plan period, there will be significant investment in crucial infrastructure.*

*Ensuring the efficient operation of a competitive energy market will be critical to the success of the economy. Ireland’s growing dependence on imported fossil fuels (with the consequent growth in Greenhouse Gas emissions) highlights the need to mitigate the economic, social and environmental risks through new policy approaches. Security of supply, and lessening the dependence on any one source of energy or fuel type, will be a key challenge. Efficiency in the use of energy must also be improved.*

*Over the period 2005-2010, energy demand is projected to increase by 1.6% per annum. This level of increase can be expected to be maintained to 2013. Within this overall growth figure, annual electricity demand is expected to grow by 3.1% and gas demand by 6.5%. Managing our demand for energy in a sustainable way will therefore be extremely important.”*

[National Development Plan, 2007 - 2013]

### 6.2 Delivering a Sustainable Energy Future for Ireland (The White Paper)

In this White Paper (published 2007), Mr. Noel Dempsey the then Minister for Communications, Energy and Natural Resources set out the vision for Ireland in energy

terms in 2020 “...as a fully sustainable, secure, efficient, affordable and competitive all-island energy market...” and “the Hallmarks of the Irish Energy market by 2020 will be reliable supply, highly efficient use of energy, competitive pricing and sustainable, diverse energy resources. It will be securely underpinned by robust infrastructure and cutting edge technology.”

### 6.2.1 Security and Reliability of Gas Supplies

The White Paper states as follows:

**White Paper 3.3.1:** “ Ireland has a well developed framework to ensure the adequacy of gas supplies and transportation infrastructure into the country. **Recent years have seen substantial investment in the transmission network and the new pipelines recently completed (Mayo-Galway & South- North) will enable the indigenous gas find at Corrib to be brought to the market, assist in the development of an all-island gas network and enable more communities to benefit from the availability of natural gas.** In light of global, EU and UK trends, natural gas will continue to play a vital role in the Irish fuel mix for some decades yet. Business as usual projections indicates that more than 70% of our electricity would be generated from natural gas by 2020. Our alternative scenario, with renewables contributing 33% by 2020, will see greater diversity in the fuel mix with gas contributing just under 50% to power generation.”

**White Paper 3.3.2:** “ The UK is now the source of some 87% of our natural gas and the UK’s own demand for imports is growing strongly. Norway will remain a significant supplier of gas to UK in the medium term. Ireland’s location in Europe from the viewpoint of gas supply sources is becoming less peripheral. In the last 12 months the UK has achieved a significant increase in gas import capacity through accelerated infrastructure developments with resultant benefits for Ireland.

Both Pipeline and LNG capacity has increased significantly. These include the Langeled pipeline from Norway, the new pipeline from the Netherlands and new LNG terminals at Milford Haven.

Further expansion of LNG capacity and gas interconnection is underway in the UK and Europe which will benefit Ireland in terms of security of wholesale gas supplies within this regional market.”

**White Paper 3.3.3:** “While the prognosis for gas supplies is relatively secure as a result, it is prudent for Ireland to develop a longer term strategy to reduce over reliance on gas imports from the UK. This strategy will also address mechanisms to achieve greater benefits from trading with the competitive UK market....

We will set an explicit security of supply standard for the natural gas system from 2008 which will also set the framework for evaluating future supply options and protection standards...”



**White Paper 3.3.4:** *“It is also the case that because of our reliance on gas supplies from the UK from the single exit point at Moffat, the Gas Exit Reform Measures to the National Transmission System planned by the UK authorities have implications for the Irish natural gas sector and for security of supply.*

*Work is underway by CER and the Department to put in place, and agree with the UK authorities, the necessary arrangements to ensure security of gas supply negate market risk and reduce entry barriers for new players in the markets downstream of Moffat.”*

**White Paper 3.3.5:** *“Actions:*

- *We will ask CER to take a strategic “look forward”, taking account of EU and global trends, on a 20 year time horizon in its Gas Capacity Statement 2007-2014. This will support enhanced long term planning to 2020 and beyond for security of gas supply;*
- ***We will review the scope for enhanced fuel switching in gas based power generation as a contributor to security of supply;***
- ***We will set an explicit Security of Supply standard for the natural gas system from 2008 which will also set the framework for evaluating future supply options and protection standards;***
- *We will, through CER, agree and implement the necessary arrangements in 2007 to address the impact of changes in the UK regulatory regime for gas exit;*
- ***We will continue to invest in the gas network for security of supply and regional development through BGE’s investment programme of over €1.7 billion under the NDP 2007-2013;***
- *We will continue to actively encourage private sector interest in investing in gas storage facilities and LNG and review the potential role for Government intervention in the event of market failure in light of the study’s findings;*
- *We will put in place an all-island strategy by 2008 for gas storage and LNG facilities in light of the outcome of the all-island study;*
- *We will continue to progress the all-island gas market, with 2010 set as the target date for implementation of streamlined tariff and market arrangements for the all-island market;*
- ***We will ensure that infrastructure reinforcement in the Ireland/Scotland gas interconnection network is undertaken as necessary, on a fully cost effective basis;***
- *We will continue to enhance arrangements for regular structured dialogue with UK on issues of mutual interest in relation to gas supply and demand;*
- *We will, together with CER, work with the UK and the EU to deliver the Regional Gas Market initiatives and regional regulatory structures in the medium term which will facilitate gas trade between Ireland, the UK and Northern Europe;*
- ***We will explore the medium to longer term options for further gas interconnection in light of the all-island market and development of the regional gas market;***
- *We will work in Europe to ensure Ireland’s needs are met under EU plans to assist diversification by Member States currently dependent on one gas supplier;*

- *We will work proactively with other EU Member States and the Commission through the forum of the Gas Coordination Group and the Energy Correspondents Network to ensure Coordination of security of supply measures by EU in the event of an energy crisis or a major gas supply disruption;*
- *We will work to develop a comprehensive energy dialogue with key partners, within the EU and the wider international framework, and drawing on input from our national diplomatic network;”*

**White Paper 3.19.5. :** *“ The retention of the gas and electricity transmission and distribution networks and strategic energy infrastructure in State ownership is Government policy and these assets will never be privatized. The continued strategic development through multi annual corporate strategies of the Semi State companies both in terms of competitive market activities and their monopoly network interests will be encouraged and overseen by Government”*

[The White Paper, Delivering a Sustainable Energy Future for Ireland -The Energy Policy Framework 2007 - 2020]

### **6.3 National Spatial Strategy for Ireland 2002 - 2020**

**Section 3.7.2.** of the National Spatial Strategy (NSS) for Ireland 2002 – 2020 sets out the following;

*“Reliable and effective energy systems, such as gas and electricity to power industry and services, are key prerequisites for effective regional development. Ireland’s electricity and gas networks are evolving in an integrated way, serving the whole island, while focusing on strategic locations.*

*Prime considerations in terms of spatial policies relating to energy include*

- *developing energy infrastructure on an all-island basis to the practical and mutual benefit of both the Republic and Northern Ireland*
- *strengthening energy networks in the West, North West, Border and North Eastern areas in particular*
- *Enhancing both the robustness and choice of energy supplies across the regions, through improvements to the national grids for electricity and gas.*

*There may also be potential for streamlining infrastructure co-ordination, planning and delivery, for example by combining the provision of different types of infrastructure in one physical corridor, where appropriate and feasible.*

*Bord Gais is currently involved in a substantial investment programme. This is designed to augment the existing natural gas transmission network, (which runs between Limerick, Cork, Dublin and Dundalk), with the new 'Pipelines to the West'.*

*This will create a ringmain and will for the first time allow Galway, Ballinasloe, Tullamore, Mullingar and Athlone to be connected to the gas network. Bord Gais is also building a second inter-connector between Ireland and the UK, which will secure sufficient gas supplies to Ireland for the foreseeable future.*

*Bord Gais has also been licensed in Northern Ireland and will construct new pipelines from Belfast to Derry and from Gormanston, County Meath to Antrim. This project will involve grant aid including exchequer support by the Irish Government. **The Government also decided in 2001 that in principle, and subject to a more detailed analysis, the gas network should be extended to Letterkenny from Derry and to Sligo via a spur from the Mayo/Galway pipeline, which is planned to connect the Corrib field to the gas network.** Figure 3.5 illustrates the gas network in terms of existing and proposed pipelines, excluding local and industry spurs.*

*The net effect of these planned and envisaged developments is that the spatial framework of gateways, hubs and other elements of the urban-rural structure outlined earlier in this section will, broadly speaking, benefit from an extensive gas pipeline network interconnected with both domestic and international gas supplies*

*The Government will shortly publish a white paper on energy policy which will further expand on the strategies and targets for implementation of these targets”*

[National Spatial Strategy for Ireland, 2002 - 2020]

## **6.4 Common Approach to Natural Gas on an All Island Basis**

The following is an extract from Study on Common Approach to Natural Gas Storage And Liquefied Natural Gas on an All Island Basis Executive Summary, Jointly commissioned by the Department of Communications, Energy and Natural Resources and the Department of Enterprise, Trade and Investment, Northern Ireland, November 2007. The report was prepared by TPA Solutions, an independent consultancy servicing the gas industry.

The following are extracts from the Executive Summary of this report:

### ***“All Island Gas Supply and Demand Scenarios***

*The position will change substantially when the Corrib field comes onstream. At that time, total indigenous production should rise to some 10 mcm/d for about three years, after which it will begin to decline relatively sharply. There is considerable uncertainty of the situation post 2015, with the possibility of as yet undiscovered reserves in the Atlantic Margin being developed.*

The current shortfall between annual daily gas demand and indigenous gas supply is about 15 mcm/d, with the peak demand shortfall amounting to 28 mcm/d. This shortfall is essentially made up from gas storage and imports from Great Britain (GB). **The annual shortfall will fall to about 10 mcm/d when the Corrib Gas Field is at peak production.** However, in the absence of any other discoveries and/or indigenous supply developments, the shortfall between annual daily gas demand and indigenous gas production is projected to be around 20 mcm/d by 2020, with all of this being imported. The equivalent peak shortfall is projected at nearly 40 mcm/d.

- **Corrib contribution to gas demand will be relatively small and short lived**
- **Until Corrib production comes on stream, the import requirement for peak demand is about 27 mcm/day”**

#### **“All Island Gas Imports & Security of Supply**

The probability of a sustained interruption to supplies through the SWSOS or at Ballough is considered to be very low. However the consequences to the island of Ireland should such an event occur, would be potentially very serious for the island of Ireland economy.

The EU Council Directive 2004/67/EC concerning measures to safeguard security of natural gas supply requires, inter alia, member states to ensure supplies to domestic customers from disruption under various circumstances. **However, given the unique circumstances of the island of Ireland caused by the dependence on gas for electricity generation and the lack of diversified gas supply sources, measures that incorporate, and go beyond, the EU Directive are required. These measures should be designed to ensure a certain minimum security of supply based on diversification and/or storage. They would cover both the domestic gas market and the power generation sector and could be met by a variety of mechanisms, including new indigenous gas sources...”**

#### **“Security of Supply Measures - Discussion**

The dilemma facing both policy makers and potential investors is that the situation is to some extent dynamic, with the potential of changing each year. For example, in 2007 a number of events have and could occur, any one of which change the security of supply situation in any future year. These include the CER/ESB decision to close a number of oil fired power stations in 2010, the award of salt exploration licences in Northern Ireland, the outcome of exploration in the Celtic Sea, a recommendation on an onshore route for the Corrib pipeline and the possible submission of a request for planning permission by Shannon LNG.

**1. Ireland is unique compared with other European countries in its lack of diversity of supply sources, high dependence on gas for power generation and very limited gas storage”**

#### 6.4.1 Security of Supply Measures

##### **“Security of Supply Measures – Conclusions Common Approach to Gas all Island Basis**

*A potential pipeline capacity constraint in the SWSOS has been identified by the CER in the latest Gas Capacity Statement by 2008/9 if Corrib is delayed and storage is not available.*

*Sitting on the far western edge of the pan-European gas market, the combination of a 90% dependence in part on a single piece of infrastructure for its gas supplies and a 65% and growing dependence on gas for electric power generation, make it uniquely vulnerable within the EU to the consequences of any disruption to gas supplies on a local and/or regional level.*

*The principal conclusion of this report is that the consequences of any major failure of supplies from GB would be as significant for the power sector and thus the island of Ireland economy as a whole, as for the domestic gas market. Thus this situation needs to be addressed in an integrated and holistic way so as to provide an element of security to both sectors.”*

#### 6.4.2 Recommendations for Security of Supply

##### **“Recommendations for Security of Supply Measures Common Approach to Gas**

*The situation with regard to supply of gas to the island will change over the period covered by this report. Some of these changes are reasonably predictable (e.g. Corrib).*

##### **Medium Term Recommendation**

2. Flatten Corrib production profile
3. The Corrib field is being developed with a production profile delivering maximum production for three years, followed by a relatively rapid decline in production. Consideration should be given to developing the field with the same nameplate facilities capacity, but producing it at less than maximum reservoir capacity in initial years so as to permit an increase in indigenous supplies should this be required in the event of a failure of supplies from GB. This would also have the advantage of prolonging the lower level of output before decline. The need for this would reduce in the event that other supplies to the island of Ireland became available.”

Extract from Study on Common Approach to Natural Gas Storage And Liquefied Natural Gas on an All Island Basis



## 6.5 Joint Gas Capacity Statement 2010

The CER as Commission for Energy Regulation has published a Joint Gas Capacity Statement 2010.

This statement presents a summary of the analysis and of the impact of forecast supply and demand on the transmission systems for both Ireland and Northern Ireland. The CER is obliged to publish this statement under Section 19 of Gas (Interim Regulations) Act 2002 as amended. The statement is published jointly with the Utility Regulator in Northern Ireland.

The CER statement has the following to say in relation to the sources of gas and in relation to Corrib gas:

*In the short term, the island's demand will continue to be met from GB imports via the Moffat Entry point and gas storage at Inch. However, security of gas supply on the island is likely to be enhanced by the development of further gas sources in the coming years.*

*In relation to the introduction of Corrib Gas, the planning application for the infrastructure required to connect the final onshore section of the pipeline from its landfall at Glengad to the Bellanaboy terminal is currently before An Bord Pleanála. Flows from Corrib have been analysed in all of the previous Gas Capacity Statements (including last year's JCS with the Utility Regulator) and, as part of the modeling undertaken, the commencement date of the project has been pushed forward year on year with specific scenarios developed to address further delays. **While there is no immediate risk posed by these delays (principally due to the significant reduction in gas demand on account of the economic recession), further delay to the Corrib project will impact on the security of gas supply in Ireland. Gas flows from Corrib will likely assist Ireland to meet forthcoming provision of the EU Proposed Regulation on security of gas supply.*** CER, Joint Gas Capacity Statement 2010.

## 6.6 EU Directive 994/2010 of 20/10/2010 Concerning Security of Gas Supply

Ireland are obliged to implement this directive and two articles in particular from the directive are in my view important considerations for ABP when assessing the requirements of National Policy that are relevant to these applications.

*Article 6 (1): Member States or, where a Member State so provides, the Competent Authority shall ensure that the necessary measures are taken so that by 3 December 2014 at the latest, in the event of a disruption of the single largest gas infrastructure, the capacity of the remaining infrastructure, determined according to the N-1 formula as provided in point 2 of Annex I, is able, without prejudice to paragraph 2 of this Article, to satisfy total gas demand occurring with a statistical probability of once in 20 years. This is without prejudice, where appropriate and necessary, to the responsibility of system operations to make the*



*corresponding investments and to the obligations of the transmission system operations as laid down in Directive 2009/73/EC as Regulation (EC) No 715/2009.*

*Article 8 (1): The competent Authority shall require the natural gas undertakings, that it identifies, to take measures to ensure gas supply to the protected customers of the Member State in the following cases:*

- (a) Extreme temperature during a 7-day peak period occurring with a statistical probability of once in 20 years*
- (b) Any period of at least 30 days of exceptionally high gas demand, occurring with a statistical probability of once in 20 years and*
- (c) For a period of at least 30 days in case of the disruption of the single largest gas infrastructure under average water conditions*

*The Competent Authority shall identify the natural gas undertakings referred to in the first subparagraph by 3 June 2012 at the latest.*

The above Article 6(1) provides conformation that Ireland is now required to bring the security of gas supply in this country up to a common European standard by 3<sup>rd</sup> December 2014. How this standard should be achieved is not yet clear but what is clear is that Corrib Gas Field, were it available as a source of supply, would be a large part of the measures to provide that security of supply standard for Ireland.

The above Article 8(1) is really not a planning matter in the sense of the applications before ABP. Rather it is a matter that will concern the competent authority and the Regulator CER. I have quoted this paragraph however to make the point that EC have brought in these additional requirements because the Russian/Ukraine Gas Supply conflict in January 2009 had the potential to cause gas shortages across Europe. This EU Directive 994/2010 seeks to restructure arrangements within countries to ensure supply can meet demand for extended periods under extreme demand/extreme weather/ extreme infrastructure breakdown conditions. Clearly the availability or otherwise of the Corrib Gas Field has a significant part to play in such arrangements in the medium term.

## **6.7 Observers Submissions**

**Economics:** Short term project life, long term project impacts, argument that the project will not provide economic benefit to Ireland.

### **Need for Scheme**

- 66% of fuel used for electricity 2008/2009 was gas
- 94% of gas comes from UK
- Corrib will potentially meet 73% of Irelands gas needs from 2012/2013 onwards
- Corrib will help meet Ireland's obligations to EU to meet standards of security of supply

- Absence or delay in Corrib will potentially mean significant additional investment in the existing infrastructure to meet Ireland's security of supply standards
- The pipeline has been delayed and should now be concluded to allow completion of project
- The number of Applications for petroleum exploration licences in Irish waters are much less than for UK waters. It is believed that this relates to 14 years delay since Corrib was discovered
- Damage has been done to Ireland's reputation for FDI projects because of delay in the start up of this crucial project

## **6.8** Inspectors Conclusions

4. National Policy for the Energy Sector is well developed.
5. The sources and supply of gas into the energy sector is a vital component within the National Economy because of the reliance on gas to provide a large part of electricity generating capacity.
6. The security of energy supply is identified as a critical National Interest.
7. National Policy is to strengthen the physical infrastructure links with UK and also strengthen the agreements with UK and European Energy Markets.
8. National Policy is to ensure a diversity of energy sources and to move towards high efficiency use of energy.
9. As regards Gas infrastructure, significant investment is provided in the period of the National Development Plan for BGE Galway Mayo Pipeline to connect to the Corrib Gas Field and to bring Natural Gas to towns in the west.
10. The issue raised in the report on a Common Approach to Gas North and South Policy discussion regarding "Flattening the production profile for Corrib Gas Field" is one for DCENR/CER and SEPIL. This is not a matter that should be considered by ABP in their assessment of this application. The rate of extraction of the resources is a matter for the undertaker to agree with the competent authority and the Regulator.
11. It had been expected that gas usage will increase by 6.5% per annum up to 2013. This is now forecast that total Irish Annual Gas Demand will grow at 0.9% per annum up to 2020. (Joint Gas Statement 2010)
12. The White Paper sets out a target of 50% for Gas contribution to Electricity Generation by 2020. This is to be achieved by bringing increased renewable energy sources on stream up to 2020.
13. In absence of this increased renewable energy, Gas, on a business as usual basis, would be the energy source for 70% of electricity generation by 2020.
14. Having diverse sources of secure energy supply into the future is central to National Policy.
15. It is clear that bringing the Corrib Gas Field into production and connecting the supply from Corrib into the National Gas Network is a Government priority and has

been a Government priority for some considerable time.

16. It is clear that Corrib Gas Field is required and that when available, Corrib Gas will provide a vital source of energy supply for the economy and will help provide greater security of supply for the energy needs of the country. Ireland is obliged to strengthen security of supply by 03/12/2014 and to take the necessary measures to satisfy total gas demand on a day of exceptional gas demand (1:20 years demand level) and in the event that a disruption of the single largest gas infrastructure occurs.
17. The competent authority [DCENR/CER] shall require the natural gas undertakings that it identifies to take measures to ensure gas supplies to the protected customers in extreme weather conditions (7 days), in extended periods of high demand for gas (30 days) and in case of disruption of the single largest gas infrastructure (30 days) These measures are required to be implemented by 3/06/2012.

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## Chapter 7 Associated Permissions and Consents

### 7.1 Planning Applications

These are covered in the 2009 Report. The following additional consents licences/approvals and applications are also relevant:

P08/1620 – ABP Appeal Reference PL 16.231952 - details provided in 2009 Inspectors Report. A decision to grant this permission was given by ABP 15/04/2009.

P09/196 – Amendments to the previously permitted Gas Terminal for the reception and separation of gas consisting of the addition of a cold separator vessel, fire and gas detectors and auxiliary modification to permitted access stairs. Permission was granted 02/06/2009.

P09/1248 – Amendments to the previously permitted Gas Terminal for reception and separation of gas consisting of alterations to security fencing, gate, CCTV and other modification. Permission was granted 08/03/2010.

P10/633 – Amendments to the previously permitted Gas Terminal for reception and separation of gas consisting of changes to the permitted method of disposal of treated produced water. This application is current (28/07/2010).

### 7.2 IPPC Licence Review Register No P0738-02

This licence reviews the proposed change of the discharge point for treated produced water from the Terminal, from just outside Broadhaven Bay to a new location at the Corrib Field 65km offshore at 350m depth via spare cores in the control umbilical to the subsea equipment at the wells manifold. A proposed decision issued on 04/08/2010.

### 7.3 The following applications to DCENR made on 31/05/2010:

1. An application for section 40 consent of the Gas Act 1976 includes E.I.S.
2. An application under Section 13 of the Petroleum and Other Mineral Development Act 1960, together with an addendum of revisions to the approved plan of development for Corrib Gas Field.

These applications are being examined by the DCENR at present. DCENR have provided updated information on progress with the section 40 application as part of the proceedings of the OH. These update reports are considered in Chapter 12 of this report.

### 7.4 Foreshore Licences

The following application to DEHLG (formerly DAFF dealt with Foreshore Licence Applications) for Foreshore licences:

1. Application for foreshore licence for site investigation in Sruth Fada Conn Bay. This application was approved on 11/06/2010.
2. A revised application in relation to the onshore pipeline to the foreshore unit DEHLG under the Foreshore Act. This application was accompanied by an E.I.S. and is under consideration by DEHLG.

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## Chapter 8 Planning History

The planning history for the site was set out in the Inspectors 2009 Report, Chapter 8. This has changed as follows:

P08/1630 – Amendments to the permitted terminal at Bellanaboy. This has been granted by ABP on 15/04/2009 (PL 16.231952).

P09/196 – Amendments to the terminal. Permission granted 02/06/2009.

P09/1248 – Amendments to the terminal. Permission granted 08/03/2010.

P10/633 – Amendments to the terminal and this relates to changes to the permitted method of disposal of treated produced water from the terminal process. This application is under consideration (28/07/2010).

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## Chapter 9 Legislative Context

Mr. Stephen O Sullivan Senior Planning Inspector has been appointed by ABP to assist the inspector in the examination of these applications.

Mr. O Sullivan's Report of 2009 set out the legislative background as the context for consideration of these applications. This background still provides the context for examination of the 2010 modified proposed development.

The following additional considerations are now brought to the attention of the Board.

### 9.1 Section 22 of the Energy (Miscellaneous Provisions) Act 2006 which provides

Section 22 (3)

*“No approval shall be required under in relation to development referred to in Section 182C, if (iii) the development has been subject of (1) a grant of consent under Section 39A or 40 of the Act of 1976 before the commencement of this Section and that consent is in force immediately before such commencement.”*

### 9.2 High Court decision Jonathan O Donnell v Shell E & P Ireland Ltd

Record 233 MCA, July 2010 where Mr. Justice Charleton held that

*“Where a new Act comes into force, and the new Act being the Strategic Infrastructure Act does not specifically affect, by its expressed terms, a permission that has hitherto been given, that in fact once the permission has been given, it has no effect at all on the permission and that the permission continues to be valid as a matter of law.”*

One of the issues in this case was “.... *Questions of Law as to whether the works currently being undertaken by the respondent (SEPIL) require planning permission and/or approval under the Planning and Development Act 2000 or whether they are exempted development within the meaning of the Planning and Development Regulations 2001 to 2008...*”

This case related to issues which included pipe laying of the offshore pipe, part of which was laid on land at Glengad.

### 9.3 Petroleum Safety Act 2010

The Act confers functions on the Commission for Energy Regulation in relation to certain petroleum activities of petroleum undertakings with regard to safety.

This Act amends the Electricity Regulation Act 1999. The amendments set out the functions of the Commission relating to petroleum safety.

The CER, where safety considerations render it appropriate, by regulation designate... petroleum activity...to be a designated petroleum activity.

The Act sets out that a person shall not carry on a designated petroleum activity unless a safety permit is in force in respect of the petroleum activity.

The principle objective of the CER...is to protect the public by fostering and encouraging safety as respects the carrying on of designated petroleum activity.

The CER is obliged to establish and implement a risk based “Safety Framework” in relation to the carrying on of designated petroleum activities.

Petroleum undertakings are obliged under the Act to carry on petroleum activities in a manner to reduce any risk to safety to a level that is as low as reasonably practicable. Petroleum undertakings are also obliged to ensure that petroleum infrastructure is designed, constructed, installed, maintained, modified, operated and decommissioned in such a manner as to reduce any risk to safety to a level that is ALARP.

## **9.4 S.I. 122 of 2010**

### **EC (Assessment and Management of Flood Risks) Regulations 2010**

This implements EU Directive 2007/60/EC. The OPW shall complete a preliminary flood risk assessment by December 2011 for every river basin. Local Authorities then shall consider, examine and may respond to OPW who then identify those areas for which a potential significant flood risk exists. Flood hazard maps for low probability, medium probability, high probability flooding shall be prepared by OPW showing flood extent, water depths and flow velocity and indicating the number of inhabitants potentially affected, type of economic activity effected, IPPC installation effected. Flood Risk Maps are to be completed by 22/12/2013. On the basis of the Flood Risk Hazard Maps as amended as may be required by OPW, Flood Risk Management Plans shall be prepared at river basin level by December 2015 by OPW. Such plans then are subject to confirmation by the Minister. The plans are then referred to each county council who by reserved function decide whether to adopt or otherwise the plan.

Flood Risk Management Schemes may be prepared by OPW to give effect to works necessary in river catchments. The S.I. sets out the powers and functions of OPW in respect of implementation of flood risk management schemes.

#### **9.4.1 Flood Risk Management Guidelines**

##### **The Planning System and Flood Risk Management Guidelines for Planning Authorities**

This guidelines document published by OPW and DEHLG jointly outlines how to identify and assess flood risk.

The guidelines outline how regional and local authorities and those proposing development will be involved in flood risk assessment. The guidelines provide examples of how

development proposed can be adapted in a manner that will separate vulnerable residential development from flood plains at risk.

#### 9.4.2 Draft Regional Flood Risk Appraisal

This appraisal follows from the guidelines issued to planning authorities on Flood Risk Management which recommended that Regional Flood Risk Appraisal and Management Policy Recommendations are necessary.

- The precautionary principle to Flood Risk Assessments is recommended.
- The framework for the National Preliminary Flood Risk Assessments by OPW is outlined.
- Information on where data for flood risk assessment may be sourced is provided.
- The focus on Regional Flood Risk Appraisal in the RPG's will concern key settlements Galway City, Tuam, Ballina-Castlebar, Roscommon town, Monksland (Athlone).
- In Recommendations of Best Practice for Local Authorities are the following:
  1. It is essential that development does not create significant problems for long term flood management in coastal areas subject to erosion, deposition.
  2. Where coastal areas are bounded by Natura 2000 sites there is a need to mitigate the effects of coastal squeeze on these sites.
  3. It is advised that key infrastructure suppliers should assess current elements and stress test future projects against flood risk.

Policy objections for flood risk management include the following:

- New development should be avoided in areas of risk of flooding.
- A number of objectives deal with sequential approach and justification test for zoning of lands particularly when flood plain lands are being considered for zoning as development land.
- Measures such as flood compensation works or new hard-engineered flood defences will not be acceptable as justification for development in a flood plain. Such measures will only be considered as part of a proposal if development/zoning is warranted by justification these on planning and sustainability grounds in the first instance and no alternative site is available.

### 9.5 Inspectors Conclusions

1. Section 22 of Energy (Misc. Provisions) Act 2006 and the High Court decision in Jonathon O'Donnell v SEPIL 233 MCA July 2010 appear to support SEPIL's position that the offshore pipeline as laid onshore for the 2002 consent does not need to be included in this application 16.GA.0004.

However, neither the LVI nor the construction and works associated with drainage to the LVI were a part of the 2002 development. That, in my view, justifies the request by ABP that "...part of the route had been omitted..." and that SEPIL should submit revised drawings "...which fully describe the full extent of the onshore pipeline from

HWM to the terminal site...”. This matter is considered in more detail in Chapter 23 Boundaries of the Permission Sought.

2. Flood Risk Assessment for the proposed development has been included in the addendum to the E.I.S. This is considered in Chapter 43 Hydrology and Eco Hydrology.

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## Chapter 10 **Additional Information Provided By the Applicant at the Oral Hearing**

### **10.1 Summary of OH Briefs of Evidence**

#### **10.1.1 Opening and introduction by Mr. Esmonde Keane S.C.**

Mr. Keane concluded the introduction and presented a witness register for SEPIL's presentation of Briefs of Evidence (DRN OH4)

#### **10.1.2 Errata to E.I.S.**

Submitted by Mr. Keane S.C. on behalf of SEPIL.

This submission outlines errors in the E.I.S. as submitted and corrects these.

#### **10.1.3 Route Selection and Alternatives Considered**

Presented by Mr. Ciaran Butler, Project Manager of Corrib Onshore Pipeline Project RPS.

The alignment of the route now proposed has been developed on the basis of optimising the pipelines distance from dwellings having regard to the construction methods. This presentation outlines the options considered in developing the proposed 2010 modifications as now presented in E.I.S. to ABP. [DRN OH2].

#### **10.1.4 Construction**

Presented by Mr. Eamon Kelly, Senior Onshore Pipeline Engineer responsible for the construction of the proposed development.

This presentation outlines the main construction elements involved. Some further information on a possible intervention pit, size and impact is discussed. This submission puts forward the concept of a modification to the proposed development involving additional slab protection of the umbilicals and services associated with the pipeline. The concept is put forward for ABP to consider should ABP be concerned that the development as proposed required such a measure to prevent third party intentional interference with these services. [DRN OH3].

#### **10.1.5 Tunnelling Construction**

Presented by Dr. Tim Jaquittis, tunnel specialist.

This presentation outlines the tunnel alignment and construction proposed. It is intended to route the tunnel within a maximum of 8m from the centre line shown. [DRN OH5]

#### **10.1.6 Community Issues and Planning Policy Context.**

Presented by Mr. Kieran Kennedy, Chartered Town Planner.

This submission outlines community and socio economic issues, the Community Investment Programme and outlines the planning context for the proposed development. [DRN OH6]

#### **10.1.7 Geotechnical and Ground Conditions**

Presented by Turlough Johnston Chartered Engineering Geologist.

This submission outlines the geotechnical analysis carried out and the conclusions from the analysis. A summation of information emerging at that time from site investigation in Sruth Fada Conn is briefly outlined. [DRN OH7]

#### **10.1.8 Introduction to Appendix Q**

Presented by G. J. Costello, Deputy Project Director for the Corrib Project.

This submission outlines the revised Appendix Q submitted by SEPIL and summarises the overall position regarding pipeline safety.

#### **10.1.9 Operation of the Corrib Pipeline- Pipeline Safeguarding**

Presented by Ian Malcom, Senior Consultant Xodus Group working in Technical, Safety and Risk Division.

This submission outlines the reliability of the proposed modified development and the safety protection layers and equipment that have been provided in the Corrib pipeline control system.[DRN OH12]

#### **10.1.10 Onshore pipeline and LVI Design**

Presented by John Gurden, Senior Project Manager, JP Kenny Ltd.

This submission outlines the pipeline design and testing of the pipeline, pipeline compliance with codes of practice, the design of the LVI and outlines analysis of other LVI configurations and assessment of settlement of the pipeline in the stone road. [DRN OH13]

#### **10.1.11 Pipeline Protection**

Presented by Steve Paterson, Head of Materials and Corrosion Engineering with Shell Upstream Europe.

This submission outlines the threats of the integrity of the pipeline from the wet gas and CO<sub>2</sub> present in the gas. The submission outlines corrosion inhibition assessment and monitoring and methane hydrate potential in the pipeline and outlines Shell's experience with wet gas pipelines in Europe without loss of containment. The submission outlines issues relating to the QRA and third party interference. [DRN OH14]

#### **10.1.12 Qualitative Risk Assessment**

Presented by Ms Sheryl Hurst, a principal consultant with Risktec Solutions Ltd who specialises in safety cases and bowtie analysis.

This submission outlines the bowtie analysis system used for hazard identification and risk assessment, outlines how ALARP is demonstrated, how the safety case structure is made up, and how the summation of the Qualitative Risk Analysis can be brought together. [DRN OH15]

#### **10.1.13 Quantified Risk Assessment**

This was presented by Philip Crosswaite, Chief Specialist at DNV in the health, safety and environmental group. Dr. Crosswaite has a PhD in fuel engineering.

This submission outlines the changes that have been incorporated in the modified development in response to ABP's letter of 02/11/2009. The 2010 QRA is outlined and the



factors considered in preparing the QRA are outlined. The submission also outlines how the ABP requirements regarding appropriate hazard distance and dangerous dose have been interpreted in the analysis and in production of the QRA. [DRN OH16]

#### **10.1.14 Section 5 Referral by An Taisce**

##### **Letter 09/09/2009 from Mayo County Council to An Taisce**

This copy of the letter was submitted by Mr. Keane S.C. on behalf of SEPIL wherein Mayo County Council conclude in relation to the construction works above the median high water mark at Glengad that these works is development and is exempted development.

#### **10.1.15 Appropriate Hazard Distance**

This was submitted by G.J. Costello, Deputy Project Director for the Corrib Project.

This submission outlines SEPIL's view that an instantly ignited full bore rupture is only a theoretical possibility because of the design factor of 0.3 and because the record shows that no pipeline with wall thickness greater than 15mm has ruptured in Europe. The submission outlines the parameters used in arriving at the appropriate hazard distance as requested by ABP and concludes that the pipeline is at the appropriate distance from all dwellings along its route.

#### **10.1.16 Public Safety Application of Design Codes**

Presented by Dr. Jane Haswell Principal Consultant, Pipeline Integrity Engineers Ltd. Dr. Haswell is also chairman of the IGEM panel and responsible for drafting editions of the IGEM/TD/1 standard for steel pipelines and associated installation for the transmission of high pressure gas and she is also a member of the committee responsible for PD 8010 since 2003 and is a joint author of IGEM/TD/2 and PD 8010 Part 3 which cover the application of pipeline risk assessment to developments in the vicinity of high pressure pipelines.

Dr. Haswell outlined the background to the development of the codes and outlined the codes used for the Corrib pipeline design. She indicated that the reduction in design factor to 0.3 in suburban areas as per IS 328 and PD 8010 are based on published research which demonstrates that at the stress level at this design factor, in the event of a through wall failure, that a rupture will not occur. That is why reduced building proximity distances based on the consequences of leaks rather than ruptures are specified for pipelines with a design factor that is no greater than 0.3. [DRN OH22]

#### **10.1.17 Roads and Traffic**

Presented by Michael Noonan, Director in Roads and Transportation Department RPS.

This submission outlines the Traffic Impact Assessment and Draft Traffic Management Plan for the proposed development. Mr. Noonan outlines that while the traffic proposed for Glengad is similar in volume to that proposed in 2009 application that the duration is longer

so traffic to Glengad will be of a low intensity. The submission provides appendices with further details of the convoy procedure and a code of conduct for drivers. [DRN OH23]

#### **10.1.18 Landscape and Visual**

Presented by Raymond Holbeach, Director Planning and Environment RPS.

The submission summarises the assessment provided in the E.I.S. and outlines the mitigation measures proposed. [DRN OH24]

#### **10.1.19 Groundbourne Noise and Vibration**

Presented by Rupert Thornely-Taylor, independent consultant specialising in noise and vibration particularly groundbourne noise and vibration from tunnelling.

This submission outlines the standards involved, the predicted likely impacts from noise and vibration from tunnelling and presents a contour limit of human perceptibility of TBM vibration all along the route of the pipeline. [DRN OH25]

#### **10.1.20 Noise and Vibration (works on land)**

Presented by Dara Kingston an associate in the Environment and Waste section RPS with specialised experience in noise monitoring and assessment.

This submission sets out the assessment methodology and the assessment carried out and outlines the mitigation measures proposed. [DRN OH26]

#### **10.1.21 Underwater Archaeology**

Presented by Dr. Niall Brady a senior project director and archaeologist with specialist experience in underwater archaeology.

This submission outlines the surveys carried out to date and concludes that the geophysical data acquired across Sruth Fada Conn Bay does not indicate archaeologically significant material and that no further archaeological measures are necessary in advance of construction. The tunnel arisings will be monitored and is likely to provide material of limited archaeological potential. [DRN OH27]

#### **10.1.22 Archaeology Architectural Heritage and Cultural Heritage**

Presented by Lisa Courtney, Senior Archaeologist.

The submission outlines how archaeology architecture and cultural heritage has been presented in the E.I.S. and concluded that subject to the mitigation measures proposed that the project will have no significant impact on archaeology or features of cultural heritage. [DRN OH28]

#### **10.1.23 Peatland Hydrology and Hydrogeology**

Presented by Michael Gill, hydrology and hydrogeology specialist.

This submission outlines the methodology used in the assessment of impacts on hydrology from the project. Details are outlined for Aghoos compound drainage and protection from flooding. An outline of the stone road method of construction in peatlands is considered and the measures proposed to mitigate hydrological impacts from the stone road on peatlands are presented. [DRN OH29]

#### **10.1.24 Marine and Freshwater Environment Issues**

Presented by Ian Wilson, a scientist specialising in marine environmental consultancy. Mr. Wilson has undertaken numerous survey assessments of the (Corrib) field, off shore route, proposed landfalls and proposed onshore crossings since 1996.

The submission outlines the potential impacts on the marine environment, the potential impacts of an intervention pit if required and outlines the relative spectra for noise from the TBM relative to background noise and relative to some marine mammal and freshwater fish audio perception. [DRN OH30]

#### **10.1.25 Terrestrial Ecology**

Presented by Ms. Jenny Neff a botanist, a vegetation scientist and an ecologist experienced in Irish habitats and species and in academic research.

This submission outlines in some detail the ecological assessment that has been carried out and that is contained in the E.I.S. of the likely impacts of the project. The submission also provides response to issues raised by third parties.

#### **10.1.26 Cumulative Impacts**

Presented by Agnes McLaverty, Environmental Advisor and Permits and Consents Manager for the Project.

Ms. McLaverty identified the 5 elements of the Corrib Gas Field Development:

- Offshore installation (wells, wellhead, manifold)
- Offshore pipeline (wellhead to landfall)
- Onshore pipeline (landfall to terminal)
- Terminal (and peat deposition at Sranmore)
- 150km Mayo to Galway Gas Pipeline

The submission confirms that E.I.S. has accompanied all the main statutory applications for the Corrib Gas Field Development. The submission outlines the cumulative, indirect and interactive impacts as presented in Chapter 17 of the E.I.S. (DRN OH36)

### **10.2 Addendum to the 2010 E.I.S.**

This was introduced by Mr. Keane S.C.

This provides additional information and data to supplement the E.I.S. in the following areas:

- Details of an intervention pit.
- Details of traffic road safety measures and waste disposal traffic impact likely scenarios.
- Supplementary information on air quality.
- Supplementary information on noise and vibration.
- Summary interpretative report on site investigation in Sruth Fada Conn.
- Flood risk assessment.
- Revised bow-tie analysis diagrams. [DRN OH8]

### **10.3 Site Investigation Data Reports**

### **10.3.1 Drawings Presenting Geology Based on Ground Investigation**

These drawings relate to the summary information submitted by Mr. Johnston as part of the addendum and also relate to the site data logs (DRN OH8). Some of these drawings show geology profile based on 2008 investigations. Some show geology relating to findings from the 2010 site investigation work. 8 drawings were submitted. [DRN OH34]

### **10.3.2 Site Investigation Data Report**

Borelog data relating to site investigation report as summarised by Mr. Johnston in the addendum (DRN OH8) and relating to the drawings already submitted (DRN OH34). [DRN OH58]

### **10.3.3 Foreshore Site Investigation No. 2**

Presented by Turlough Johnston.

This provides additional mapping and borelogs and a summary of the information presented on 3<sup>rd</sup> September 2010. [DRN OH73A, 73B, 73C]

## **10.4 SEPIL and Documents Related to DCENR**

### **10.4.1 SEPIL Request to DCENR for Codes Confirmation by TAG**

This refers to ABP requirement for confirmation of codes applying to the pipeline at Glengad in the section of pipe from the HWM to the downstream weld at the LVI. [DRN OH77]

### **10.4.2 DCENR Reply Confirm TAG's agreement to codes as proposed by SEPIL**

[DRN OH78]

### **10.4.3 Responses to DCENR Question by SEPIL**

#### **Regarding Tunnel Construction and Ground Stability**

This was provided as a copy of a SEPIL submission to DCENR under the section 40 application process. The document was provided by way of information to ABP at the OH. The document contains responses to issues raised by DCENR and which were outlined by Mr. Peter Waite ENTEC in his submission as part of DCENR submission to the OH.

### **10.4.4 Correspondence SEPIL/DCENR**

**Correspondence 2004 and 2005 between SEPIL and DCENR regarding design issues**

**including H<sub>2</sub>S gas**

This was submitted by Mr. Keane S.C. for SEPIL to clarify SEPIL's position in relation to partial quotation from this correspondence by observers who had concerns about H<sub>2</sub>S gas. [DRN OH86A]

#### **10.4.5 Copy DCENR Letter to SEPIL**

Confirming that an application for a Section 40 consent had been received by DCENR. [DRN OH91]

### **10.5 SEPIL v O'Donnell High Court 233 of 2009**

#### **10.5.1 High Court Notice of Motion 233MCA 2009**

#### **10.5.2 [DRN OH9] High Court Judgement 233 MCA 22/07/201**

#### **10.5.3 High Court Record 2009 No 233 MCA SEPIL v O'Donnell**

This was submitted by Mr. Keane S.C. for SEPIL and provides amending information relating to the original motion, see DOC OH9 and DOC OH10. [DRN OH113]

Presented by Mr. Keane S.C.

This document and the Notice of Motion are concerned with issues brought before the High Court and related to the offshore pipeline and in particular provides judgement in respect of issues relating to the portion of offshore pipe laid in 2009 at the landfall. [DRN OH10]

### **10.6 Application for Compulsory Acquisition Order**

#### **10.6.1 Brief of Evidence**

**Brief of Evidence on the Application for Compulsory Acquisition Order – File DA.0005 refers**

This submission was presented by Eamon Kelly and outlines the lands included in the CAO and makes distinction regarding the extent of the lands that are included in the acquisition order application and where no construction activity will take place. [DRN OH92]

#### **10.6.2 Map relating to CAO map at Glengad and HWM on Sruth Fada Conn**

This map was submitted by Mr. Kelly/Mr. Butler in response to a request for clarification by Inspector regarding why the 16.DA.0004 (2009 CAO file now withdrawn) HWM boundary on Sruth Fada Conn was different to the 16.DA.0005 (2010 CAO file application before ABP for decision). [DRN OH153]

### **10.7 Other Documents Submitted**

#### **10.7.1 Houses Proximity Map Glengad**

Submitted by Mr. Keane S.C. on behalf of SEPIL.

This shows houses at Glengad West and South West of the LVI and landfall and provides a distance from these houses to the offshore pipeline as laid. This was provided in response to a

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request from observers who live in that area. The nearest house GL05 is located at 336m from the offshore pipeline. [DRN OH74]

#### **10.7.2 Copy of foreshore licence M556/11/Jan 10**

This submission by Mr. Keane S.C. on behalf of SEPIL is a copy of the licence (11/06/2010) obtained for the site investigation in Sruth Fada Conn. [DRN OH79]

#### **10.7.3 Onshore Pipeline Overpressure Protection System Reliability**

This was submitted by SEPIL in response to a request from the Inspector. The submission outlines the independent verification report that has been prepared for the LVI. [DRN OH84]

#### **10.7.4 Qualitative Risk Assessment**

Comparison AS 2885 and Bowtie Analysis presented by Ms. Hurst in response to a request from Inspector.

This submission presents information on the qualitative risk analysis using SHELL's system (Bowtie Analysis) and aligns the outcome with the Qualitative Risk Analysis presentation and method from the Australian pipe design code AS 2885 (which is referred to in IS 328). [DRN OH86]

#### **10.7.5 Tunnel Stress Analysis**

This submission sets out a summary of stress analysis carried out on the pipeline for hydrotest case studies and for operation condition under design pressure and under MAOP. The submission was provided in response to a request from Mr. Wright, Gas Consultant Adviser to ABP. [DRN OH87]

#### **10.7.6 LVI Stress Analysis**

This submission presents a summary of stress analysis carried out on the LVI and related to the loading condition under hydrostatic testing of the pipeline and under operational loading conditions. [DRN OH88]

#### **10.7.7 Subsea Pressure Protection Reliability**

This submission prepared by Ian Malcom presents details of the reliability attaching to the subsea wells isolation system. [DRN OH89]

#### **10.7.8 Stress Sensitivity**

This submission outlines the methods and software used for modelling pipeline stress in the design process. [DRN OH90]

#### **10.7.9 Noise Additional Attenuation Measures**

##### **Relating to the Tunnel Construction Compound at Aghoos**

The submission outlines additional acoustic structures to enclose the power packs and separation plant at the Aghoos compound. It is stated that the resultant outcome will be that

only one noise receptor location, N19, will be impacted by night time noise emanating from the site. [DRN OH94]

#### **10.7.10 Vibration Monitoring**

This document outlines a response by SEPIL to a question by the Inspector regarding the proposed monitoring regime for noise and vibration.

A total of 7 locations are proposed, 4 on lands owned by SEPIL and 3 on private lands for the monitoring continually of noise and vibration from construction works. [DRN OH131]

#### **10.7.11 Sight Visibility at Aghoos and Srahmore Junctions**

SEPIL presented this document to clarify signage and existing and proposed sight distances at the Aghoos compound site entrances and at the junction where the entrance to the Srahmore deposition site meets R313. [DRN OH133]

#### **10.7.12 Environmental Monitoring Group Reports, June, September, October 2009**

These were presented by Agnes McLaverty and outline the information considered by the Environmental Monitoring Group. The documents also presented data on noise monitoring which had been raised by observers in relation to offshore pipe pull in works at Glengad. [DRN OH134A, 134B, 134C]

#### **10.7.13 Power Supply at Aghoos**

This submission outlines the considerations that have taken place and which determined that 2.5Mw of generation capacity will be provided in diesel driven power packs to drive the TBM and which will be placed in the compound at Aghoos. [DRN OH135]

#### **10.7.14 Volume Capacity of Bunded Areas Aghoos**

This document outlines the design parameters used for the bunding protection to tankage at Aghoos compound. [DRN OH136]

#### **10.7.15 Intervention Pit**

##### **Response to Questions Regarding Aspect of the Impacts that could arise**

This submission provides consideration of hydrological impact and scour and outlines how suspended solids, noise and vibration and impacts on avian species have been assessed. [DRN OH137]

#### **10.7.16 Use of Roads in Rossport**

This statement clarifies that no use of roads is envisaged in Rossport with the exception of some vehicles associated with monitoring functions. [DRN OH138]

#### **10.7.17 Biocide for Produced Water**

This statement identified the biocide that will be used in the umbilicals used for transporting treated produced water from the terminal for discharge at the well head. [DRN OH139]

#### **10.7.18 Outfall Locations and Numbering**

This document updates information provided in the 2009 E.I.S. regarding the location of outfall discharge points for surface water from the construction site. [DRN OH140]

#### **10.7.19 Noise Monitoring**

This submission outlines the noise monitoring and reporting arrangements proposed by SEPIL. [DRN OH141]

#### **10.7.20 Statement Regarding Pavement Condition at McEleney's House on L1202**

This submission was made in response to a request from the Inspector. The submission outlines that the pavement condition at McEleney's is in good condition with a smooth running surface, and that condition of L1202 will be closely monitored and, in conjunction with Mayo County Council, any surface deterioration during haulage activities and any damage will be repaired without delay. [DRN OH145A]

#### **10.7.21 Terminal Weather Station Data 25/03/2010**

This was presented as a result of questions being raised regarding noise measurements in the E.I.S. and the wind speeds recorded on the day in question. [DRN OH146A]

#### **10.7.22 Public Safety and Security of the Corrib Onshore Pipeline System**

This was submitted in response to a request from the Inspector. The request sought clarification of the SEPIL suggestion to ABP that should the Board have concerns regarding third party interference with the pipeline then the Board could choose to modify the proposed development. This could be done by inviting SEPIL to protect the umbilicals and service cables with a concrete slab laid 300mm above these services. This submission provides a very brief summary of how SEPIL assess this overall situation and an attachment shows a typical detail of a cross section of the proposed construction showing the concrete slab. [DRN OH146B]

#### **10.7.23 Statement Regarding Pavement Condition at McGrath's Bar on L1202.**

This submission was made in response to a request from the Inspector. The statement outlines the width of road at McGrath's of 4.86m but narrowing to 4.4m wide at the bridge 100m from McGrath's. The pavement at McGrath's shows signs of fatigue, uneven surface and poor drainage. The submission indicates that improvements involving removal of existing pavement and replacement with better quality, well compacted materials and overlay are proposed by Mayo County Council prior to haulage activities on L1202.

It is also stated that speed restriction to 20km/h will be imposed on HGV's at McGrath's bar. These measures will reduce noise and vibration impacts. The submission has an attachment from Mayo County Council confirming that Mayo County Council will be in a position to carry out any rehabilitation or improvement works required to facilitate the construction of the proposed pipeline subject to the cost of such works being borne by SEPIL. [DR OH147]

#### 10.7.24 Transcript RTE interview 23/04/2009

##### Chief Superintendent Tony McNamara

This transcript was submitted by Mr. Keane S.C. on behalf of SEPIL.

This transcript relates to incidents on 23/04/2009 at Glengad. This transcript also relates to [DRN OH112] submitted by Pobal Le Chéile (i.e. copy of a Sunday Independent report of events on that week at Glengad). Superintendent McNamara described the attack on Glengad as “...a quite a serious incident...in what looked like a well planned, almost military style operation (where a group of masked men wearing balaclavas)...you could say took over the site...commandeered a machine belonging to the company...proceeded to do damage on that site...” [DRN OH148]

#### 10.7.25 Case law

Referred to by Mr. Keane S.C. in the closing statement made on behalf of SEPIL [DRN OH180]

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## Chapter 11 Prescribed Bodies Submission to ABP and to the Oral Hearing

### 11.1 An Taisce Written submission to ABP 28/July 2010

An Taisce consider that the information requested by ABP has not been adequately addressed particularly the legal status of works carried out at Glengad

The An Taisce submission was presented by Mr. Attracta Uí Bhroin and is a long, well structured presentation of argument against the approval of the project and in support of the observers who argued against the project.

1. Additional information submitted at the OH is extensive and significant and should have been subject to formal publication of notice and notice to prescribed bodies. This would allow for proper consultation to take place on this additional information. An Taisce seek that this be done before a decision is taken, alternatively An Taisce request that the additional information not be accepted into the E.I.A. process.
2. Legal argument that:
  - i. The applicant is out of time. The submission of Appendix J1 material (omitted from E.I.S. as submitted on 31/05/2010) and notice of which was published August 10<sup>th</sup> 2010.
  - ii. The piece of pipe laid at the HWM, it is contended, was not exempted development and the applicant has not applied for retention permission for this pipe. It is considered that the application before the board is invalid.
  - iii. The site investigation data submitted at the OH is considered to have been obtained on basis of a foreshore licence which should have required E.I.A. As no E.I.A. was carried out it is contended that the data was not obtained in accordance with legal requirements and therefore should be ruled inadmissible.
3. An Taisce argues that there is a very real risk to the Natura 2000 sites because of the specific non-compliance behaviour of SEPIL in the past. A request is made to ABP to consider using section 35 of Planning and Development Act 2000-2006 to “...*form an opinion that there is a real and substantial risk that the proposed development...would not be completed in accordance with permission if granted*” and that ABP should refuse the application before it, accordingly.
4. The consideration of alternatives as required by E.I.A. and Habitat Directives has not and cannot be complied with because of the constraints – Landfall at Glengad, Terminal at Bellanaboy – to routing of the pipeline.
5. An Taisce argues that ABP cannot possibly grant this permission for the following reasons:
  - i. The SPA status is now a pSPA and consequently article 4(4) of the Birds Directive needs to be applied.

- ii. Given the uncertainties – awaiting a decision of the EC court regarding Supreme Court questions on integrity of site [Sweetman Question and ABP and involving Galway County Council], lack of site specific conservation objectives [NPWS are using generic rather than site specific conservation objectives in their advice] and other arguments and given the potential negative impacts on the Natura 2000 sites the precautionary principle should apply and the application should be refused by ABP.
  - iii. Given that the site hosts priority species and habitats a reference to the commission is required and overriding public interest must be argued.
  - iv. In light of these circumstances, economic or recreational interests cannot be used to justify the project where ecological adverse impacts may arise.
6. The proposed development it is contended constitutes a Sevesco site and an emergency response plan should be included in the application (an emergency arising is seen as an indirect consequence of the project).
  7. It is contended that should an intervention pit be required the manner in which it will be undertaken is proposed to be subject to NPWS agreement. This is considered illegal and post consent conditions contrary to the Lough Rynn ECJ ruling, C183/05.
  8. SEPILs interpretation of ALARP is not transparent and they have not demonstrated what is considered to be ‘practical’ in the context of consideration of risks from the project. It is contended that the lack of transparency is not in conformity with ABP letter of 02/11/2009 and does not meet the requirements of the E.I.A. Directive.
  9. An Taisce question the lack of information presented on the effects of heat radiation on these parts of the site where there are no buildings and where people may frequent.
  10. An Taisce raise concerns regarding re-use of tunnel arisings (which may have raised salinity levels) in the stone road construction and acidic peat environment. The clarity regarding the quantities of waste arising is a concern and how 100% of the waste is being catered for in the project is raised as an issue for clarification. The Board is asked to ensure no risk will arise either from run-off or from Bentonite residual within the wastes arising.
  11. The change in width of stone road from 12m to 9m in the Blanket Bog is considered evidence that 12m is too much or that 9m is too little for the requirements of a stone road. There is concern that a future pipe may be laid in the stone road.
  12. On project splitting, An Taisce support argument by observers that this application is one where the project has been split. – e.g. L1202 Roadworks by Mayo County Council and that a much greater impact on Natura 2000 sites is a concern compared to that which has been justified in the E.I.S.
  13. An Taisce raise issues regarding SEPIL’s ecologist, Ms. Neff, and her evidence concerning the Blanket Bog 190m habitat at Aghoos, and regarding Machair habitat at Glengad. It is contended the Blanket bog section is priority habitat or capable of becoming so and it is contended that Machair exists at Glengad.
  14. Concern is expressed regarding light leakage into the pSPA and cSAC and the impact this will have on birds. A research paper on light pollution is attached to the An



Taisce submission which paper raises concerns about the potential for ecological damage from artificial light influences, the paper calls for significant research and monitoring of the impacts of artificial light to be carried out to further inform the understanding of these impacts. It is considered that at best this issue and the impact of night time light on eSAC and pSPA are at best one of “scientific uncertainty”.

15. An Taisce has issue with the limitations to the area surveyed for otters as indicated in E.I.S. – section 3.3.1.4. of Appendix J indicates that a search of 100m wide corridor adjacent to the shoreline for holts was not feasible at Sruth Fada Conn. An Taisce contends the potential impacts to otters, an Annex IV species, is unclear and uncertain. On this basis An Taisce believes a derogation licence is required and this must be applied for before the decision in the project is made. It is contended there is a need for further surveys for protected species not limited to otters and that ABP should decide that E.I.S. submitted is not in compliance with EU law and reject the proposed development.

It is also contended that an absence of “favourable status” for otters in effect means a derogation could not be granted for otters.

16. An Taisce consider that the argument that Corrib Gas Field Development is a strategic project for Ireland and necessary for Ireland’s security of gas supply, is flawed argument and is naïve.
17. An Taisce submit in addition to the above points as part of the closing submission that all considerations and requirements associated with the introduction of gas and associated processing requirements and the environments and working conditions created are a matter for consideration for this application.

An Taisce indicated that restrictions on discussion/questions/submission on other aspects of the Corrib Gas Field Development were imposed by the Inspector on grounds of relevance to the application.

It is An Taisce’s view that such other aspects are relevant to this application and should be considered by the Board.

18. It is contended that anomalies exist with regard to noise reading taken at Ms. Muller’s house and that these remain unexplained.
19. In regard to the CER safety permit process it is contended that until the nature of the safety permit and the potential consequences it might have on the design and operational specification of the pipeline can be ascertained, the application is premature.
20. An Taisce is concerned and directs ABP attention to the requirement of fair procedures and in particular in relation to any new information that may be introduced by SEPIL in the closing remarks that will be made on behalf of SEPIL by Mr. Keane S.C.

### **11.1.1 Inspectors Conclusions Regarding An Taisce Submission**

1. The submission is informed by observers who have separately made submissions to ABP against the proposed development.

2. The submission is argued in principle and has raised procedural issues and legal issues. All the issues raised are considered in the context of the individual chapters of this report.
3. An Taisce accepted at OH that it had not been possible for them to examine the E.I.S. in its entirety. Their examination related to the Non-Technical Summary of the project.

## 11.2 CER Prescribed Body Submission to ABP

ABP invited CER to make a submission on this application on 25/06/2010.

1. CER were invited to make a submission in anticipation of the role CER will be given in respect of upstream gas pipelines.
2. In particular CER were asked to comment on the likely procedures that will apply and the timescale for the assessment and certification of the safety of the pipeline.
3. CER were asked for any other observations they wished to make to ABP in relation to the proposed development and the safety of the pipeline.

### CER Response – 28/07/2010

#### Background

- Petroleum (Exploration and Extraction) Safety Act 2010 was passed on 03/04/2010.
- CER was given functions to regulate designated petroleum activities of petroleum undertakings with respect to safety.
- CER is required to establish and implement a risk-based Petroleum Safety Framework. This will describe activities and infrastructure that will be regulated and how these will be regulated.
- This includes activities related to each stage of the lifecycle of petroleum infrastructure (design, construction, operation, maintenance, modification and decommissioning).
- Petroleum undertakings will be required to submit a safety case covering activities and infrastructure related to those activities.
- Safety case must demonstrate to CER:
  - Activities are being carried out so as to reduce any risk to safety to ALARP.
  - Infrastructure is designed, constructed, installed, maintained, modified, operated and decommissioned so as to reduce any risk of safety to ALARP.
  - Adequate arrangements for monitoring audit, compliance reporting and safety performance reporting have been established.
- CER will publish Safety Case Guidelines. These may also set out the technical principles and specification and the applicable standards and codes for designated petroleum activities.
- Safety cases submitted will be assessed against the Safety Case Guidelines by CER.

- It will be an offence to undertake a petroleum activity without a safety permit from CER for that activity and it will be a condition of a safety permit that a petroleum undertaking must act in accordance with its approved safety case.
- CER will not issue a safety permit to a petroleum undertaker unless it is satisfied the petroleum undertaking can implement these standards and carry on its activities in such a manner as to reduce any risk to safety to ALARP.
- CER also has the function to monitor and enforce compliance and CER will put in place a system of ongoing audit and inspection under the Petroleum Safety Framework.
- CER will have enforcement powers to issue improvement notices, prohibition notices or ultimately to revoke a Safety Permit.
- The principle objective governing CER in carry out its function will be *to protect the public by fostering and encouraging safety as respects the carry on of designated activities*.

### **The Petroleum Safety Framework Implementation [PSF]**

- CER has a team managing the implementation project and specifically to manage and design the implementation of the Petroleum Safety Framework.
- CER has a strong track record in implementation and operation of safety regulatory regimes – most specifically the Natural Gas Safety Regulatory Framework under the Energy (Miscellaneous Provisions) Act 2006.
- CER is committed that all elements of the design and operation of the PSF are in accordance with best international practice.
- PSF is in initial planning and scoping phase now.
- Three distinct areas of work are involved:
  - (1) Factual report on existing regulatory standards.
  - (2) Report on a number of international regimes to determine best international practice.
  - (3) Development of a detailed plan for full implementation of the 2010 Act.

This initial phase is expected to be completed in Q4 of 2010. An open transparent consultative approach is being taken.

### **Response to the specific items raised in the ABP letter**

- (1) Procedures: As CER is involved in a consultative process it does not want to prejudice any outcome of that process therefore CER cannot be specific on the procedures that will apply to safety assessment of upstream gas pipelines. The process will involve submissions of a Safety Case to CER for assessment.  
Timeframe: The timeframe cannot be stated as this depends on agreeing interfaces with other statutory bodies with responsibilities in the petroleum regulatory environment. However, CER anticipates the framework will be in place in advance of any potential operations date for the proposed onshore upstream gas pipeline facility relating to the Corrib Gas Field Project. Given that, CER expect that the Corrib Scheme will not be able to commence operations without a safety permit from CER.

- (2) Other Observations: CER has no other observations as CER is not in a position to express any views until such time as the Petroleum Safety Framework is implemented.

### **11.2.1 Inspectors Conclusion on CER Submission to ABP**

1. DCENR in their submission to ABP and at 2009 OH had outlined the regulation system envisaged and for which legislation was pending. This is now a reality with the passing of Petroleum (Exploration and Extraction) Safety Act 2010. The CER have now taken up the implementation of this Act to regulate the designated petroleum undertakers.
2. It is clear that CER expect that Corrib Gas Field will require a safety permit before commencement of operations.

### **11.3 Submission by Inland Fisheries to ABP 26/07/2010**

- In relation to the treatment of Bentonite and Cement Grout in the Aghoos Compound any residual wastewater from the filter press should be treated in a waste water treatment plant with adequate spare capacity to deal with such additional loadings.
- Failure to implement this measure could result in an overloading of wastewater treatment plant with possible discharges of partially treated sewage raw sewage into a fisheries environment.
- Other than the above Inland Fisheries Ballina is satisfied that all other fishery concerns associated with the project have been addressed in the EIS.

### **11.3.1 Inspectors Conclusion on Submissions by Inland Fisheries Ireland to ABP**

1. It is clear that control of construction operations and in particular control of pollution from bentonite, cement grout, residual wastewater from separation unit and waste water from sewage treatment plant potential overloading are the concerns of Inland Fisheries Ireland.

## Chapter 12 **Dept. Of Communications, Energy and Natural Resources**

### **12.1 ABP Request to DCENR for submission on 25/06/2010**

1. Details of the commencement of Petroleum (Exploration and Extraction) Safety Act 2010 were requested.
2. Comments with regard to the revised pipeline route were requested.
3. The Department were also asked to provide any further submission the Department wish to make.

### **12.2 DCENR response of 28th July 2010**

DCENR through Mr. Michael Manley Assistant Secretary responded to ABP as follows:

- The Petroleum (Exploration & Extraction) Safety Act 2010 was commenced by commencement orders signed on 22/4/2010 and 23/7/2010. The Act confers responsibility on CER for the regulation of upstream petroleum activities with respect to safety. The provisions commenced relate to the enablement of CER to begin scoping and preparatory work necessary for the establishment and implementation of the safety framework.  
In anticipation of commencement of the provisions of the Act (once the preparatory phases have concluded) CER has been engaged in the following preparatory activities.
  - (a) Review of existing safety regulatory regimes pertaining to Ireland.
  - (b) Review of international regimes to identify best practice.
  - (c) Development of the detailed implementation plan for the implementation of all of the statutory requirements of the Petroleum (Exploration & Extraction) Safety Act 2010.
- A new application for consent to construct a pipeline along the modified route now proposed by the developer was lodged 31/5/2010 under Section 40 of the Gas Act 1976, and under Section 13 of the Petroleum & other minerals Development Act 1960 (relates to Petroleum lease plan of development).

#### **12.2.1 Pipeline Integrity and Pipeline Design and Safety**

- ENTEC UK Ltd have been retained by DCENR to examine (a) pipeline Integrity Management Scheme, (b) Quantified Risk Assessment, (c) Landfall Valve Installation Design overview, (d) Corrib pipeline design basis.
- ENTEC are to prepare a report which will critically examine all the documents and conclude whether or not the developer has met the relevant requirements as well as appropriate standards Codes of Practice regulations and operating procedures.
- The report should also identify deficiencies, make recommendations on such deficiencies and conclude whether or not the proposed construction and operation

meet or exceed all relevant codes and standards and show best practice with regard to safety matters and demonstrates that it meets the ALARP standard.

- The ENTEC work is ongoing but initial overview is
  - A comprehensive description of pipeline has been provided
  - Demonstration of initial safety case has been provided.
  - Tunnel filled with grout gives maximum separation between dwelling and pipeline and provides a high level of protection of pipeline from external events.
  - There are some areas which require more detailed examination.  
e.g. pressure control systems, choice of some parameters in QRA but that these are unlikely to change the conclusion that the design can meet the requirements for both risk based and prescriptive building burn distance separation of the pipeline and LVI from dwellings.
- In addition ENTEC will clarify (a) Building Proximity Distance (code based) for different types of occupied buildings and dwellings in particular. (b) Risk criteria based on risk of fatality, risk of experiencing a dangerous dose and the slight differences between the UK HSE approach and that adopted recently by the HSA.

#### 12.2.2 Environment Impact Assessment E.I.A.

The DCENR has appointed Environ to assist in E.I.A. process and to carry out a full E.I.A. The scope of the two DCENR's appraisal covers the full suite of submission documentation, including a review of the Corrib Onshore Pipeline E.I.S.

#### 12.2.3 Further Submissions/Observations – The Department

**Any further submissions/observations the Department wishes to make in respect of the revised proposal.**

- (a) Standards for high pressure untreated natural gas pipeline: DCENR requested advice from NSAI with regard to standards that apply to design and construction of high pressure untreated natural gas pipelines – In the Appendix to DCENR's submission the NSAI response is attached.
- (b) Security of supply:
  - Society and the economy operates on the assumption that supplies of heat and power are reliably available.
  - Ireland's ability to ensure reliability of supply depends on resilience and safety of gas and electricity networks and availability of gas from key sources of supply Great Britain.



- 95% of Gas demand imported from Great Britain.
- 65% of that goes to electricity generation
- Between 60% and 80% of electricity is generated by gas on any given day.
- Therefore critical interdependence between gas and electricity.
- Disruption of UK gas imports would have extremely serious social and economic consequences.
- UK outlook is that National Grid UK imports will be 49% of gas demand in 2011 and 69% of gas demand in 2018/2019.
- Norwegian and indigenous production across Europe is set to decline EU Imports dependency is set to rise to 80% by 2020.
- As a result UK and Ireland's exposure to volatile global gas market is increased
- 2009 Russia – Ukraine gas crisis serves as a wake-up call and identifies the changing position of the insulation previously afforded by UK North Sea Gas Stocks (now decreasing).

**In light of these factors the diversification of Ireland's gas supply is key to achieving strategic Government objectives of strengthening the security of our own energy supply. Therefore Corrib coming onstream and encouragement of future exploration provides unparalleled opportunity to improve security of supply and our economy.**

- DCENR statutory consultation period for Section 40 and Section 13 process will conclude on 30/7/2010.

In the Appendix to DCENR submission the NSAI have provided details and explanatory notes on the standards for the Design & Construction of high pressure untreated natural gas pipelines.

- EN 14161, PD8010, IS328 are specifically references and described in some detail.

### **12.3 DCENR Submission to Oral Hearing**

In a written Submission [DRN 31 refers] the DCENR put on record the points made in their written submission to ABP of 28/7/2010.

The following additional points were made in that written submission [DRN OH 31].

Point 9. By order 23/7/2010 Section 13k of the Petroleum (Exploration and Extraction) Safety Act was commenced. That section provides as a general duty of petroleum undertakings to ensure activities they carry out and the infrastructure they construct is done as to reduce the risk to safety to ALARP.

Point 11. In the event that the Minister grants consent to the applicant pursuant to Section 40, and because CER requires a period of time to implement the safety framework, that the DCENR (refer also closing statement 24/6/2009) will be responsible for safety of the pipeline.

Point 16. The DCENR Petroleum Affairs Technical Division will carry out the assessment in-house in terms of the engineering fitness for purpose to ensure the infrastructure can deliver the volumes of gas for the lifetime of the project.

Point 21. The CER will be obliged where it considers it appropriate to designate by regulation any petroleum activity. The CER will be advised by NSAI with regard to the relevant standards and codes of practice for designated activities.

A petroleum Exploration and Extraction Standards Committee is to be established as a technical consultative committee to the NSAI under Section 10 of the NSAI Act 1996.

The Department Submission to the OH included as an attachment a statement by Mr. Peter Waite Technical Director at ENTEC UK Ltd.

Mr. Waite's statement outlines the statutory assessment of pipeline Design re the application to construct a pipeline under Section 40 of Gas Act 1976.

That statement, Mr. Waite's closing statement at OH, and Mr. Waite's contribution at the OH where he responded to a long series of questions by the Inspector, Mr. Wright and observers has been considered in Chapters 27 – 30 of this report.

#### **12.4 DCENR submission to OH on Environment.**

The Department submission to the OH included as an attachment a statement by Mr. Jonathan Hancox Manager with Environ an environmental consultancy assisting DCENR with the statutory assessment of the E.I.S. for the application to construct the Corrib Gas Pipeline as submitted under Section 40 of the Gas Act 1976.

This statement and Mr. Hancox's closing statement to the OH and Mr. Hancox's contribution at the OH where he answered questions from the Inspector, Mr. O Sullivan and observers has been considered in the Chapters 38 Natural Environment and Chapter 39 Habitats Directive Assessment of this report.

##### **12.4.1 DCENR Questions and Answers at OH**

DCENR, Mr. Waite, Mr. Hancox and Mr. Keane of Keane Offshore Integrity (KOIL) responded to questions raised by the Inspector, by Mr. Wright and by observers at the OH.

Note from 2009 Report: KOIL is contracted to DCENR to carry out independent engineering verification of the Corrib Gas Field Development. This will include Health and Safety verification of design, construction, installation commissioning and maintenance of the production facilities.

#### **12.5 DCENR Closing Statement (DRN OH 174)**

1. The pipeline should the Minister approve the Section 40 application would be subject to procedures outlined by DCENR at 2009 OH.
2. The pipeline would also come under CER regulatory framework in respect of the risk assessment, safety case and safety permit and auditing and monitoring regime as set down in the 2010 Act.
3. The Environmental Monitoring Group (EMG) established under condition 13 of the 2002 consent is chaired by DCENR, includes representatives of a number of public

- bodies, Mayo County Council, local fishing representatives, community representatives and representatives of the developer.
4. EMG minutes are published on DCENR website once they are agreed.
  5. An Environmental Management Plan (EMP) is required to be submitted to DCENR by the developer under condition 11 of the 2002 Consent for approval prior to commencement of the works. The EMG is consulted as part of the Minister's assessment of the EMP.
  6. DCENR appointed an independent ecologist who inspected the works and reported weekly and the reports were available to EMG and published on DCENR website. The ecologist reported on compliance with the consent conditions.
  7. In the event that the Minister is satisfied that he could approve the Section 40 application similar control measures would be considered i.e. EMG and EMP and ecological monitoring of the conditions of consent.
  8. DNV-OS-F101: DCENR has been informed by NSAI that while DNV-OS-F101 was not specifically referenced in their document it has been included as a reference in PD 8010 – 2. The fact that NSAI in not referencing DNV-OS-F101, should not be taken as any comment by NSAI on the value of the document.
  9. Physical Security of Energy Installations  
The onus for the physical protection of the infrastructure is the responsibility of the developer in the first instance and this is underpinned by the state security services.
  10. Energy Security of Supply
    - 10.1 Gas because of its relative cleanness and its flexibility make it the most suitable interim fuel (pending development of new renewable technologies) for electricity generation in Ireland and across Europe.
    - 10.2 CER has stated [2010 Gas Capacity Statement] that Corrib Gas could provide 72.9% of Ireland's annual gas demand in 2012/2013. This would reduce to 53% within 6 years.
    - 10.3 Neither of the interconnectors between Scotland and Ireland are engineered for reverse flow.
  11. Appropriate Assessment of future Natural Gas Development  
The position is that in the event of a commercial discovery being made in the future, the plan of development to be submitted to the Minister for that project would be Subject to E.I.A. and would include a public consultation phase.
  12. Issues raised concerning Section 40 process and its interaction with ABP's process. Re An Taisce assertion that existing Section 40 legality had implications for ABP process.
    - (1) DCENR is of opinion that 2002 consent is a valid consent.
    - (2) The 2002 E.I.S. described the approach to be taken for excavation of the clay cliff and beach at Dooncarton.
    - (3) The 2002 E.I.S. was subject of a full public consultation process as required by Gas Acts and by the EIA Directive.  
The E.I.S. was also assessed by the Marine Licencing Vetting Committee (MLVC) which was appointed by the minister to assist in the environmental implications of the Corrib Gas Field Development. The MLVC found that works

could proceed subject to the submission by the applicant and approval by the Minister of detailed method statements outlining methodologies for the onshore section of pipeline. Such statements were submitted and were approved by the Minister prior to commencement of works in 2002, 2005, 2008, 2009.

- (4) DCENR refers to An Taisce submission on the issue of exemption (related to offshore pipe laid at landfall Glengad). DCENR bring the Boards attention to S.I.256 of 2008 which amended Article 9 of the 2001 Planning and Development Regulations which DCENR consider may be of assistance to the Board in its consideration of the issue.

### **12.6 DCENR Conclusion Contained in Closing Submission**

In relation to the Section 40 application DCENR have sought additional information from the applicant. In the event that it is determined that this information could have a potential impact on the environment the Minister may require further advertisement and invite submissions from the public. DCENR consider it would not be unreasonable to expect the DCENR's public consultation to be reopened.

### **12.7 Closing Statements by Environ and ENTEC**

The DCENR's submission was accompanied by a closing statement from Environ the environmental consultancy advising DCENR on the E.I.S. The DCENR's Submission was also accompanied by closing statement from ENTEC the consultancy advising DCENR in relation to pipeline integrity, the pipeline design and safety.

These detail statements on Environment and on Pipeline Design & Safety are discussed and considered on an issue by issue basis. Refer to Chapter 27-30 Pipeline Safety and Design and Chapters 38 and 39 Natural Environment and Habitats Directive.

### **12.8 Inspectors Conclusions on DCENR's Submissions**

1. DCENR participated in the ABP consultation phase in a very comprehensive manner.
2. DCENR, who are engaged in a separate process related to the Section 40 Gas Act 1976 and Section 13 Petroleum Act 1960 Application, shared with ABP in a very open way the expertise and the information being considered by the consultants to DCENR i.e. Environ and ENTEC. I welcomed this and from my point of view DCENR have provided highly significant submissions to the ABP process.
3. DCENR and their consultants participated extensively in the OH and answered questions put to them on many technical and procedural issues which informed the ABP process.
4. It is my belief that the observers who put a lot of questions to DCENR, found the participation of DCENR beneficial and observers derived a lot of information regarding aspects of the Corrib Gas Field Development from the DCENR answers.
5. The applicant provided the OH with a copy of response to DCENR further information request which is very useful to ABP now in consideration of these applications.

6. The conclusions set out in Chapter 12 of the 2009 Inspectors Report are still valid but events have moved forward since then.
7. DCENR has not yet concluded the process of assessing the Section 40 Application and the Section 13 Application now before the Minister for consideration. These are parallel process applications to the applications before ABP.
8. It would not be unreasonable to expect that the Ministers public consultation on the Section 40 and Section 13 applications may be re-opened.
9. The safety framework being developed by CER will be (most likely) used to regulate the safety of the Corrib onshore pipeline.
10. In the event that CER Safety Framework is not ready then DCENR will itself regulate the safety of the Corrib onshore pipeline in the manner set out for the ABP in the 2009 submission:

*“In the event that the Minister grants consent to the applicant pursuant to Section 40, and because CER requires a period of time to implement the safety framework, that the DCENR will be responsible for safety of the pipeline.”*

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## Chapter 13 DEHLG, NPWS and DAFF Submissions

### 13.1 DEHLG Submission 28/07/2010 to ABP

The Department of Environment, Heritage and Local Government made a submission to ABP which included sections regarding Archaeology, the Foreshore, Natural Environment. The following summarises the submission:

### 13.2 Archaeology

- Given the scale of the development it is possible that subsurface Archaeological Remains could be encountered during construction
- DEHLG National Monuments Section recommend that Monitoring be carried out at this site and included as a condition of any permission that may issue  
Archeological Monitoring shall consist of the following:
  - Applicant shall engage the services of a suitably qualified Archaeologist
  - The Archaeologist should monitor ground disturbance works associated with the development
  - This should include all areas outlined in the EIS. The mitigation measures outlined in Table 16.7 should be implemented in full
  - 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 Heritage and Planning Division 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

#### 13.2.1 DEHLG Recommendations on Archaeology

The Planning Authority and the Heritage Division shall be furnished with a Report on the results of the monitoring. Reason: To ensure the continued preservation (either in situ or by record) of places, caves, sites, features or other objects of archaeological interest.

#### 13.2.2 An archaeologist should:

- i Perform pre-construction centre line testing
- ii Be present for all sub-surface work
- iii Monitor areas which have not been tested during construction
- iv Notify DEHLG four weeks prior to commencement of site preparations
- v Having completed the work, submit a report to the planning authority and to the Heritage & Planning Division

In sensitive areas permission from NPWS will be required.



- **Probing** should be carried out pre-construction in areas identified in such report.
- **Palaeoenvironmental analysis** should be performed pre-construction.
- **Mitigation** as per Chap. 16, table 16.7 of E.I.S.
- Where **Archaeological material** is found the Heritage & Planning Division will advise the applicant with regard to preservation, either in situ or by record.
- **No works can begin until** the archaeologists report has been submitted and permission to proceed has been issued by the Planning Authority in consultation with NPWS

### 13.3 Nature Conservation

- **SPA** The areas that are within the current SPA (as per SI 31 of 1995) and the areas that are proposed for inclusion in the pSPA were considered to be part of the SPA when assessing the impacts of the proposed works. SI 31 designated the SPA for wetland waterbirds and breeding terns.
- **Sruth Fada Conn** is part of Blacksod /Broadhaven Bay SPA (4037) this area is to be designated in the near future accompanied by a detailed list of the special conservation interests for this wetland site. The wetland habitat and the waterbirds that utilize the resource are to be listed as a special conservation interest for this site. Bird Species are indentified that have a special conservation interest for the site as follows: Sandwich Tern, Ringed Plover, Bar-tailed Godwit, Great Northern Diver, Common Scoter, Red Breasted Merganser, Dunlin, Turnstone, Light Bellied Brent Geese.
- The submission identifies the alternate methods considered for construction in the Bay and indicates that from an SPA management perspective the tunnel represents the preferred option because no open cut trench work is involved and no intervention pits envisaged though the possibility of intervention pit is noted.

#### 13.3.1 Impacts Sruth Fada Conn

The potential impacts of the proposed development are identified as:

- **Habitat Loss or degradation and disturbance** caused by personnel and machinery in the SPA if an intervention pit is required
- The open cut trench across the Leenamore River in particular can negatively impact on the saltmarsh as well as displacing feeding or roosting birds in the vicinity
- The two compounds although outside the SPA can disturb and displace both feeding and roosting birds in the vicinity of both locations (lighting noise human and machinery activity)
- Intertidal area feeding resource of waterbirds can be impacted through vibrations and sediments emanating from the tunnel boring machine (ringed plover in particular)
- It is considered that the mitigation measures contained in the EIS must be implemented in full.
- Works on Leenamore River Estuary Crossing should be carried out in as short a time as possible.
- In summary it is the considered opinion of the Department that the potential impacts are unlikely to have a significant impact on the species of conservation interest or their habitat for this SPA if the recommended measures (below) are implemented.

### 13.4 Marine

- The proposed works beneath Sruth Fada Conn Bay are unlikely to significantly alter the value of the designated area.

- It is considered that the introduction of noise from a Tunnel Boring Machine is very unlikely to produce a measureable alteration in the usage or disturbance by marine mammals of Sruth Fada Conn Bay because of a very low utilization by these species and the nature of the sounds to be produced.
- The transmission of sound sources to the open sea are unlikely to occur at a registerable level to marine mammals.
- There is a comment regarding the use of the EMP for assessment of measures required to be applied in relation to the potential pollution although the scope of works currently proposed does not point to a likely interaction (intervention pit unlikely).
- In summary the proposed works are unlikely to have a significant impact on marine habitat or marine mammals.

### 13.5 Terrestrial and Freshwater

- The Department is satisfied that the proposed works will not have a significant impact on terrestrial or freshwater habitats or species if all mitigation outlined in the EIS are carried out and no blasting of rock is carried out in the rock excavation at Glengad.

### 13.6 Conclusion

It is the Department's view that the development as proposed is unlikely to be significant and therefore unlikely to have an adverse impact on the integrity of either the SPA or SAC provided the mitigation measures outlined in the proposal and as stated below are implemented.

### 13.7 Mitigation Measures

- Area of habitat disturbed to be kept to a minimum
- Construction period to be as short as possible but designed so as to have minimum impact on the conservation interests of the site
- The surface sediments shall be reinstated to their original condition if impacted in Sruth Fada Conn Bay
- All significant scour areas shall be filled in should they occur to preserve the current hydrodynamic regime in the estuary
- All bentonite usage to be monitored by mass balance pressure monitoring of the lines and above ground visual assessment of the works any leaks to be reported to DEHLG
- All mitigation measures as outlined in EIS to be implemented for terrestrial and freshwater habitats and species.

#### 13.7.1 Specific Measures

- Intervention Pit:** In the event of an intervention pit being required in the SPA then mitigation as proposed in the EIS shall be implemented in full and the NPWS shall be notified in advance of construction disturbance in the Natura 2000 sites to be minimized and potential noise impacts must be fully evaluated and mitigated to minimize impact on marine mammals
- Habitat Reinstatement:** To minimize the potential disturbance to waterbirds, the Leenamore

- crossing should be completed in as short a time as possible and the habitat reinstatement measures in section 6.2.1.4 must be implemented in full.
- iii. **Site Compounds:** Mitigation as per section 6.4 (minimize disturbance) must be implemented in full including acoustic screening and implementation of a lighting regime that minimizes intensity and extent of light into the SPA.
  - iv. Only the nominated entry exit points shall be used away from the seashore and activity outside the compounds during tunnelling works must be kept to a minimum.
  - v. **Tunnel Boring Machine:** Mitigation measures in Section 14.5 must be fully implemented.
  - vi. **Rock Breaking at Glengad:** No blasting to occur as a method of rock breaking.
  - vii. **Environmental Management Plan:** The EMP should be circulated to the DEHLG for comment.

## 13.8 Foreshore

- The key change in the modified development is the tunnel under Sruth Fada Conn
- Construction of the tunnel proposed is not likely to have direct significant negative impacts on the Foreshore

### 13.8.1 Recommendations Regarding Foreshore

- Should an intervention pit be required it is recommended that a condition of any permission for the development should be to agree timing and methodology to be used for the intervention pit with NPWS, Inland Fisheries Ireland, and relevant regulatory authorities prior to commencement of works to ensure that impacts on passage of migratory fish and relevant qualifying interests of designated Natura 2000 sites in the areas are minimized.
- Liaison with these Agencies should continue throughout the construction period.
- The Leenamore open cut crossing should be discussed with NPWS and Inland Fisheries with regard to proposed construction methodologies prior to commencement of construction.
- The recommendations are submitted without prejudice to the outcome of the Separate Foreshore Licence Application process and are for the purposes of meeting the Department's obligations under the Planning and Development Acts.

## 13.9 Department of Agriculture Fisheries and Food Submissions

Construction of the tunnel as now proposed is not likely to have direct significant negative impact on the licensed aquaculture sites or any specific inshore fishing activities that may occur in Sruth Fada Conn.

In the event that an intervention becomes required in close proximity to the licensed aquaculture sites the works should only be conducted following consultation with the license holder.

There are two aquaculture sites licensed for cultivation of oysters in the Sruth Fada Conn Bay using bags and trestles. The license holder should be contacted prior to the commencement of any works taking place in close proximity to the licensed area.

These works may result in suspended sediment occurring in the water which can have an adverse effect on aquaculture. Accordingly sufficient suspended solids monitoring should be conducted during the construction period.

## 13.10 Inspectors Conclusions

1. Overall it is clear that the DEHLG consider that the development will not be significant and will not have an adverse impact on the integrity of the pSPA and cSAC.  
Inspector's Note: This contrasts with the DEHLG (NPWS) concerns regarding the 2009 route which impacted on the cSAC Blanket Bog at Rosspoint Common.
2. DEHLG have recommended conditions regarding archaeology and how the proposed development is controlled and monitored for attachment in the event that ABP decide to approve these applications.
3. It is also clear that there are two issues that do concern DEHLG:
  - (a) Implementation of mitigation measures;
  - (b) Intervention Pit. In the event that an intervention pit becomes necessary that proper and timely procedures are followed to minimize any impacts that will arise from such intervention pit.
4. In my view these concerns of DEHLG can be fully reflected by the attachment of appropriate conditions in the event that ABP decide to approve these applications.
5. The DAFF have a concern that the proposed works in the event that an intervention pit be required, may impact the licenced shell fish activity. In my view these concerns can be reflected in an appropriate condition which can be attached in the event that ABP decide to approve these applications.

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## Chapter 14 **Environment Protection Agency and Health and Safety Authority**

### **14.1 ABP Request to EPA for Submission 25/06/2010**

The EPA were requested to comment on the revised modified proposed development and to make any additional comments that they wished to make.

### **14.2 EPA response to ABP**

- An IPPC Licence was granted to SEPIL for the operation of a gas refinery at Bellanaboy Bridge Terminal on 12<sup>th</sup> November 2007 (Register No P 0738-01)
- An Application for a review of that Licence is currently being processed by the Agency and a proposed decision was issued on 04-08-2010 (Register No 0738-02)
- One of the issues is the proposed change in the discharge point for treated water from just outside Broadhaven Bay to a new location at the Corrib Gas Field 65Km offshore at 350m depth via spare cores in the control umbilical to the subsea manifold.
- The Agency outlined those matters which have a direct bearing on whether a licence can be issued and those matters which restrict the Agency from issue of a licence.
- The Agency should it decide to grant a licence in respect of the activity as proposed, will incorporate conditions that will ensure that appropriate National and EU standards are applied and that Best Available Technology will be used in carrying on of the activities.

### **14.3 Observers Submission to ABP re EPA**

Observers sought both in submissions to ABP and in further oral submissions at OH to raise consideration of aspects of the terminal proposed and other aspects of emissions and licences that were properly matters for review with EPA who have the responsibility to examine and licence such matters.

### **14.4 Inspectors Conclusions**

1. A ruling was given at OH that only those matters related to the onshore pipeline as proposed in the modified E.I.S. and all matters relevant to same could be considered. In my view that ruling was correct and was not unreasonable.
2. I am satisfied that all matters related to the proposed development were considered at OH. In particular, matters relating to the impacts on the environment of both construction phase and operation phase of the development were considered. In addition, the potential for unplanned events-loss of integrity of the pipeline, loss of integrity of umbilicals, service cables and outfall pipe were also considered, as was the possibility of an intervention pit being required in the Bay.

## 14.5 Health and Safety Authority

The role of the HSA in relation to this development was considered in the 2009 report. The proposed modified development as now being considered has not changed matters and the conclusions from the 2009 report are still valid and conclusion (4) and (5) are repeated below from that report

### 14.5.1 2009 Conclusions Repeated

- It is very clear that HSA does not have a remit to provide advice to the Board in respect of the gas pipeline.
- In relation to the points raised by the observers relative to the HSA, I am satisfied that the issues were raised, that they were considered at OH and that this report which includes a detailed report from Mr. Nigel Wright, Gas Pipeline Consultant, together with the information presented by SEPIL in the E.I.S. 2009, and in supplementary information given to the OH, all that plus the submissions by the observers provides me with sufficient information and provides ABP with sufficient information to enable the Board to take a decision in respect of the proposed development.

### 14.5.2 Inspectors Conclusions 2010

1. I am satisfied that sufficient information is available to me and to ABP to enable a decision in respect of the Health and Safety aspects of the proposed development. These aspects and my recommendations to the Board are contained in Chapter 30 of this report.

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## Chapter 15 Observers Submissions at OH

These submissions have been summarised below. Inevitably there is overlap with the written submissions made by observers at ABP. That can't be helped.

The submissions are summarised on an individual by individual basis.

<b><u>Summary of OH and Closing Submission by Anthony Brogan (T. Conway &amp; Others Written Submission 43)</u></b>
<b><u>Point Made</u></b>
<ul style="list-style-type: none"> <li>Mr. Brogan disputes the applicant's statements that the Corrib Project will have lasting benefit for the local community. The point made is that the project is not sustainable particularly because Tourism will be affected in a negative and significant way by the Project as has been demonstrating by evidence from local people regarding the negative and intimidating atmosphere in the area.</li> </ul>
<ul style="list-style-type: none"> <li>Tourism – this project has either directly or indirectly has had a negative effect on tourist's perception of the area and as a result has affected further tourism development in the area.</li> </ul>
<ul style="list-style-type: none"> <li>Asks the Board to disregard point 9.2 in Mr. T. Johnsons BOE concerning ground conditions of Sruth Fada Conn Bay. Data is incomplete and any scientific analysis of such data would be insignificant on such a low sample size.</li> </ul>
<ul style="list-style-type: none"> <li>Asks the Board to disregard point 5 on page 1 of Dr. Niall Brady's BOE on underwater archaeology as survey and data is incomplete at this time.</li> </ul>
<ul style="list-style-type: none"> <li>With regards to Landscape and Visual BOE by Mr. R Holbeach, it is argued that the applicant appears to have assigned their own Landscape character area to the site, this is in conflict with the landscape appraisal of Co. Mayo the Statutory Authority. The point made is that Mayo County Council landscape characterisation is the only relevant landscape characterisation to the proposed development.</li> <li>It is indicated to the Board that the project is in conflict with Mayo County Council Policy on Landscape preservation. Mayo Co Dev Plan has indicated that Industrial Development in this type of landscape has high impact landscape potential and with medium flexibility as to location or route (i.e. limited room for alternatives within that landscape).</li> </ul>
<ul style="list-style-type: none"> <li>Terrestrial Ecology. Mr. Brogan feels the applicant's expert on the subject is not sufficiently qualified /experienced in this particular area. She has limited experience in Fauna assessment.</li> </ul>
<ul style="list-style-type: none"> <li>Takes issue with Ms. J Neff's conclusions on Machair habitat in the Glenamoy Bog candidate SAC. She says that no Machair habitat exists in the Glengad area. This contradicts the National Parks and Wildlife Service who it is contended have designated that Sruth Fada Conn Bay contains extensive areas of Machair. It is NPWS alone that can make the determination and if Ms. Neff wishes to refute that Machair is contained on the site she must produce scientific evidence to substantiate that.</li> </ul>
<ul style="list-style-type: none"> <li>Cetaceans Whales Dolphins are not given due regard, in the EIS.</li> <li>Dolphins Issue: The EIS understates the use of the Bay by Dolphins- reference to recent sighting 15-08-2010. A video was shown to the OH. Mr. Brogan argues that video shows Shell personnel clearly disturbing dolphins in the Bay. Video not submitted to OH and relevance of issue questioned by Inspector. Interpretation of Video used by An Taisce later in their presentation. An Alternative interpretation later presented by SEPIL with diagrams and SEPIL contend that Mr. Brogan's</li> </ul>

<p>interpretation of Video is misleading and misrepresents the facts. Dolphins are a species that must be protected in designated sites.</p> <ul style="list-style-type: none"> <li>• SI 94 of 1997 prohibits the deliberate disturbance of these species (dolphins). Points made Keep distance 100m from mammals, no speed greater than 5 knots, boats should not alter course within 100m of mammals, contention these codes of conduct not adhered to in the incident.</li> <li>• Mr. Brogan stated that SEPIL had commissioned a marine mammal survey in Sept 2005 and collaborated with NPWS that this was not included in the EIS and that the 2010 EIS was incomprehensive in relation to marine mammals. There are recommendations from that report that should be taken into account by ABP.</li> <li>• Marine mammals legislation also protects all cetaceans designated as Annex IV species there are five species known to frequent these including common and bottle nose dolphin harbour porpoise grey seal European otter in Irish waters. The designation of Broadhaven Bay includes 14 marine coastal habitat types including saltmarsh, tidal mudflat, reefs, large shallow bays, and marine communities and species including cetaceans.</li> </ul>
<ul style="list-style-type: none"> <li>• Mr. Brogan believes that there are alternative solutions available to this project and the imperative reasons of overriding public interest as a justification for the project have been questioned by submissions.</li> <li>• Mr. Brogan concludes that the 2008 Survey by CMR.C of Marine Mammals in Broadhaven Bay reaffirms that the Broadhaven Bay SAC and its adjacent coastal waters are an important and significant ecological habitat for marine mammals.</li> <li>• It has been recorded that the number of distinct marine mammal sightings within the Bay between 2002 and 2008 has fallen significantly and it is questioned as to why this has not been dealt with in more detail in the EIS?</li> </ul>
<ul style="list-style-type: none"> <li>• Referring to EU Court judgement 183/05 where Ireland was found in breach of Habitat Protection Directive 92/43/EEC, the Court concluded that Irish procedure did not prevent certain developments which may be harmful to the environment. The Commission refers, in particular, to the breeding sites and resting places of cetaceans ( and the project for the construction of a gas pipeline in Broadhaven Bay).</li> </ul>
<ul style="list-style-type: none"> <li>• It is submitted that while CMR.C have recommended the inclusion of the available dataset relating to potential construction related impacts on cetaceans in the Bay, the applicant have not done so in the modified EIS before the Board and the absence of its consideration remains a glaring omission from an EIS dealing with the likely significant impacts on the SAC and adjacent waters.</li> </ul>
<ul style="list-style-type: none"> <li>• It is submitted that while MMO's (Marine Mammal Observers) have been active in this area, vessel operators are not fully aware of such responsibilities as referred to by CMR.C, and this is evidenced by both the potential breach of the SEPIL vessel code of conduct reported by Mr. Brogan on 15/08/2010 and that reported by CMR.C itself in the EMG report in 2009.</li> </ul>
<ul style="list-style-type: none"> <li>• The submission disagrees with the applicants witness on Marine Ecology (Mr. Wilson) when he put it that Sruth Fada Conn Bay was an unsuitable habitat for cetaceans due to shallow water depth and high level of ambient noise. Local residents say sightings of such species are relatively common in the area. It is considered that insufficient survey data on Sruth Fada Conn has been assembled and that the EIS is deficient in that regard.</li> </ul>
<ul style="list-style-type: none"> <li>• In relation to SAC's, in May 2007 the European Commission advanced a series of indicative (yet not binding) guidelines for the establishment of the Natura 2000 Network in the Marine Environment. The guidelines explicitly noted oil and gas exploration activities as an example of a typical source of</li> </ul>

<p>disturbance to cetaceans in the marine environment. Argument is put forward that The Marine Strategy Framework Directive 2008/56/EC recognises acoustic impacts and disturbance on marine mammals by noise from shipping and underwater acoustic equipment and that the maintenance of a “good environment status in the marine environment requires that underwater noise be addressed.</p>
<ul style="list-style-type: none"> <li>• There is scope for Member State Authorities to permit noise producing activities within SACs for small cetaceans where there are “imperative reasons of overriding public interest, including those of a social or economic nature” (Article 6(4) of the directive). Such imperative reasons have not been proven as yet for this application currently before the Board, nor had they been proven for the extent of completed offshore works for which Ireland was found guilty in a European Court of Justice (Case C183/05).</li> </ul>
<ul style="list-style-type: none"> <li>• There is a considerable bank of scientific evidence available on the potential impact of marine noise on cetaceans, regarded by many as perhaps the main threat to such marine mammals with highly sensitive acoustical capabilities. This high level of research and the general availability of it, would lead me to question the apparent superficial nature of its consideration by the applicant in the current revised EIS before the Board.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>At Planning Stage.</b> A full and transparent Environmental Impact Assessment is, at present, the most effective way to reduce the impacts of intense noise pollution on marine species. It is the submissions view that this has not been complied with by the applicant.</li> </ul>
<ul style="list-style-type: none"> <li>• Full and transparent environmental assessments should be developed that should aim to identify areas to be avoided (e.g. marine protected areas, feeding or breeding grounds) and/or environmentally preferred exercise or seismic survey sites. Exercises or surveys should be planned so as to avoid key marine mammal habitats and areas of high marine mammal density.</li> <li>• A range of measures including mitigation measures relating to works in the marine environment are presented.</li> <li>• Concern is expressed regarding any piling that may be required or any seismic surveying that may be required and the specific acoustic impacts of same.</li> </ul>
<ul style="list-style-type: none"> <li>• The Applicant confirmed that if a Dolphin approached while work was under way, the work would not be halted. This goes against the mitigation measures for the protection of marine mammals during acoustic seafloor surveys in Irish waters, as outlined in an NPWS publication in 2007.</li> </ul>
<ul style="list-style-type: none"> <li>• Ireland and the Erris region of the North West Coast have considerable potential for <b>Ecotourism</b> namely Whale and Dolphin Watching. It is submitted that development of such marine based Ecotourism in this area would represent a much more sustainable form of development, than the short term onshore exploitation of a limited gas resource with an expected productive lifespan of 15-20 years.</li> </ul>
<ul style="list-style-type: none"> <li>• Applicant Conclusions on <b>Machair</b>. It is contended that SEPIL is incorrect in asserting that Machair does not exist as a habitat at Glengad site.</li> <li>• It is evident that the Glengad dune grassland site agrees with only one of the characteristics listed for Machair in its location in an area with a moist cool, oceanic climate. This I submit is factually incorrect and represents a gross misinterpretation of the 5 main factors outlined by vegetation ecologists to describe Machair.</li> </ul>
<ul style="list-style-type: none"> <li>• While the applicant has claimed that the Glengad site conforms to only one of the defining criteria of Machair, I submit that the only factor with which it is not consistent is the siliceous content of the soil, and the relatively low level of calcium carbonate/shell derived sands. This however would need to be investigated further to determine whether the extent of applicant works at the site to date could have removed the uppermost layers of calcium rich sediments and introduced siliceous soils for example in the</li> </ul>

<p>construction of causeways. It is contended that the Habitat at Glengad has 1. A mature coastal sandy plain more or less level in surface 2. Composed of grassed vegetation few sand binding species and PH of 6.8-7.04 close to the mean 7.79 reported by the applicant for Machair 3. Grazing is a common feature of the site. 4. A moist cool oceanic climate.</p>
<ul style="list-style-type: none"> <li>• It should be noted by the Board that the applicant in June 2008 finally sought to confirm the absence of Machair on the Glengad headland in telephone conversations between the applicant project ecologist and the NPWS. This correspondence was thus in the form of personal communication only and in the absence of a written confirmation from the NPWS cannot be relied upon in order to inform the Boards opinion on this matter.</li> </ul>
<ul style="list-style-type: none"> <li>• With reference to - E.C.J. judgement Case 183/05 – Authorisation of a project without derogation i.e. laying of a pipeline in Broadhaven Bay. If adverse effects are likely, or in cases of doubt, the derogation steps of Article 6(4) will apply, but only in a case in which there are imperative reasons of overriding public interest (IROPI) requiring a project to proceed, there are no less damaging alternative solutions, and compensatory measures have been identified that can be put in place. The IROPI test is more rigorous and restrictive in relation to adverse effects on Annex I priority habitats and species. (Of which both occur in the application before the board).</li> </ul>
<ul style="list-style-type: none"> <li>• 3.5. Stage 4 – Imperative Reasons of Overriding Public Interest (IROPI). The application currently before the Board in fact presents considerable risk to human and public safety, from a high pressure untreated gas pipeline installation and cannot conceivably be regarded as having consequences of primary importance to the Environment.</li> </ul>
<ul style="list-style-type: none"> <li>• Short term economic interests (15-20 yr Gas supply) or other interests that yield only short term benefits for society (e.g. short term direct/indirect employment) are very unlikely to be of sufficient weight to outweigh the long term conservation interests protected by the Directive.</li> </ul>
<ul style="list-style-type: none"> <li>• If imperative reasons of overriding public interest do not exist (and it is my contention that in this case they do not) a plan cannot be adopted nor can planning permission be granted by any competent authority for a project.</li> </ul>
<ul style="list-style-type: none"> <li>• It is contended that the EIS has selective use of scientific data –regarding (1) status of Annex 1 Machair habitat at Glengad and (2) at best poor assessment of the likely significant effects on marine mammals Annex IV protected species.</li> </ul>

<b><u>Summary of Oral Hearing Submission by Belmullet GAA Club, John Gallagher (Submission 22)</u></b>
<b><u>Point Made</u></b>
<ul style="list-style-type: none"> <li>• John Gallaher speaking on behalf of his wife and the employees of his business, and also on behalf of Belmullet GAA Club.</li> <li>• Belmullet GAA’s decision to support the Corrib project has been discussed at club meetings over the past four years and has received unanimous backing and support at all times.</li> <li>• The club has received funding from Shell under the Corrib Natural Gas Erris Development Fund, not one parent has questioned our acceptance of the funding from Shell or our support for the project.</li> <li>• Some people may think that Shell have tried to buy our support through the funding we have received. This has never been the case. The Corrib fund was set up at a time when our plans were already being developed and, while we benefitted from the fund, we secured more than three-quarters of the funding from other sources – including local fundraising.</li> <li>• It is worth stating that the processes that have to be followed to get funding from Shell are stringent. If</li> </ul>

- Shell were interested only in buying support, I doubt if they would bother with such lengthy processes.
- We also received sponsorship from Shell towards the hosting of Comórtas Peile na nGaeltachta this year. Not only did Shell provide sponsorship, but their staff turned out in force to support it and work in its organisation and throughout the weekend itself.
  - Since the fund was officially launched in January 2009, there have been 60 applications for funding, while last year alone there were 123 applications to the Local Grants Programme, which provides smaller amounts of funding for non-capital projects. This shows the sea-change in attitude towards the project in recent years.
  - Shell now employs more community liaison officers and the level of communication with local people is far better. It is also recognised that Shell has shown a great willingness to address concerns that have been raised, both in expert reports and also by the community. And in this latest application they appear to have done their best to address the concerns of ABP.
  - The local employment that has been created by the project has made people aware of the economic benefits it brings. It has also given a huge number of people in the community firsthand experience of working for Shell or for contractors employed by Shell. This has given them an understanding of the high standards that Shell applies in their work and that has made them feel confident about the project and its safety.
- Promoting our national games and language is the aim of the GAA, which is now a worldwide organisation. Its roots are local though, and will always remain local, and that means that clubs try to keep families together in their local area. That is what we, in Belmullet GAA, try to do and in recent years these efforts have been helped by the Corrib project.
  - Those I speak for and it is a significant number, support the Corrib project and want to see it completed. We, in Belmullet GAA Club, care about ERIS just as much as those who object to the project. We respect its tradition and its heritage but we also recognise that progress is necessary for its future. And progress is not always bad.

### **Summary of Oral Hearing Submission by Betty Schult Submission 27**

#### **Point Made**

- We are privileged to have lived here for more than 30 years and as a family we have provided guest accommodation dedicated to sustainable, environmentally sensitive tourism for the past 30 years.
  - When I view the Traffic Management Plan and Mr. Noonan's report to this hearing I see that it deals with road conditions, traffic figures, road surfaces details, even driver training and mitigation measures! Evidently a lot of work went into this and still I find it a very incomplete and meaningless document. Only very marginally are the needs of other road users mentioned.
  - In the Traffic Management Plan it is claimed that earlier haulage in connection with the construction of the pipeline has been successful and that the experience gained from it has been built on. I want to contest that.
  - Life during those months of construction traffic has been nothing but chaos, danger and disruption for us. It is stated that any impact would only be temporary but does that mean it can be ignored?
- There was never a proper and consistent plan for the so-called upgrading works and they were never finished. It is geographically impossible to widen this road (L1202) sufficiently.
  - There is an amazing variety of flora and fauna along the roadside all year round, including some protected species, the habitats of which would be seriously endangered.



- It is good to see that funerals and community events might be accommodated, but what about everyday life?
- I do not believe that the mitigation measures listed in the Transport Management Plan will provide any change because there is still nobody but the developer itself to turn to. There is no trust, no good will and we have no common values.
- At this stage no one can claim to know the amount and time of the work or its exact procedure. From experience I know that this is what is called a “live document”, meaning it can constantly change!
- In relation to the planned road upgrade (L1202 and R314) by Mayo County Council in January 2008. A phone call was made to the Mayo Co. Co. Engineer to ask him about timing, extent and practicalities of the project and was informed that details were available in the Transport Management Plan, that Shell was going to pay for the works and that there was “nothing you can do about it”. When a question was asked regarding geographical limitations within the landslide area, the response was that all problems would be solved “as we go along”.
- The Transport Management Plan available for inspection turned out to be out of date, not dedicated to the road works at all and only marginally to the haulage along the road.
- A petition letter, signed by 112 residents was sent to Mayo Co. Co. objecting to the proposed works, outlining our reasons for objection and our concerns.
- After further failed attempts to communicate with Mayo Co. Co. and Local Agenda 21 officer, on the 14<sup>th</sup> of April the road works started. On the 20<sup>th</sup> a section of the road was officially closed. I felt completely frustrated in my efforts to achieve some sort of reasonably communication with Mayo Co. Co. As residents we felt ignored and powerless so we found a solicitor to represent us.
- Many months of severe disruption and stress followed as we witnessed the L1202 being turned into a haulage route. Trees and hedges were ripped away during the nesting season. Large amounts of materials were stored beside a little stream. Serious runoff occurred into said stream. The road was in some parts extended by more than twice its original width. On one occasion the road had slipped away taking with it peat, gravel, vegetation and ESB poles. As a result people were left without electricity at a busy bank holiday weekend.
- Landowners’ wishes were ignored. Sometimes I and others had to literally stand our ground to prevent intrusion on our properties by machinery or workers. The explicitly written wishes of land owners who were not present were sometimes ignored. Damage to land was not repaired at all or only after correspondence from the solicitor.
- Because the works were declared necessary for health and safety reasons, it seemed bird protection, frog conservation, preservation of the SAC and the immediate health and safety of residents and road users could be ignored altogether. I also heard that Mayo Co. Co. Is ultimately responsible.
- Then, long before the road works were completed, the haulage started in earnest and with it began a nightmare.
- Visitors and guests to our house and Holiday Hostel were shocked and upset and could not understand what sort of hell had broken loose here.
- My husband arrived home after weeks of struggling for his life in an intensive care unit in Castlebar Hospital. He was wheelchair bound and needed to be seen by his family doctor in Belmullet twice a week. On many mornings it was nearly impossible to safely leave our car park.
- In August 2008 the solicitor, representing the residents along the L1202 wrote a lengthy complaint to the Ombudsman Emily O’ Reilly regarding the actions of Mayo Co. Co. Who we were always told are



ultimately responsible for the road works, environmental aspects, communication as well as implementation of the Transport Management Plan.

- Mayo Co. Co. Insisted in their detailed response to her that all was in best order and that no laws or rules had ever been broken and that they acted within their authority.
- The Ombudsman then suggested closing the file.
- As a family and a group of residents we had lost trust and confidence in our statutory bodies. We were not able to spend more time, money or energy.
- There is no need for this pipeline; this becomes more obvious every day. I respectfully ask the Board to refuse permission to build it.

**Summary of Oral Hearing Submission by Brendan Hegarty on behalf of local contractors, suppliers and business in Erris**

**Point Made**

- Brendan Hegarty is the owner and MD of an electrical contracting business based in Bangor Erris. For the past five years he has been employed as a contractor on the Corrib gas project on which he has had up to 45 employees working.
- The submission is made in support of the Corrib onshore pipeline application on behalf of himself and his company and also on behalf of six other local companies and some of their suppliers, all of whom have been working on this project for a similar length of time
  - Shevlin Engineering Ltd. (MD Cathal Shevlin)
  - Lennon Quarries Ltd. (MD TJ Lennon)
  - Barrett’s Quarry Ltd. (MD PJ Barrett)
  - Belcross Enterprises Ltd. (MD Pat Cowman)
  - Carey’s Plant and Tool Hire (MD TJ Carey), and
  - Artec Construction Ltd. (MD Seán Keane).

This submission is also made on behalf staff, family other local companies and suppliers (including staff) as well as the Erris Chamber of Commerce. There is a list of 1043 names in total on whose behalf this submission is being made.
- Our support for this project is not based on technical expertise related to the design or construction of pipelines. It is based on our experience of working on the project in recent years and our experience of Shell and the high professional standards, in particular the emphasis they place on safety.
- **Standards** Most of the seven companies have received quality and/or safety accreditation or certification since they began working on the Corrib project. Some of them were the first contractors of their kind in the country to achieve certain accreditations. The support, encouragement and mentoring of Shell in this regard, has helped them to achieve these standards.
- **Social & Community** As a result of the significant up-skilling and retraining of local staff and the benefit they have derived from working with experienced people who have been employed on projects all over the world, Erris now has a strong, skilled and professional workforce readymade for any future projects or industries that might develop in this area.
- Many of the locals that we represent are people who had never had the opportunity to work and live in their native place as adults. Both they and their families have benefitted from this positive experience in recent years and would welcome the opportunity of living and working in Erris for the remainder of their career’s, should the completion of this project prove that there is a positive attitude to progress in the area

and could encourage further developments by multinational organisations, or indeed indigenous companies, that are presently willing to locate here, if the attitudes of our population were recognised to be positive towards sustainable development.

- As a result of the Corrib project, for the first time in generations, Erris has not been haemorrhaging its brightest and best young people due to a lack of employment in the area. This has been of great benefit for local sporting organisations and for voluntary groups such as the RNLI, Coast Guard and the Search and Rescue unit.

**Summary of Oral Hearing Submission by Brendan Philbin**

**Point Made**

- Mr. Philbin feels that for the Board to propose to the applicant to go up the Bay defies all logic and common sense. He feels that the inspector is not independent in this matter. Mr. Philbin does not make any other relevant submissions to the Board on the proposed pipeline route as the Board or the inspector was not prepared to provide answers to Mr. Philbin's questions.

**Summary of Oral Hearing Submission by Brid McGarry (Submission 47)**

**Point Made**

- She is not in favour of any of the proposed routes including the current one as they should not be located inland for obvious reasons.
- It is considered that the true reality of the proposed development is a deeply flawed endeavour with potential devastating and detrimental consequences for the inhabitants living in its midst.
- Ms McGarry believes that because the inspector proposed the route up the Bay it is not a neutral and democratic hearing that the same inspector is now reviewing this application.

**Summary of Closing Submission by Colm & Gabrielle Henry (Submission 28)**

**Point Made**

- We were horrified and dismayed to learn from Mr. Gerry Costello that SEPIL's only concern is the safety of the LVI and pipeline, and that the safety of the people was none of their concern. The issue of the security of the LVI was repeatedly raised, and it is clear that such a facility would represent a long-term risk of third-party attack, and would require a high level of security surveillance and patrolling in very close proximity to our home.
- Project works to date have already seriously disrupted our lives, and agents acting on behalf of the applicant have subjected our family to prolonged intimidation. This has included high-intensity spotlights trained on our house during night hours, disrupting our ability to feel at ease inside our own home.
- We have been followed by hand-held video cameras whilst visiting the beach with our grandchildren, access to the shore was prohibited by high steel security fencing at times.
- In their EIS the applicant has belatedly recognised the disruption caused in Glengad, but the dysfunctional Traffic Management Plan is proposed to be extended to the intended pipeline and tunnelling operations.
- People in area have had difficulties with home insurance, because Glengad is associated with this project, and this appears to confirm that this development will negatively impact on our ability to develop our property, and it will also harm its long-term value.

<ul style="list-style-type: none"> <li>• The environmental impact of works already conducted is clearly evident in Broadhaven Bay. The view from our home is no longer recognisable in a number of ways. For example, the safe swimming pools that were formed at low tide on the beach no longer exist; the protective rocks on Glengad beach are no longer sheltering the cliff face.</li> </ul>
<ul style="list-style-type: none"> <li>• During pipeline works we witnessed machinery from the landfall site disposing of an effluent via a tanker into the sea, which coincided with a period of discolouration of the waters around the beach. We even saw security workers on the beach – outside the construction site – throwing stones at the nesting Sandmartins.</li> </ul>
<ul style="list-style-type: none"> <li>• Many issues were brought to the attention of the authorities, who seemed entirely disinterested. Concerns on several matters were also brought to the attention of Shell’s community liaison person, but despite assurances of investigation the actions continued and to date we have not received any further communication regarding these issues.</li> </ul>
<ul style="list-style-type: none"> <li>• Prolonged periods of drilling in an area prone to landslides are totally unacceptable to the local community, and even the Department of Energy has concerns over the potential impact of such works.</li> </ul>
<ul style="list-style-type: none"> <li>• What we have learnt at these hearings is that the Corrib pipeline has the potential to kill people several hundred metres away, that the pipeline risks are largely guesswork, and that the LVI is the area of both highest risk and highest consequences.</li> </ul>
<ul style="list-style-type: none"> <li>• We have also learned through these hearings that there is no Emergency Response Plan in place in the event of difficulties either during construction or operation of the proposed pipeline and LVI. This seems to be an incredible omission, and should in itself be enough to render these plans null and void.</li> </ul>
<ul style="list-style-type: none"> <li>• We were never consulted on the possible landfall sites for the Corrib pipeline now before ABP, we are told this issue is not within the remit of these hearings, and our long-standing questions remain entirely unanswered.</li> </ul>
<ul style="list-style-type: none"> <li>• We have no confidence in the applicant being able to deliver a safe and environmentally sustainable project, the information provided has been sorely lacking in sufficient detail in vital areas of health and safety, and we have been left with the unaccountable legacy of poor decisions made by those far removed from the impacts of such decisions.</li> </ul>
<ul style="list-style-type: none"> <li>• We respectfully submit that ABP should refuse this application.</li> </ul>

**Summary of Oral Hearing Submission by Damhnait De Brun (Submission 5)**

**Point Made**

<ul style="list-style-type: none"> <li>• <b>This proposed development during both the construction and operational phase will most definitely have a profound impact on the population and demographic profile of the area.</b></li> <li>• <b>The development will have a significant impact on the terrestrial ecology, freshwater ecology, marine environment, and the soils and geology of the area and as a direct result have a significant impact on the human community.</b></li> </ul>
<ul style="list-style-type: none"> <li>• So few places still offer the sanctuary and safe haven to young children as Rossport and Erris does. <b>The precious commodities of clean fresh air, low traffic and noise pollution, breathtaking landscape and unspoilt waterways and the quality of life that still exists here are the qualities that are most threatened by this proposed development.</b></li> <li>• It is the <b>culture of harvesting from the shore and the land that makes the parish of Kilcommon a very special demographic area and a reserve of old traditions.</b></li> </ul>

<ul style="list-style-type: none"> <li>• <b>Loss of ownership/displacement to their surroundings and heritage:</b> the land, the rivers, the sea and the shore. There is a <b>great anxiety amongst the residents</b> which is founded on their direct past experiences with SEPIL and their contracting companies of being displaced and losing ownership of their culture and heritage.</li> <li>• <b>As an example the simple act of kayaking in the Bay now has little more status than being a terrorist and brings a risk of being arrested for obstruction.</b></li> </ul>
<ul style="list-style-type: none"> <li>• <b>Surveillance and human rights.</b> Last year while the works in Glengad were underway, <b>several homes within close proximity had to suffer constant surveillance</b> whilst in and around their own homes, which made their life's very difficult and created a real sense of invasion into their privacy and sense of safety. <b>Men Women and Children were photographed and recorded on the Beach there is no recognition of this surveillance in the EIS</b></li> </ul>
<ul style="list-style-type: none"> <li>• <b>Lack of Trust and Credibility.</b> "The principal; concern of SEPIL is that human beings in the vicinity of the proposed pipeline experience no significant reduction in the quality of life as a consequence of the construction and operation of the proposed development and that the project should not damage the sense of place and attachment to the local culture and heritage." (Para 8.8 EIS Volume 1) <b>The facts speak for themselves; SEPIL has not and does not have the interests of the local people at heart.</b> This has been made clear over the years. As such when the following statements occur in this E.I.S. for e.g. <b>"accidental spillage of contaminants"</b>, into the waterways it is a matter of great concern for all.</li> <li>• <b>There is great concern at the implications of a failure of the mitigation measures</b> and which as set out in the EIS could lead to <b>"...significant negative impacts on the terrestrial habitats"</b>, <b>"... could result in significant impacts on wetland habitats"</b></li> </ul>
<ul style="list-style-type: none"> <li>• <b>In demographic terms the population will decline</b> as some house-holders will seek to move out of the area as <b>direct consequence of the proposed development. The proposed development will also have a negative effect on property prices in the area.</b></li> <li>• I would argue that <b>there will be a substantial impact on the population here with no future for families moving into high risk zone</b> and many <b>families leaving the area as direct consequence of the proposed development.</b></li> </ul>
<ul style="list-style-type: none"> <li>• <b>Socio economic:</b> - the Corrib gas project is an example of an <b>unsustainable polluting industry replacing many smaller sustainable, locally based industries</b> which would be better described as traditional, cottage employment. <b>Will the 50 expert jobs be less than the loss of all these local traditional cottage industry jobs?</b></li> <li>• <b>Will the social unrest and inter-social conflict that the Corrib Gas Project development brings with it create a deficit in socio-economic terms?</b> What price will we place on the security of a life, on our health, on the life of a child and the health of the unborn?</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Summary. I would implore ABP, to consider the real concerns of the local population</b> and the wider community. <b>To heed the insights of their wisdom,</b> since 2000, <b>the local people have been demanding that the gas be processed as sea,</b> before it reaches residential areas, as is standard practice worldwide. <b>They have never objected to gas being piped ashore in the normal way.</b></li> </ul>

<p><b><u>Summary of Oral Hearing Submission &amp; Closing Submission by Des Brannigan (Marine Research &amp; Associates) (Submission 4)</u></b></p> <p><b><u>Point Made</u></b></p>
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<ul style="list-style-type: none"> <li>• Dependence on gas for electricity generation is a seriously frightening position for this country. Reference to then Minister for Supplies Sean Lemass speech 1944 about dependence on coal for electricity generation at that time and the need to conserve electricity for industrial output as coal supply was stopped at that time and rainfall levels were lower than normal. Mr. Lemass said “ We must never again allow our vital industries and the health and comfort of our people to be jeopardised through lack of imported fuel supplies”</li> </ul>
<ul style="list-style-type: none"> <li>• The submission criticises Government Policy in not providing the necessary ships and tankers to carry our vital energy needs and outlines LNG technology as the way forward.</li> </ul>
<ul style="list-style-type: none"> <li>• The submission proposes that Government Policy should utilise LNG technology and develop using LNG tankers and using reservoirs (Kinsale and any new reservoirs) to take LNG from onboard conversion tankers.</li> </ul>
<ul style="list-style-type: none"> <li>• The submission outlines a technology to directly process and liquefy natural gas from special vessels operating at the well location and exporting the gas via LNG in tankers.</li> </ul>
<ul style="list-style-type: none"> <li>• It is contended that the Onshore tie back solution being developed by SEPIL was a decision based on cost difference between offshore and onshore production and that the present impasse has evolved from that decision.</li> </ul>
<ul style="list-style-type: none"> <li>• Details of other Licences granted for exploration are provided, and it is contended that anxiety exists (presumably anxiety by the industry is meant) regarding delays in the Corrib Field Development.</li> </ul>
<ul style="list-style-type: none"> <li>• The submission expresses concerns about the safety aspects of the proposed development and supports a policy of tanker leasing and use for energy transportation.</li> </ul>
<ul style="list-style-type: none"> <li>• There are approximately 130 billion barrels of oil off our coast and 50 trillion cubic feet of gas. The massive 32 acre terminal was not constructed for the tiny Corrib wells as we were informed.</li> </ul>
<ul style="list-style-type: none"> <li>• As Mr. Kevin Moore pointed out to the Board, this is the wrong site for many different reasons.</li> </ul>
<ul style="list-style-type: none"> <li>• The submission questions the amount of time observers have to deal with the lengthy and complex material provided by the applicant.</li> </ul>
<ul style="list-style-type: none"> <li>• The resources off the coast are vastly greater than as set out by SEPIL in this application. Norway was able to build their country into a first class industrial power by prudently using their resources in such a way that the state would be the major beneficiary. This is what is required in Ireland.</li> </ul>

### Summary of Oral Hearing Submission by Diana Taylor (Submission 5)

#### Point Made

- It is **so relaxing looking out at the sea** from the house, refers to an **incident witnessed one morning in the bay when boats were attempting to hunt dolphins out of the bay.**
- **Recollects an evening enjoying the calm of the bay** when suddenly **the roar of engines interrupted the tranquility, three speedboats** each containing about six roared from the bay accelerating their boat engines at top speed to make the boats rise out of the water like jet aircrafts taking off. **Is this the future the Board will impose on us?**
- **Everything about this proposed project is wrong.** The people who live in the affected area do not want this dangerous project in Sruth Fhada Chonn Bay because **it is the wrong project in the wrong location at the wrong time as the ABP inspector before you rightly found.**
- The **immediate area suffered extreme damage in September 2003 from major landslides, is situated in geologically unsound substrate** and is **not a suitable location** for this type of major project despite

Turlough Johnson's assertions which I don't accept.

- **Re: hazelnut shell fragments found at 10.7 m depth in borehole 10 in 2008.** I have written, called into Shell offices etc... to get an answer to my question as to **what has happened to date to these hazelnut shells.** Nobody will give me an answer. It is obvious to me that Shell has done nothing with these – **is it possible they could have disposed of them?** I would like to have an answer to this before this OH ends. (refer to Errata(EIS) 26.8.2010.P 4 provided by SEPIL to the OH “ The second last sentence of the 3<sup>rd</sup> paragraph in Section 16.6.2.2 should state : in one instance a couple of hazelnut shell fragments were identified but were not assessed as they were mislaid while stored”
- **The issue is that this find is highly indicative of a Mesolithic presence in the area and as the only archaeological find of this entire project it is beyond belief that it could have been accidentally mislaid.**
- **The Shell offices are manned by people who, in my opinion, are incapable of dealing with a serious problem** if one were to occur. **High levels of security, Double Locked Doors, Local people not welcome, closed door policy. Many experts we see at the OH are not based in Belmullet or in Ireland.**
- The dysfunctional **Project Monitoring Committee** is another **example of what is wrong currently.** The “Community Representatives” **do not represent the affected community** because **none of them come from it nor do they live in it, nor have they been selected by the local community to represent them.** They appear to be self-appointed or Shell-appointed.
- According to Irish Drilling Reports of **some boreholes drilled in 2008, there is ‘high plasticity’ and ‘extremely high plasticity’ at depths well below the depth at which Shell intend to lay their tunnel.** I shall await with interest the results of latest boreholes.
- **I want to know the exact timeframe of this project.**
  - How many years after gas would be proposed to flow will decommission happen?
  - Sealed pipeline – guarantees that nothing else will be installed in? Or does it?
  - Selling off of ‘rights’ through this community to other fossil fuel corporations, bodies or individuals if the opportunity arises?
  - In twenty years time where will we be in terms of project completion?
  - **Is there a guarantee of temporary nature of the project?**
  - What's the future of land and property Shell has purchased in area?
- **The LVI is not located in a remote location. Planning permission has never been obtained for Glengad.**
- The proposal to site a **dangerous junction such as the proposed LVI is unacceptable in a heavily populated townland such as Glengad.** The **occupied houses** listed by Shell's 2010 E.I.S. in Glengad are **all incorrectly measured** in Appendix A regarding their **stated distance from pipeline as Shell has calculated the distance they are to the proposed LVI rather than the pipeline to which they are a lot closer than stated.** Concern is expressed at safety issues for those houses beyond Glengad on L1202 that are exposed to the dangers of the pipeline in the sea.
- **The landscape protection designations and the NHA, SAC, and SPA protections what has happened to these? Machair issue more important than at Mulranny**
- **There are no emergency services within many kilometres of the proposed pipeline route. The nearest hospital able to deal with an emergency situation is Galway, two and a half hours distant.**



- **Quantitative and Qualitative Risk Assessments:** - Shell's response is introverted. Its response is all about itself. The community merits little of no consideration.
- **Climate Change, Wind Direction, No Show SEPIL staff in inclement weather, Human Error, Hospital and emergency services locally deficient, Drinking Water Quality potential for contamination, Facts about Shell's pipelines and Installations are missing in EIS, these factors are all identified as relevant to the consideration of the proposed development.**
- **The area where the proposed pipeline is to come to shore is considered too hazardous for most water sports in the best of weather. It is inconceivable that it could be considered suitable for a high pressure pipeline carrying poison at extreme high pressures.**

**Closing Submission by Mr. Tom Philbin 29/10/10**

- The granting or refusal of any permits must be founded on honesty and honest information whenever permits have been acquired. Whenever permits have been acquired through lies or the avoidance of relevant facts, this inevitably leads to alienation and division and mistrust in the community.

**Summary of Oral Hearing Submission by Dónal Connolly and Paddy McGuire (Submission 13)**

**Point Made**

- **Pullathomas N.S. - 47 pupils football field 70m from shoreline-. Main concerns relate to the health and safety of the pupils attending the school. The risk of an explosion from the raw, unprocessed high pressure gas flowing in proximity of the school.**
- **Graveyard.** The proximity of the graveyard wall to the shoreline – 65m from shoreline-, where the proposed gas route lies is a concern for us all. **Concerns lie mainly for the locals who live near the graveyard, and also for those mourners from outside attending funerals at the graveyard.**
- **Planned route via landfall at Glengad to landfall at Aghoose.** Here also, there is the **risk of a major gas explosion to those living in the locality and those driving on the road.**
- **Leisure activities on the strands at Pullathomas and Aghoose- Cockle picking, digging for clams, fishing from shore for plaice and fluke, recreational walks activities on beach for the young.** If the proposed new route for the gas pipe line goes ahead we are fearful of what lays ahead for the future of our beaches. **Tunnelling of the Bay with the inclusion of a high-pressure gas pipeline will put an end to all activities on these shores. Pollution of the Bay is a real concern to all of us.**
- **Conclusion.** We ask the questions;
- **Who will take responsibility for the possible pollution of our waters?**
- **Who will take responsibility for our children's health and safety as well as the ebbing away of our customs and traditions?**
- **If the state and local planning bodies are not going to protect us from the gas pipeline we must take control.**
- **We are not going to see our area torn into smithereens, for the sake of Goliath and its shareholders.**

**Summary of Oral Hearing Submission by Eamonn O Coileáin (Submission 16)**

**Point Made**

- The Irish law was changed to allow the Corrib Gas project to write off all its expenses before the Irish tax begins at 25%, so one of the reasons for this was to spare no expense in building the world's safest refinery and pipeline in Erris. Deals were done behind closed doors and **what we are lead to believe is**

**that this project as it stands to be safe. Well it's not and will never be in its present form of planning. It is too close to the population who live in the valleys, hills and sea shores surrounding this untreated gas refinery.**

- Would any member of this committee like to live next to this (photo of Industrial complex)? And try to raise their family safely, knowing that there are highly toxic chemicals in the air and water that can cause great sickness and death?
- Attached – an article entitled ‘China Blames Gas Accident on Negligence’. Dated 02/01/2004.
- **Natural Gas composes of many chemicals, some are the deadliest known to mankind, but oil and gas companies still take huge risks in trying to harvest them. But at what cost to the local population that live close to the pipeline and the terminal?**
- Attached – a number of articles highlighting disasters and dangers with gas explosions.
- **How many containment suits are they going to have on site or nearby?**
- **What's going to happen when the 500 jobs stop, how will local business keep going strong then? Who will want to come to Erris right next to an untreated unnatural gas pipeline?** Knowing the risk that comes with such an industry, who will fill up the Guest houses on holidays? **Who would want to be trapped in the area when such things as untreated gas leaks or explosions can occur?** With only one road out of town what would happen to the local population?
- It seems to me there has to be a safer more economic reason to this madness that Andy Pile and Ray Burke tried to put before us.
- Move it to the coast ,take the stone hill and carve it out, make a harbour with deep water piers, storage for the rig, and the safest untreated refinery in the world.
- Remember the 25sq km that were destroyed by the untreated gas vapour clouds (referring to incident in China in 2003), that's quite a large area of toxicities; everything will die or wish they did. Please say NO, NO, NO! And let everything go back to the way it was and it will be good. **Shell makes Billions and don't need to destroy any more of our area or will you be the ones who give us all a gas death sentence.**
- Attached – two articles entitled: ‘Exxon and Shell quarterly profits soar’ and ‘1 Ton Mine Located Off Portland’.
- **Is there a risk that old war mines can become attracted to the steel pipeline undersea.**
- During World War 2 millions of people were gassed by the Nazis. This was not right in any form of war or everyday life, but are we the people of Erris to be sacrificed to this poisonous gas pipeline? My own thoughts are under no circumstances. **We should NOT be subjected to this life frightening ordeal that comes with the great risk you have with pipelines.**
- **It's up to you, the women and men on this committee to not subject your own people such a horrendous death due to a small whiff of raw poisonous gas.**
- You the ABP committees' names will go down in history. Put your own people at great risk or send Shell's pipeline away once and for all, let the people of the area survive. Not like China's 25 sq km that were destroyed and its people too. Every living creature died that night. **All we are asking for are our basic human rights, not to be subjected to raw poisonous gas.** We pray that you make the right decision. Please do not let this happen!

### **Summary of Oral Hearing Submission by Edward Moran**

<u>Point Made</u>
<ul style="list-style-type: none"> <li>• The controversial section of Shell’s pipeline (offshore pipe laid at Glengad) is crucial because it combines several fundamental breaches re the current pipeline-route planning permission application.</li> </ul>
<ul style="list-style-type: none"> <li>• Foremost among these is ABP’s decisive ruling last November that this section was wrongly omitted from that application. This alone should render the application null and void; instead ABP has acquiesced in this being added in retrospectively.</li> </ul>
<ul style="list-style-type: none"> <li>• Before a ruling was made by ABP, the controversial section of pipeline was laid, and so the current impasse was created. In effect, that section of pipeline is illegal and there is no means by which it can be made legal retrospectively under the current application.</li> </ul>
<ul style="list-style-type: none"> <li>• It was clear to SEPIL that if the pipeline were laid in this section it could not then be included in the current pipeline-route application. Nevertheless SEPIL went ahead and obtained a separate permission from Minister Ryan’s Department (Natural Resources) under a questionable 2002 Ministerial Consent, despite SEPIL having given a High Court undertaking in 2007 to relinquish entitlement to this consent. Additionally it was known to all concerned that the validity of this consent was under challenge in the High Court since 2007.</li> </ul>
<ul style="list-style-type: none"> <li>• These measures were taken to facilitate SEPIL’s separate off-shore pipeline emplacement. The outcome is self-inflicted jeopardy for SEPIL in that it put its current application recklessly at risk by laying this section of pipeline and it placed ABP in an invidious position.</li> </ul>
<ul style="list-style-type: none"> <li>• ABP has contributed very substantially to the current legal travesty by failing to give a ruling as requested in May 2009 on that issue. Consequently, resolving it rests squarely with the Board.</li> </ul>
<ul style="list-style-type: none"> <li>• The bottom line in all of this is that a section of the pipeline has already been laid on part of the ‘application’ route. It was laid at a time when that section of the route was a major centre of confusion and controversy and which, with hindsight, ABP could have and should have resolved by making a ruling on the matter.</li> </ul>
<ul style="list-style-type: none"> <li>• The Board’s statutory letter of 6<sup>th</sup> August 2009 to the Applicant exercised its prerogative to extend the target date for Decision and set a final date. This letter showed beyond doubt that the application process had arrived at its final stage, yet the postponed target set for October came and went without a Decision being made. The validity of the 6<sup>th</sup> August letter had not been contested in the interim by the Applicant, nor had the Board made any attempt to withdraw it. The application process was therefore out-of-time and the Board failed to exercise any of the four statutory options for such Decision. This exemplifies how far off the tracks ‘light-touch’ regulation has now brought this project.</li> </ul>
<ul style="list-style-type: none"> <li>• Through the wide range of consultation between applicants and the Board which the pre-planning permits, a decision within an 18 week target date would be assured. Clearly the pre-planning stage failed in regard to the current Application.</li> </ul>
<ul style="list-style-type: none"> <li>• While Strategic Infrastructure legislation gives great latitude to the Board to recommend “<i>modifications</i>” at an appropriate stage of the process, it cannot reasonably be interpreted as <i>carte blanche</i> to recommend changes which transform it into an entirely different application. Strategic infrastructure legislation gives the Board access to the High Court for resolution of such issues. This should be done.</li> </ul>
<ul style="list-style-type: none"> <li>• A further outcome from the 2/11/09 letter was the ruling that part of the route being applied for had been omitted from the application i.e. between chainage 83+390 and 83+400. On this basis alone the application should have been refused since this was not a casual or low consequence error but a key</li> </ul>

<p>section of the pipeline with serious implications for the application overall.</p>
<ul style="list-style-type: none"> <li>• A portion of the pipeline had already been laid in this section from chainage 83+380 to chainage 83+450 which contravenes Section 182c (3) of the Act. This action could not be construed as unintentional error since the laying of this portion of pipeline was hotly contested by members of the local community.</li> </ul>
<ul style="list-style-type: none"> <li>• What was demanded in particular at the time was a statement from ABP defining where precisely the route applied for commenced. The extraordinary ruling given was that it was up to the applicant to provide this information, not then and there but at some later time, even though that section of pipeline was being laid at that very time. It was wrong to proceed with the hearing (2009 OH) until such a key issue was resolved.</li> </ul>
<ul style="list-style-type: none"> <li>• Because a definite ruling was not given by ABP other compounding issues re the laying of this section of pipeline such as the validity of the 2002 Consent; the 2007 High Court relinquishment of benefit re same Consent; and the legality of varying that Consent, could not be pursued. However these stand separate from the immediately relevant contention that Section 182C (3) was breached and the Board unwittingly or otherwise enabled this occurrence and has since acquiesced in its continuance.</li> </ul>
<ul style="list-style-type: none"> <li>• The conduct of the OH is biased in several respects against lay observers and favours the Applicant in ways that are contrary to EIA, 'Aarhus' and related Directives.</li> </ul>
<ul style="list-style-type: none"> <li>• The Board has failed to adequately implement the pre-planning stage of the 'Strategic Infrastructure Act' and has consequently betrayed public trust in this regard at several levels.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Conclusion.</b> Unless the points made by the observers are backed up by legal-type arguments, supported by reference to case-law, they will not impact significantly on the Board's reckoning.</li> </ul>
<ul style="list-style-type: none"> <li>• If observers do not seek legal redress immediately against the Applicant they are invariably 'out-of-time'; if they rely on ABP to redress such issues, they invariably feel let down or even betrayed.</li> </ul>

<b><u>Summary of Oral Hearing Submission by Erris Tourism – Michael McGarry (Submission )</u></b>
<b><u>Point Made</u></b>
<ul style="list-style-type: none"> <li>• Shell has given support to Erris tourism in the past years. After negotiations with Shell they came up with a Strategic Plan which confirmed with the criteria laid on for grant aid and as a result have been funded to employ officers whose work it is believed will lead to substantial tourism in the area.</li> </ul>
<ul style="list-style-type: none"> <li>• They feel Shell have maintained an open door policy with the community and have been fair and have acted in good faith with the Erris community.</li> </ul>
<ul style="list-style-type: none"> <li>• Having read the reports on the safety aspects of the project it is obvious to Erris Tourism that the project conforms to the highest standards of best practice.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Employment.</b> The project has been of great benefit to the local economy, young people have been employed in the terminal and gained valuable experience, the area has always suffered from immigration and this project has helped reduce this problem.</li> </ul>
<ul style="list-style-type: none"> <li>• Erris Tourism supports the granting of planning permission for this application. Feels it is vital for Erris, Mayo and Ireland. It is felt that the curiosity and publicity of the project could increase tourism in the area.</li> </ul>

<b><u>Summary of Oral Hearing Closing Submission by Ethal &amp; Thomas Corduff (Submission 15)</u></b>
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<u>Point Made</u>
<ul style="list-style-type: none"> <li>The new route is far worse to the local community as more people are affected. Glengad, Aughoose and Pullathomas are well populated areas.</li> </ul>
<ul style="list-style-type: none"> <li><b>Health &amp; Safety.</b> Concern is expressed as to possible landslides; construction activities could have an impact on Dooncarton Mountain.</li> </ul>
<ul style="list-style-type: none"> <li>No Emergency Response Plan is in place which is essential.</li> </ul>
<ul style="list-style-type: none"> <li>The proposed works will severely affect marine life and activities. Possibility of pollution to wildlife from proposed works is a further concern.</li> </ul>
<ul style="list-style-type: none"> <li>Sruth Fada Conn Bay is of immense ornithological importance with wintering wild fowl and nationally important species as well as local birds. There is no way of avoiding birds during work, despite mitigation measures given.</li> </ul>
<ul style="list-style-type: none"> <li>The noise from the construction traffic could have horrendous effects on fish, birds and wildlife as well as the residents.</li> </ul>
<ul style="list-style-type: none"> <li>What is needed for the area is sustainable industries. Walking, bird and mammal watching, fishing, boating and other tourist related businesses should be focused on.</li> </ul>
<ul style="list-style-type: none"> <li><b>Conclusion.</b> This application for the rerouted gas pipeline route has previously been rejected on environmental grounds; these environmental grounds are still there.</li> </ul>

<u>Summary of Oral Hearing Submission by Fr Kevin Hegarty (Submission 2)</u>
<u>Point Made</u>
<ul style="list-style-type: none"> <li>In the last five years I have come to the firm conclusion that the <b>Corrib gas project has already realised considerable benefits for the Erris community</b> and has enormous potential for its future.</li> </ul>
<ul style="list-style-type: none"> <li>I believe that <b>Shell has sought to fulfill the requirements of Irish, European Union and international environmental laws</b> in its planning, construction to date and proposed operation of the development.</li> </ul>
<ul style="list-style-type: none"> <li>I believe that, particularly from late 2005 onwards, the company has shown a willingness to be a <b>good neighbour and contribute positively to the community.</b></li> </ul>
<ul style="list-style-type: none"> <li>Finally, I am convinced that <b>the project is of strategic importance for Ireland</b> with regard to the <b>security of energy supply</b> and that there will be <b>significant benefits for Erris and Mayo</b> because of its location here.</li> </ul>
<ul style="list-style-type: none"> <li>For quite some time I have been <b>disturbed by the tendency</b> of some of <b>those opposed</b> to the project to <b>arrogate to themselves the sole right to speak for the community.</b></li> </ul>
<ul style="list-style-type: none"> <li>I know that there are sincere people among the protesters. I believe, however that their <b>fears about the safety of the pipeline have been grossly inflated</b> by the sulphurous rhetoric of those who wish to prevent the delivery of the gas on ideological grounds. I also sense that <b>some of those opposed to the development abhor the extreme tactics of a minority of their group.</b></li> </ul>
<ul style="list-style-type: none"> <li><b>The vast majority of the Erris Community support the Corrib Gas Development.</b></li> </ul>
<ul style="list-style-type: none"> <li>The main thing that <b>gives me confidence</b> about the human and environmental safety of the Corrib gas development is that <b>there are stringent Irish, European Union and international laws and directives governing planning applications.</b> Our government has provided <b>statutory agencies like ABP and the Environmental Protection Agency to ensure compliance with these conditions.</b></li> </ul>

<ul style="list-style-type: none"> <li>I believe that Shell has faithfully adhered to the process over the years. <b>When the statutory bodies have asked questions or raised issues Shell has been willing to meet their concerns.</b> It accepted the recommendations of the Advantica report on the construction of the pipeline. <b>In its latest submission to ABP Shell has earnestly sought to address the issue raised by the Board in its letter of November 2009.</b></li> </ul>
<ul style="list-style-type: none"> <li><b>Shell has employed experts of accredited technical and professional competence in the design of the development and in its implementation to date. I believe that they are committed to high environmental and safety standards in its operation here.</b></li> <li>It seems to me that while <b>those who oppose the Corrib gas project engage exhaustively in the planning process, some of them cast aspersions on the integrity of the statutory bodies</b> if and when they deliver judgements unfavourable on them.</li> </ul>
<ul style="list-style-type: none"> <li><b>I have been impressed with the sincerity and professional commitment of Shell officials.</b> The company accepted the recommendations of the Cassel's report on dialogue with the community. It has held frequent information days where proposals are revealed and safety concerns can be addressed.</li> </ul>
<ul style="list-style-type: none"> <li>While moving towards a future where renewable are the primary source of energy is a noble aspiration, in the meantime the country's vast energy demands will still have to be met on a daily basis. <b>Corrib gas offers the only indigenous supply source once the Kinsale gas field has been depleted.</b></li> </ul>
<ul style="list-style-type: none"> <li><b>The presence of this resource in Erris will, I believe, be a source of significant social and economic benefit for the community. It already has. Thirty-one students have received third level scholarships.</b></li> </ul>
<ul style="list-style-type: none"> <li><b>Many people from Erris have worked or are working on the construction phase</b> of the development. Others are working in the service industries used by Shell and its operatives. <b>Such employment is an economic bulwark</b> in a time of recession.</li> <li>The company has in place a <b>local grants programme</b>, which makes contributions of up to €100,000 to a wide range of local community organisations.</li> </ul>
<ul style="list-style-type: none"> <li>Arguably, <b>this project is the most forensically investigated one</b> in the 88-year history of the state. My short-term hope in the next year is that we can move from analysis to action and ensure a safe completion of the pipeline.</li> <li><b>My long-term hope is that the project will help in the progressive development of the economic, social, technological and cultural infrastructure of Erris and Mayo;</b> that its presence will attract similar high-tech environmentally-friendly industries, and <b>that Erris will be an energy hub for Ireland, not only for the finite future of the gas well but, also, through the eventual development of the barony's wind and tidal power,</b> it may be one for the indefinite future.</li> </ul>

<p><b><u>Summary of Oral Hearing Submission by Fr. M Nallen, Thomas McAndrew Jim Mc Andrew and Tom McAndrew (Submission 1)</u></b></p>
<p><b><u>Point Made</u></b></p>
<ul style="list-style-type: none"> <li>It is essential that ABP insist that before the end of this Oral Hearing an Emergency Response Plan must be put in place. Makes this point given to him by Commandant Patrick Boyle (same as those made by P.C.C. John Monaghan).</li> </ul>
<ul style="list-style-type: none"> <li>Issue with trust with LVI at Glengad, there is a by-pass valve, is there a possibility that someone could open the valve and let gas flow at full pressure, who will monitor this?</li> </ul>
<ul style="list-style-type: none"> <li>People have the right to live with freedom from fear; this plan does not remove that fear for people.</li> </ul>



<ul style="list-style-type: none"> <li>• Other points are as made in written submission to ABP</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Summary of Oral Hearing Submission by Thomas McAndrew</b></li> <li>• Poses a hypothetical situation where there has been a gas explosion and talks about possible consequences.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Summary of Oral Hearing of Tom McAndrew (former Education Psychologist for Dept. of Education)</b></li> <li>• Feels that it is Shell's strategy to target schools and school children in order to be looked favourably on by the community and authorities.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Closing Submission by Fr. M Nallen</b></li> <li>• People within the receiving community have lives to live; they have children to rear and the need to be able to achieve these objectives in a climate of contentment.</li> </ul>
<ul style="list-style-type: none"> <li>• The project has had exposure to tarnished and un-trusted holders of political office.</li> <li>• State agents have been used in giving assistance to people associated with the project to gain entry to lands where permission was required and clarification was not awaited and the safety of the public was not prioritised.</li> </ul>
<ul style="list-style-type: none"> <li>• The question of pain and gain comes up constantly in trying to quantify the impacts. It is argued that what's considered beneficial for progressing the project is acceptable while highlighting the pain is not regarded as something that should be brought into the open.</li> </ul>
<ul style="list-style-type: none"> <li>• It is felt that the promoters of the project are saying to the locals to disregard your way of life and adopt our way, that you can discuss with us how you feel but we don't have ears to hear what you say.</li> </ul>
<ul style="list-style-type: none"> <li>• It is suggested that the developer has admitted through discussions during this hearing that the community would be endangered if a third-party deliberately interfered with the LVI and caused an explosion, yet the developer is also saying if an explosion and fire were to occur without third-party interference people would be perfectly safe because of the new distance regime.</li> </ul>
<ul style="list-style-type: none"> <li>• The only investigations which could be useful are ones which propose to find a real and comprehensive solution whereby people would be in a position to accept, live with and support a project mutually beneficial to them and its promoters. Embracing such a challenge would be a positive development.</li> </ul>

<b><u>Summary of Oral Hearing Submission by IBEC , John Brennan (Submission 39)</u></b>
<b><u>Point Made</u></b>
<ul style="list-style-type: none"> <li>• IBEC are supporting this application on both regional and national basis.</li> <li>• <b>Regionally</b> - they appreciate the long term jobs that would be created at the terminal, and consider it would be 130 in total.</li> <li>• IBEC acknowledges the past employment that has been created in the community with the construction of the project to date.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Nationally</b> – Security of supply. Ireland is highly dependent on imported fuels, 90% of our gas is currently imported.</li> <li>• We need to develop our own local resources.</li> <li>• We only have about 11 days of gas storage in the system in terms of providing a secure supply.</li> </ul>
<ul style="list-style-type: none"> <li>• This project is now several years behind schedule. IBEC feel this could have damaged Ireland's international reputation. We still need to attract foreign direct investment; including energy companies and we still need to build an energy infrastructure, especially on the west coast. IBEC's concern is that</li> </ul>

potential future energy projects (e.g. off shore wave, wind farms) could suffer delays because of planning etc.
<ul style="list-style-type: none"> <li>• The ESB and government have targets of 40% renewable by 2020 in terms of fuel mix. We will not get there unless our energy infrastructure can be built on time, in time and without repeated delays.</li> <li>• We are in competition with other parties in terms of this investment, Scotland in particular, and in IBEC's view we are losing out and for these reasons and others IBEC support this application.</li> </ul>

<b><u>Summary of Oral Hearing Submission by Imelda Moran</u></b>
<b><u>Point Made</u></b>
<ul style="list-style-type: none"> <li>• An application was submitted for a single route after lengthy selection process and having accepted that route as the basis of the application, ABP later rejected a major part of that route in November 2009. Ciaran Butler of RPS stated in his submission to this OH that in November 2009, ABP added 'a new route selection criterion'. However, ABP can only consider the application as put before it and having in essence rejected the route put before it, a new application is required for the totally different route through Sruth Fada Conn estuary.</li> </ul>
<ul style="list-style-type: none"> <li>• An Taisce wrote to ABP in May 2004 in connection to the Corrib project pointing out: <ol style="list-style-type: none"> <li>1. That the required information relevant to environmental pollution was missing from the EIS; - six years later at this OH, the Applicant could not answer questions as to where certain information relating to environmental pollution could be found in the EIS.</li> <li>2. That sections 256 and 257 of the Planning and Development Act 2000 permit environmental grounds relating to Waste Licence and IPPC applications to be considered by planning authorities; - six years later at this OH observers are denied raising environmental grounds relating to IPPC applications.</li> <li>3. That integrated assessment is required by Council Directive 84/337/EEC, (as amended by 97/11 EC) – six years later the Applicant did not even supply a copy of the EIS with their IPPC review application. Furthermore, Senior Counsel, Esmonde Keane, (28<sup>th</sup> September) stated that ABP and the EPA have two separate processes, as though implying that there is no obligation to ensure that the same information is supplied to both.</li> </ol> </li> </ul>
<ul style="list-style-type: none"> <li>• No EIS accompanied the application for an IPPC licence, as confirmed by the EPA. Furthermore, the addendum to the EIS presented at this OH is dated August 2010. This was <i>after</i> a Proposed Decision to issue an IPPC licence was made. Thus, the Applicant ensured that the EPA [which is also the competent authority for noise] did not have access to the information prior to making its decision.</li> </ul>
<ul style="list-style-type: none"> <li>• In short, ABP and EPA were working from two different sets of EIA information so that an integrated approach was not achievable as required by law.</li> </ul>

<b><u>Summary of Oral Hearing Submission by Jarlath McAndrew and Catherine McAndrew (Submission 3)</u></b>
<b><u>Point Made</u></b>
<ul style="list-style-type: none"> <li>• I live in Pullathomas (house reference PU08) I am also representing my mother Catherine McAndrew, who resides in Barnacullew (house reference BQ01).</li> <li>• I vehemently object to the proposed pipeline route being located so close to both family homes and to Pullathomas NS where two of my children attend for health and safety reasons and on the grounds of my children's wellbeing.</li> </ul>

- Dooncarton Hill and the Bay have been shown to be all the one rock formation, this being the case should an explosion occur what would be the consequences for all the residents?
- The validity of the EIS report is questionable as it showed on the EIS that there was a monitoring point in the garden of my mother's house, however, after lengthy investigation it transpired that the said monitor was placed on another property 350m away. Furthermore, on the EIS it says that property BQ07 is 241.81m from the pipeline, however on Thursday last the distance was said to be 234m, this leads to the question – what other discrepancies are there that we don't know about?
- In 2004, I applied for planning permission in Barnacullev beside property BQ01. After a long drawn out process and a great expense it was refused on the grounds of visual impact reasons, but the real reason I later found out from one of Mayo County Council planners was that they were afraid of future landslides and they told me that as we had other lands which were on the seaside of the road they would give me planning permission there.
- If they has concerns about the impact of a one off dwelling surely the laying of a tunnel with a high pressure pipe carrying raw gas underneath this hill should be a major concern for ABP and Mayo Co. Co. As it is to us.
- We would like clarification on the fact that RPS stated 3 years ago that the pipeline could not come up the bay as it would be in close proximity to the school, church, graveyards and public house where people congregate. Therefore we would like an explanation as to why this route is acceptable now.
- We are ordinary people trying to live an ordinary life under extraordinary circumstances while trying to protect our families, our environment and our community. Unfortunately being a real neighbour of Shell is not quite as glamorous as it appears to people who are far removed from the situation.
- We would therefore urge the Board to refuse planning permission for this revised pipeline route.

### Summary of Oral Hearing Submission by Jim McAndrew (Submission 1)

#### Point Made

- An Bord Pleanála has to decide whether the proposed works are in line with proper planning and development in this area. Minister (C. Cuffe) commenting on the Planning and Development (Amendment) Act 2010 said that at the heart of these planning laws is a special idea – to put the interests of citizens ahead of any one interest group. And at the same time ensuring that the natural environment of the area where it is located is not damaged.
- To assess whether a development is of benefit it seems obvious to look at the before and after situation – the costs and benefits of the development.
- The submission gives an overall breakdown of the proposed development and mentions the proposed hours of work and overall length of time to build the proposed development.

#### Benefits

- It is important to state that this is our own natural resource and that our state has to purchase the gas at the prevailing market prices.  
**A list of benefits are described** – 60% of Irelands gas needs, security of supply, employment, benefit to support industries, Corrib Gas Partner's Community Social investment programme, Corrib Gas Development Fund, Local Grants Programme.

#### Costs

- **Impact** – The principal concern of SEPIL is that human beings in the vicinity of the proposed pipeline experience no significant reduction in quality of life as a consequence of the construction and operation of

the proposed development

- **Traffic** – A description of the predicted construction traffic/routes affected/length of time is given. This traffic will have a large impact on daily life. The L1202 is designated a scenic route with panoramic view, how will the tourists react?
- **Air Quality** – Before – Only back ground levels of pollutants. After – Construction dust, construction plant emissions, construction traffic emissions (carbon monoxide, benzene, hydrocarbons, nitrogen oxides and particulate matter PM10). Generators at Aughoos will have a big impact on air quality there will be a large increase in the amount of nitrogen dioxide produced. The polluted air will impact on the health of the local community.
- **Noise & Vibration** – Before – rural and sparsely populated resulted in low baseline noise, especially at night.  
After – Vibration generated during tunnelling. Traffic along the area will get noise level increases varying from 1 dB to 15.1 dB. Noise will affect people animals and buildings.  
How will these noise levels affect Dooncarton where we already have had massive landslides?
- **Landscape & Visual Impact** – Before – The landscape has a smooth appearance and offers extensive and panoramic views along the coast and bay.  
After – There will be visual impacts during construction and reinstatement works that will affect protected views.  
The time-span for vegetation to fully recover will be 1 to 7 years. The LVI will have landscape and visual impact.
- **Lighting** – There will be 26 months of artificial lighting at the tunnelling compound to facilitate operations at night.
- **Peat Movements** – The construction of the Corrib Onshore pipeline requires the permanent removal of 75,000 cubic metres of surplus peat.
- **Tunnel Arising** – A small proportion of the tunnelling material will be required to be disposed of to a licensed waste management facility.
- **Natural Environment**
  - Sruth Fada Conn Bay is part of the Glenamoy Bog Complex cSAC, and is an important migratory route for the Atlantic salmon. The Glenamoy River is important for salmon and sea trout production.
  - Otters and other mammals can be relatively tolerant to disturbances, but will be affected by the construction of the pipeline in the short term.
  - A total of 66 bird species have been recorded in Sruth Fada Conn bay.
  - There will be silt disposition. An exceptional pollution event as a result of sediment run or chemical pollutants into aquatic or wetland (peat land) habitats would result in significant impacts on wildlife therein, or downstream.
  - Construction of the Leenamoy River crossing (40M wide) will, in my opinion, destroy the salt marsh. This type of marsh is vulnerable particularly because of the friable nature of the substrate and relatively low coherence of the vegetable layer (Salt Marsh is EU Annex 1 habitat)
  - The potential impact/problems to the environment from the following Effluent/emissions are highlighted; Sediment, Bentonite, Cement Compounds, Corrosives, Nitrogen, Diesel.
  - What we have at the construction compound is bog with a water content in excess of 80% and circa 50M from the sea. We have seen what happened at Bellanaboy and the effluents we had in the drains and what happened at Carrowmore Lake.

### **Property Values**

- People with properties in this area will lose thousands upon thousands if the proposed development proceeds. The name of this beautiful place has been tarnished in recent years.
- A list of what attracted people to buy property in this area is given. Also a list of what people have seen and read about the area since this project has begun is given.
- Property and property values are about perception. SEPIL has tarnished the name of this area already and consequently the market. If this saga continues it will be irreparably tarnished. The effects to date the project is having on the property values of the surrounding area is immense.

- **Conclusion.** The locals have been backed into a corner and they have no option but to protect their rights, heritage and property values whatever that entails. What we have is a community falling apart. Locals have lost their quality of life, their pristine environment and thousands off the value of their properties.
- The people have lost trust in the bodies that are supposed to protect their rights.
- Looking at where we are right now and what is happening in this community, permission is not going to solve the problem. Sooner or later some person or body will say *stop this saga*, this in not proper planning and development, the suffering and destruction of this community must be stopped.

### **Closing Submission read by Mr. King on behalf of Jim and Thomas McAndrew**

- It is suggested that Shells controversial 10m section of pipeline (at the landfall) has not complied with the statutory requirement and there seems to be no way it can be made legal retrospectively.
- Is the compulsory acquisition of various plots of land in the interest of the common good.
- What is proper planning and development –right types of development are built in the right place at the right time, interests of citizens ahead of any other interest group, the integration of the EC Directives on Birds Habitat into the planning system.
- **Costs Vs Benefits:**
- **Benefits – a certain amount of employment and there will be grants available,**  
**Costs**
- **Formerly this area was pristine environment people loved to come to the area now L1202 ,a floating road , a designated scenic route , a piece of infrastructure not compatible with a major industrial development, 472 daily HCV trips 662 Car/Bus trips daily, traffic generated by Gardaí Navy Mayo County Council personnel and private security staff.**
- **Impact of the traffic when a local funeral or local event is taking place where the local community has to inform SEPIL of the event and there may be 300 cars at a funeral on this stretch of the L1202 between Glengad and Pollathomais.**
- **Air quality dust emissions, three large generators NOX ,Particulate Matter, CO2,**
- **Traffic generated CO Benzene Hydrocarbons NOX PM10 –pulmonary problems asthma bronchitis etc**
- **Dust impact on properties cleaning dirt dust on roads etc**
- **Noise and Vibration: before sparsely populated low baseline noise especially at night**
- **After vibration on the hills prone to landslides vibration on the houses between Pollathomas and Glengad during pass by TBM, Emergency shut down 80 dBA within LVI for 36 Hours, noise from traffic increase to 15.1 dBA , How will these noise levels affect Dooncarton that already has had massive landslides.**
- **Two highly scenic views at Pollathomas and Glengad-The Landscape Character has been described as having a high sensitivity to change- LVI compound will have above ground features, At Aghoos**

**2500 metres of high steel palisade fence for 26 months -in daytime view will be dominated by HCVs Gardaí security men County Council Machines Cranes etc.**

- 75000 m<sup>3</sup> peat and 68000 m<sup>3</sup> of tunnel arisings where insufficient water is available on site for mixing Bentonite tankers will bring water to Aghoos.
- SEPIL propose that peat (4 to 5 acres) is to be moved from beside the sea. Local knowledge raises concern that there will be pollution of the Bay
- Sruth Fada Conn is described ecologically concern is expressed that at low tide the Bay is vulnerable to sediments and silt deposition. An exceptional pollution event would result in significant impacts on wild life and on the habitats in the Bay.
- Leenamore saltmarsh inter tidal habitats are of international importance. It is believed that the open trench construction across this area will destroy the saltmarsh which is EU Annex 1 Habitat
- Removal of shrub will disturb habitat and have temporary permanent impact by displacing species.
- Light continuous will be a major factor. Protected species like hedge hog and pygmy shrew will be impacted
- Effluent and emissions of Bentonite Sediment corrosives nitrogen and diesel are expected which will clog reduce light in water and impact on sensitive tissues of plants and animals.
- Bentonite Cement Nitrogen Diesel it is considered that effluent cannot be controlled in terrain of this nature close to sea with prolonged rainfall autumn or spring tides and potential floods with devastating effects.
- Impact on people who fear they cannot get a doctor, priest, etc. because of HGV traffic.
- Property value point is repeated
- A bad planning decision has brought about this situation someone will say sooner or later stop this saga this is not proper planning and development
- **In Mr. Mc Andrew's opinion the Inspector has no option but to recommend to ABP that this application be refused on Health and Safety Legal and Environmental grounds.**

**Summary of Oral Hearing Submission by John Monaghan (Submission 24)**

**Point Made**

- Believes this is an experimental and prototype project, taking a leap into the unknown. No one is accountable and no one is in charge except the oil companies themselves.
- Plays video clips – clips are from BBC News and other news channels. The clips relate to the BP Gulf of Mexico disaster and other disasters/incidents involving oil and gas companies including Shell. Video ends at 20.34.22 on 01/09/2010. The following points are made in relation to the video clips.
- Transocean are very much involved in the Corrib project and that is a concern following their involvement with the Gulf of Mexico Disaster.
- We have no emergency response plan up for approval at this time. This is a real concern.
- Advantica Report states that all of the management systems should be in place prior to construction. Both the Government and Developer have said they fully accept all recommendations in the Advantica Report. This project is being carried out in direct contrast with the Report; some of the pipeline is already in place. This should be a major concern to the Board.
- With reference to Shell in Nigeria – Shell seem to take the line that it is alright to kill a few people if you spend a bit of money in the area. This is of great concern.



- This project will never be accepted by the local community, all of the route options were dangerous.
- Mr. E. Keane formally objects to the inclusion of the ‘Frontline Report’ as the authors are unavailable for questioning.

**Summary of Oral Hearing Submission by Lucy Bingham Mc Andrew Submission 5**

**Point Made**

- **I want to argue that this current attempt, while laudable in some respects, falls well short of the required minimum criteria for a solution.**
- **We need to balance interests quite differently so that the environment itself has its interests recognised and taken into account**, given that the gas is being brought in from a relatively pristine marine environment through an area which has been deemed worthy by the state, and by the EU, of potential or actual conservation status.
- I believe the **project itself cannot proceed in any form until and unless there is a serious and sustained effort on the part of all interested parties to build up trust, to find a commonly negotiated solution**, and to maintain transparency.
- Is it idealistic to believe that such a negotiated resolution can be found? Obviously, I think not. I think, in fact, that in the history of disputes of any nature, **negotiated solutions are the only ones that work.**
- Mr. Kieran Kennedy suggests that Shell has been open and transparent in its communication with members of the public but as **I myself have experienced, there are times when emails are not answered and engagement does not take place. Until this issue of openness between Shell, the local community and the state and its representatives is addressed, there will continue to be distrust and no solution will be forthcoming.**
- **The safety concerns of the local population have led to the plan to bury the pipeline in the middle of the estuary.** This would appear to increase the distance between human habitation and the pipeline. The plan would be to restore the estuary insofar as that was possible, after the pipeline has been buried and **there is a sense in which this can be seen as a reasonable way of dealing with its environmental impact.**
- The instrumental **interests of the environment itself appear to have been taken into consideration, to some degree.** What the **proposal fails to take into account** is that the **area through which the pipeline would run is an area which has special conservation status.**
- We have to begin to **show respect for our environment** because it is **valuable for its own sake but it is also the backdrop against which we survive.** Conserving particular areas has all kinds of benefits to the humans who live there, but much more importantly, precisely **because we’ve had such a negative impact on the environment to date, we now have a duty, moral, certainly, but also legal, to conserve what we can of what is left.**
- **The argument that environmental restoration will undo the damage done during construction is, quite frankly, both false and arrogant.**
- What is the point in giving an area special conservation status and then completely undermining the status by building a pipeline through it?
- There’s a huge amount wrong with the Irish state and the way it has implemented environmental policy to date.
- **Let us pause for a while to change tack on how to resolve the Corrib controversy.** I’d suggest that

<p><b>some proportion of the money</b> Mr. Kennedy said is earmarked for local community programmes <b>be put instead into education on the environment</b>, in schools in the area, and a serious attempt to <b>build up trust within communities and between the communities, the state in all its manifestations, and Shell. Then, with transparency or ‘perestroika’ as a key word, and respect as an attitude, it might be possible to find common ground.</b></p> <ul style="list-style-type: none"> <li>• <b>So much that humans have done has been done in ignorance of all the facts.</b> My concern is that even though we can no longer plead such ignorance in relation to the environment – <b>we know that our interventions often disturb</b>, in fact usually disturb, <b>in negative ways</b> – yet <b>we continue to behave as exploiters, and not as respecters, of nature.</b></li> </ul>
<ul style="list-style-type: none"> <li>• <b>Closing Statement by Lucy Bingham McAndrew on 29/09/10</b></li> <li>• The submission questions the professionalism of a team which does not consider relevant key cases in relation to the environment that have been presented in courts across the globe since Stone’s proposal in 1972.</li> </ul>
<ul style="list-style-type: none"> <li>• Given the actions of the applicant to date, the submission strongly recommends that those involved in working for the project are educated in terms of their impact and duties towards the environment.</li> </ul>
<ul style="list-style-type: none"> <li>• The Erris region and the bay and estuary area in particular still merit consideration as areas of special conservation precisely because they are relatively unspoilt.</li> </ul>
<ul style="list-style-type: none"> <li>• It is argued that by providing grants and other funding Shell are actually damaging the community further by creating divisions within the community.</li> </ul>
<ul style="list-style-type: none"> <li>• My concern is that the values that I and others hold as important values which recognise inter-dependency, attempts at scientific understanding, attempts at furthering our world around us so that we can live sustainably are not being respected by this proposal.</li> </ul>

<b><u>Summary of Oral Hearing Submission by Máire Bhreatnach</u></b>
<b><u>Point Made</u></b>
<ul style="list-style-type: none"> <li>• If a decision is taken to give the green light for the project in North Mayo, it will have very serious implications not only for this place and community, but for the whole planet, and for all of the children of all species, both now and in the future.</li> <li>• We are finding ourselves in deep trouble on a scale of magnitude never before experienced by the human community. We are ruining all around us everywhere, and we have nowhere else to go.</li> <li>• The rights of each being, to existence, habitat, and to fulfil its role in the community of life to which it belongs are absolute (including, for example, the sand martin, the otter, and the dolphin). As an integral member of this one sacred community, the human, therefore (this OH), has no right to control, subdue, exploit, diminish, or, extinguish any individual of any species for any human purpose (proposed pipeline).</li> <li>• I request that ABP do not abuse your position, or, power in North Mayo by sanctioning this proposed pipeline. Please understand that the supreme obligation of the human community here is to preserve, protect, and defend this place and its comprehensive community.</li> </ul>
<ul style="list-style-type: none"> <li>• I ask that the inspector and ABP recognise all members of the planetary community in this place as subjects to be protected, not as objects to be exploited. They have an absolute right to your protection.</li> <li>• The war between the ecologists and the corporations is the single greatest human issue of our time, but not at this OH apparently!</li> </ul>

- Believing that land is a collection of objects, property, with no intrinsic value, or, no rights whatsoever, it follows that land is vulnerable to exploitation for short-term gain, even in SACs as this proposed pipeline clearly demonstrates. There is no doubt that without its defenders, the land in question is virtually powerless before our applicant and government. The ecologists continually enlarge and correct our knowledge of our “environment”, our images of nature are always much simpler than nature, and in some degree or sense inexact, because ecological systems are complex and subtle beyond full comprehension.
  - Regrettably, this proposed development is disengaged from and predatory on the planet in this place, and imposed on this human community, and the wider life community. We must understand, and appreciate that it is the whole community of life, obeying the laws of the Universe/Earth that has created the privileged planet we all inherit today. It is their homeland first! They have welcomed us into their homeland. We depend on them. They do not depend on us.
  - I invite all here, but the inspector and ABP in particular to consider if the Universe will welcome and celebrate the decision of ABP. Will planet Earth celebrate? Keeping in mind that human cannot make the simplest blade of grass, will any being be pleased? Will the dolphins play? Will the birds sing? If the answer in “No”, then we had better reconsider our position. Nature doesn’t lie!
- 
- Ms. Breathnach made a philosophical closing submission, below are a couple of the relevant points made within the submission.
  - Our dependence on fossil fuels has fossilised our thinking. We need to reinvent ourselves, our technologies, and our human economy in the context of the Universe/Earth. For the sake of the future, we must re-establish the other carbon economy, a renewable economy based on biodiversity.
- 
- In my view, the activities of Shell supported by government, have degraded the beauty and integrity of this place, contaminated its waters, and undermined its future prosperity and democracy alike. This is what ecological vandalism does.

**Summary of Oral Hearing Submission by M.M. McCarron and Vincent Fahy (Submission 41)**

**Point Made**

**M.M.McCarron:**

- Very concerned with the efforts which have to be taken to deal with the Shell E.I.S. It seems to exhibit a lack of commitment and competence to an unbelievable degree for which the taxpayer is footing the bill.
- Awaits ABP explanation as to how they can invite the operator to enter an SAC and SPA; how it proposes to accept this by a method of tunnelling?
- The tunnel factor has been unfairly rushed upon the local community and one questions why such a short period of time has been allocated to the examination of this unprecedented method as a method to evade regulations relating to a SAC and a SPA. The Aarhus Convention remains unsigned (in Ireland) and so restrains a proper public engagement in the process of consideration of this project.
- Appreciates the insistence of ABP’s ‘list of questions to be expected’ and notes that many are Health and Safety related.
- **Health and Safety;** Feels that Shell relies only on a design code dependent on calculations and formulae, whereas ABP tends towards reliance on a consequences analysis. Senses that Shell is reluctant to engage in ABP’s approach and will only do so if questioned. Reference is made to Q1 and such phrases used as “extremely low likelihood”, which indicates an acceptance of a risk even if declared as being at the minimum of levels. This acknowledgement is a relief as it is indicative of a growing rationality among the decision makers.

- One senses an irritation in the EIS about having to deal with what I have termed more fully as the Building Burn and Person Escape realities.
- It is a lazy effort not to compute for cement rather than wooden houses (Reference to QRA).
- ABP needs to insist on a refinement of Person. There is no one person with the same capacity to escape. Feels far greater importance should be put on the topography of the escape landscape, there are few flat surfaces. Is the design code as used by the EIS able to accommodate these realities?
- Dependence on a Design Code certainly limits its application in real time and place. The present EIS is primarily dependent on a Design Code.
- The EIS tries to compensate by assuring us in 5.1.3 that “there will be a continuous 24 hour operations team” and also describes five layers of safeguarding. That such a delicate mechanism has to be held by such measures does fill one with a certain dread.
- In response to a Consequences Query from ABP, Shell has to acknowledge in the EIS that at both 144 and 345 bar “it is possible to identify some properties within this contour”, and “a number of buildings are located within the ‘escape distance’”. I might add that in 2004 the American Institute of Chemical Engineers “found that fatalities can occur within a 260m radius if there is a pipeline collapse”. The Institute favours a Consequences Approach.
- Attention is drawn to natural force damage as specific to bog and forest terrain, that of fire. The prevalence of fire in the Mayo/Erris area relates to climate temperature and is not predictable. Reference is made to the number of forest, bog or gorse fires in the area over 2009 and 2010.
- I was taken aback that the Section on Emergency Response Planning and Provision in the EIS exists only in intent at this stage. That this is a fact makes a charade out of this reopened Hearing. I submit that the hearing remains open until this is fully presented with relevant submissions from the fire service, the Health and Safety Authority and the Medical Services.
- A huge drawback continues to be the piece-meal approach of the project. Indeed the first signature should be the last when all elements have been resolved. It is a farce to sign an agreement dependent on a list of consents to be negotiated. This should apply across the board to contracts.

**Vincent Fahy:**

**Mr. Fahy has a Masters in Sustainability and Environment Management**

- As Atlantic Salmon and Sea Trout are species that are afforded protection under both Irish and EU laws, I feel that not enough attention has been afforded to fisheries protection under this current plan to dig a tunnel through the estuary of an important salmon and trout river.
- There is no doubt that the proposed excavations will produce enormous amounts of silt through the estuary. Silt has been shown to be damaging to migrating salmon stocks.
- As it is, the average size of salmon migrating upstream have already been in steady decline over the past decades. This has ramifications in relation to breeding stock as larger females will typically lay more eggs and help sustain population numbers. A river that has heavy silt deposits and solids in solution will only exacerbate this problem.
- As Atlantic salmon return to their native rivers to spawn, a single year where the spawning run has been disrupted, could have extreme long-lasting consequences for the stocks that are endemic to the river.
- It is important that we make every effort to protect our irreplaceable natural resources, both from a biodiversity perspective but also from a socio economic one.
- The Irish Tourist Board reports that a typical overseas visitor to Ireland stays an average of 7.6 nights, whereas an overseas salmon angler spends an average of 11.8 nights. This would lead us to believe that a

typical salmon angler from abroad will contribute more to the local economies than a regular tourist.

- **Reference material;** *Transactions of the American Fisheries Society*. Placer Mining Silt and its Relation to Salmon and Trout on the Pacific Coast. Osgood R. Smith.  
*An Economic/Socio-Economic Evaluation of Wild Salmon in Ireland*. 2003, INDECON – International Economic Consultants. P.200  
*Journal of Fish Biology*, Volume 68, Issue 6, pgs 1713-1730, June 2006.

**Summary of Oral Hearing Submission by Martin Harrington Submission 10**

**Point Made**

- **Was it within the remit of ABP to propose a route that in principle would be found acceptable?**
- **Was any undue pressure or influence brought to bear on the Board by any party or parties who may have had an interest in seeing this project completed?**
- **How was it possible for Shell to produce such a seemingly detailed report when no borehole sample data was available?**
- **RPS previously decided against a route up the estuary on environmental and technical grounds. How is it now possible to tunnel through a medium that had been deemed unsuitable for a trench?**
- **Can a hydrate plug induce internal corrosion in a pipeline due to chemical reaction eventually leading to containment failure and full bore rupture?**
- **How is it possible to maintain 350MMSCFD, when pressure has (supposedly) been reduced by more than two thirds?**
- The central contention of this submission pertains to Case C-215/06 whereby it is not possible to apply for retention permission or to change a development where an EIS is mandatory before the development commences.
- The previous and connected decisions have not addressed the cumulative effects of this pipeline on the connected SAC's.
- Case R Vs Secretary of State E.R. 352 [1994] English High Court ruled that Habitats Directive extends to continental shelf including to 200 mile zone. Therefore Article 27(8) of SI 94 of 1997 (Habitats Regulations) applies to this case – appropriate assessment IROPI condition.
- **Complaint Registered with the European Commission [No 1849/07/FOR]. The registered complaint has triggered the decision-making mechanism for the development contained in Article 6.4 of the Habitats Directive and subsequently Article 27 of SI 94 of 1997.** I respectfully submit that because the Commission is obliged to maintain the status of the SACs since its decision of 7 December 2004 (to grant full SAC status) that the complaints procedure by-passes all the Irish Authorities including the Irish Courts, and Article 27 has to be applied.
- **Discharge and foreshore licence.** The process applied so far is null and void as The Minister for the Marine is not a competent authority to give effect to the EIA directive.
- **The submission contains legal argument related to the Foreshore licence and Effluent discharge pipeline and the Planning application for the Terminal granted by ABP.** The contention relates to discharge point at 12Km
- This is a complete misunderstanding of the area covered by the SAC, as confirmed by the findings in the case R v Secretary of State for Industry Trade ex parte Greenpeace Ltd. (1994) 4 All E.R. 352, where the English High Court held that the Habitats Directive extended to the continental shelf including the 200 mile zone.

### **Breaches of Article 12(1) and 12(2) of Directive 85/337/EEC.**

- Ireland is in breach of Article 12(1) and 12(2) of Directive 85/337/EEC because ABP, the EPA or the Minister are not empowered to give effect to the EIA Directive. On the 18<sup>th</sup> September 1998, the Minister for the Environment, under Section 3 of the European Communities Act 1972, transposed Directive 85/337/EEC into Irish Law. In doing so he designated the Irish planning authorities as the “competent authorities” responsible for implementing and enforcing the EIA Directive. **The Minister did not designate the planning authorities and Bord Pleanála and the EPA and the Minister for the Marine as competent authorities to give effect to the EIA Directive.**
- The European Act of 1972 has also to be amended to accommodate the appeals board, the EPA and the Minister for the Marine. Therefore all decisions made to date in relation to developments that require an EIA are *ultra vires*.

### **Summary of Oral Hearing Submission by Mary and Pat Meenaghan (Submission 19&20)**

#### **Point Made**

- **Mary Meenaghan** objects to the granting of this experimental pipeline and corresponding works on the following grounds
- Ms. Meenaghan was forced to leave her home following the 2003 landslide, she now lives in Pollathomais.
- Why put an experimental high pressure raw gas pipeline in the path of a potential landslide.
- The pipeline will run close to a school, church, graveyard, public house and also crosses a road, local families will be put at unnecessary risk while going about their lives.
- **Traffic** will disrupt normal life over the 26 month period – peak traffic 236 trucks per day at Aghoos.
- Traffic to Glengad causes nuisance and danger to road users and **vibrations** could cause another landslide.
- **Environmental damage:** Is the Board willing to take the risk that an intervention pit will not be required? Such a pit it is believed would be inviting disaster on the Estuary.
- It is considered that **proper planning** should require consideration of the whole scheme together not just the pipeline. It is considered that proper planning should require that the site investigation work in the Estuary should have been completed before submission of this application.
- **Pat Meenaghan** objects to the granting of this experimental pipeline and corresponding works on the following additional grounds to points previously made by Mary Meenaghan
- ABP should be guaranteeing my safety while I am out at any point on my farm or on the road. I am being asked to live with a pipeline that if it failed could burn my home with me in it.
- At peak traffic the 236 truck round trips from the proposed compound at Aghoos will disrupt normal life over 26 months. This road (L1202) is not wide enough and there are no footpaths making walking a hazard. Haulage has disrupted sleeping patterns over the last 2 years.



- Mr. Meenaghan's farm was left devastated by the 2003 landslide. The land above his home has been left scarred and is visibly unstable. Concern is expressed at vibrations from traffic and tunnelling which could increase the odds of another landslide.

**Summary of Oral Hearing Submission by Maura Harrington (Submission 42)**

**Point Made**

- Given the negative experience of Ms. Brid McGarry arising from the closing statement of the applicant's legal counsel at the previous OH I wish to put on record that I am happy to take questions from Mr. Keane at the end of this submission but I do not give my consent to being mentioned by Mr. Keane in his closing statement given that there is at least the perception, arising from Ms. McGarry's statement to this hearing on the 24<sup>th</sup> August 2010, that Mr. Keane may abuse an occasion where there is no opportunity to reply.
- Opposition of the Corrib Project is premised on the primacy of Place; Place is all encompassing and this application before the Board is inimical to the proper planning and sustainable development imperatives of the Place that is Sruth Fada Conn/Glengad and environs.
- Royal Dutch Shell is not a fit and proper entity to be allowed into the near pristine region of Erris given that corporations global record of environmental degradation and human rights abuses.
- I do not accept that the section of pipeline the subject of this application can be rationally described as 'strategic infrastructure'; by itself it has no viability.
- There is nothing strategic about this application other than for the private shareholders of RDS plc, Vermillion Inc. and the citizens of the Norwegian state. This country is in a state of chassis and will remain so for the foreseeable future yet the last prime asset which should be within the control and management of the state is ceded to foreign oil companies. I submit to the Board a copy of a Marine Institute map called 'The Real Map of Ireland' which shows the currently designated Irish Continental Shelf. Would anybody at either side of this debate seriously propose that within that massive area there is just 1TCF of gas??
- The application before the Board is designed to get a conduit for the plunder of Irish oil and gas through Sruth Fada Conn by devious use/abuse of process.
- The long term purpose of the oil companies is that the Bellanaboy refinery would be the hub for export of most if not all oil and gas from Atlantic Ridge thereby becoming the other end of a long transmission network.
- While the current Licensing Terms and Conditions remain extant there will be continued opposition to any plunder of natural resources which rightly belong to the people of Ireland as a whole.
- I submit to the Board an information leaflet published by Dublin Shell to Sea, 120,000 copies of which have been distributed in the past year. The information in this leaflet has not been challenged by the applicant or by the state during that time so I submit that it is valid and factual.
- I also submit to the Board a copy of 'Breakdown in Trust: A Report on the Corrib Gas Report' written by Brian Barrington BL for Frontline. To my knowledge Shell chose not to comment at the time of the report's publication and did not seek clarification from the Irish Times reportage at the time.
- I attended a talk given by Dr. Seamus Caulfield in the school on Saturday 8<sup>th</sup> August 2010. Dr. Caulfield stated that further archaeological investigations in the Belderrig area now support the view that there was Mesolithic habitation along the coastline there which pushed the Céide Fields timeline back from 5

millennia to 7.5 millennia.

- The applicant continues to rely on 2002 ‘consents’ which remain *sub judice*; the applicant would have this hearing believe that the MAOP of this section of production pipeline is 100/150 barg – Catch 22 again! The robust manner in which the applicant read the High Court decision in the Jonathan O’ Donnell case into the record of these proceedings means that the applicant claims existing legal authority to operate at an MAOP of 345 barg along the length of the raw gas pipeline from wellhead to refinery. This means that the Board is obliged to consider the .7 load factor of this pipe and not just the .3 load factor which is no more than a handy little arrangement for the applicant to try to wriggle its way through this hearing. Therefore the QRAs presentation to this hearing is not fit for purpose.
- I submit to the Board a series of emails published on the website [www.royaldutchshellplc.com](http://www.royaldutchshellplc.com) pun by Alfred and John Donovan. I request that those dealing with technical matters be assessed by Mr. Wright. With regard to the email from Hugh Epsom, Sales Director Twister BV, I ask that the applicant clarify to which ‘witness statement’ at which ‘hearing’ Mr. Epson refers given that Mr. Epson considers it to be ‘incorrect information’.
- The applicant has failed or refused to adequately address the issue of the physical security of the proposed LVI at Glengad. Catch 22 again – the LVI cannot at the same time justify its location in a highly scenic viewing area and claim that its physical security isn’t compromised. Not possible.
- A few comments on the applicant’s Addendum given to the hearing on 24<sup>th</sup> August 2010 – p26, PMC ‘three elected representatives of the local community’ is a false and misleading statement to the Board; p39, ‘it is now proposed that water will not be pumped from the tunnel reception pit or the LVI site at Glengad during the construction works at either of these sites’ – where is the water going then?
- I put on record that Serbhishi Curam Chill Chomain did not make a submission to the hearing yesterday, 1<sup>st</sup> September and the talk on the GAA given by John Gallagher has neither relevance to planning matters nor any association with Micheal Ó hÉalaí; the tawdry submission of Kevin Hegarty, also irrelevant to the Board’s consideration of this application, brought to mind ‘The Picture of Dorian Gray’ by Oscar Wilde – in front of us, not in the attic.
- I support and rely on all submissions made to the Board which oppose this pernicious project.
- I will not enumerate personal experiences from this cursed Corrib imposition – I will state for the record that I will continue to defend the integrity of Sruth Fada Conn/Glengad, a place of Divine Beauty.
- Closing Remarks
- 50 Submissions have been made to ABP in this resumed Oral Hearing 44 against 6 for the proposed development
- SEPIL has employed experts to make the case for the development, as locals we cannot afford expertise so we are not being given equal opportunity by the State in this case.
- The front line report Breakdown in Trust by Brian Harrington B.L. should not have been ruled irrelevant to these proceedings by the Inspector.

- Nobody anywhere can claim the right to subject Sruth Fada Conn to the devastation suffered in Gulf of Mexico.
  - In the event that the ABP decide to grant permission there is scepticism regarding how these will be implemented in reality.
  - The Direction of the Board to confine the OH to matters relevant to the onshore pipeline has placed all who participated in the hearing in an invidious position.
  - At no time since its inception has the proper planning and sustainable development of the proposed development as a whole, been assessed under EIA or SEA.
  - The life of the field will be 7/8 years at maximum output and only 20 years at an output of 100 million cubic feet per day. SEPIL has contracted to provide 60% of its 45% share of the Gas Field Reserves to the Irish Market. There is no evidence before the Board that shows that the 73% of the Corrib Gas Field Reserves will remain in the Irish Market.
  - An estimate is given that in terms of the Total Gas Demand that Corrib may only supply between 2.5% and 8% of the Total Gas Demand of the country.
  - This is not considered of Strategic importance to the State.
- 
- Local participation at Oral Hearings on the Corrib Gas Field has demonstrated that the local knowledge is far more comprehensive and specific than all that SEPILs experts put together.
  - The applicant has not demonstrated in a scientific way that its proposal will not impose a health and safety risk and an environmental risk in the area.
  - The applicant has not demonstrated that the proposed development that will impose a health and safety risk and an environmental risk in the area is in any way compatible with the proper planning and sustainable development of the area.
- 
- It is considered unlikely that a proper mitigation monitoring regulatory and enforcement regime is likely to evolve in Ireland within the maximum life of the Corrib Reserves.
  - It is considered that there has been a lack of proper consideration of issues at the OH, i.e. questioning of the strategic importance to Ireland of the Corrib Scheme, The Front Line Report, matters relating to previous permissions and other parts of the overall Corrib Gas Field Development. As a result it is considered that ABP is precluded from reaching a decision consistent with proper planning and sustainable development.
- 
- In the event that Corrib becomes a strategic part of the European Gas Network then Glengad residents are exposed to attack from international terrorists who may wish to damage the European infrastructure. This aspect and the risks to local people involved per any reasonable understanding of natural justice means that the proposed development can be neither granted permission nor conditioned in a manner consistent with proper planning and sustainable development.
- 
- Regarding Semantics the applicant has used reliance on the ABP letter of 2/11/2009 in defending responses made to Mr. Wright's questions "...all we had to work on was the ABP letter of Nov 09".
- 
- The submission criticises the contribution of the DEHLG at the OH. The point made is that ABP must have regard to the fact that lack of oversight or competent input from the relevant Government Department puts this state at risk of incurring further judgements from the EU with massive fines etc.
  - The Board must satisfy itself on the scientific integrity of Ms Neff, the applicants witness on environment, and in particular her evidence regarding the Machair system where it is contended she failed to provide verifiable proof to support her assertion that a Machair system was absent from Glengad.

- Ms Harrington’s opposition to the project has always been based on the primacy of place.
- The applicant is not considered to be a fit and proper person to be considered suitable for a grant of planning to operate in a place that is Erris.
- We do not want this; it is not good for us and it will not be good for those who come after us when we are dead and gone.
- The Aarhus convention pillars -environment social economic- are not being served by this application. The precautionary principle is not been used by any except the local community. The principles of natural justice will have been set aside if ABP grants the CAO’s .

**Summary of Closing Submission by Mr. Sweetman on behalf of the McGrath Family (Submission 32)**

**Point Made**

- The Mc Grath Family have a Licensed Premises and Residence in Pollathomas. There was no information before Minister Ryan to assess the impacts on the pub, no noise or vibration monitoring was undertaken. No noise readings were taken within a mile of the pub which is within 14 feet of the road which is at its narrowest at this point.
- Any decision for the Board to assess that there would not be significant negative impact on the McGrath family would be fundamentally flawed as there is no information on these effects available to the Board and on which the Board can carry out an assessment.

**Summary of Oral Hearing Submission by Michael McCaughan**

**Point Made**

- **As a writer and researcher with 20 years experience living and working in Latin America I have witnessed many situations similar to the Corrib gas dispute where rural communities faced similar projects, similar harassment, similar violence and a similar deaf ear from the authorities...** such situations are often referred to as a ‘situacion limite’, a crisis which brings the individual and the communities to the very limit of their capacity to stay sane, focused and healthy.
- In Erris, this situation, which has men, women and children on the edge of a nervous breakdown, has been going on for 10 years, and there is no end in sight.
- An extensive list of symptoms are listed such as; panic attacks, fear of the future, paranoia, inner pain, emotional outbursts, hyper vigilance, muscle tension and so on...
- **Dr. Keith Swanick, a Belmullet-based medical professional, said ‘half the people I’m seeing now from Glengad are suffering from stress and worry.’**
- **None of the symptoms described above feature in Shell’s EIS or EIA or in the government analysis of the project and rarely if ever in the mainstream media’s coverage of the conflict.**
- **Things have changed dramatically in Kilcommon parish, everyday life has been turned upside down and no one knows what to expect next, whether their life may be in danger or their freedom taken away in defence of their farm, a road, a field, a stretch of sand.**
- **The submission gives incidents of personal impacts on children old people etc.**
- **Farm work is undone as neighbours monitor commonage in case of trespass and then there is the aggravation of existing symptoms- a stroke in one case, high blood pressure for many others. Someone else described to me how he didn’t sleep for three days after the drilling rig pulled up in**

**front of his home.**

- The symptoms described above match those of **post traumatic disorder**, an illness associated with war and earthquakes, particularly common among soldiers returning from the battlefield. **For the people of Kilcommon the past ten years has resembled life during wartime.**
- **When a traumatic situation occurs in a school or workplace, the phrase ‘a team of counsellors’ is usually sure to follow...in Erris, however, people are expected to fend for themselves, falling back on their own resources, their family and friends.**
- **Now you’re talking my language... I lost count of the number of times I have heard this expression during this hearing...but whose language are we talking here? Apparently, the language of progress, development and economic growth. The local people speak another language, of respect for nature, of low impact living and of leaving behind an environment fit for generations.**
- It would be great if every human emotion could be put on hold while this hearing and this project are under consideration but there is far too much at stake, people’s livelihoods, their wellbeing, and their children’s future.
- A sense of internal displacement has already taken root. One parent travels 45 minutes to avoid the beach overlooking his own home, unable to revisit it after aggressive surveillance aimed at his grandchildren. A doctor told one individual, suffering high blood pressure, to go away for a week or two until work near his home was completed.

- On day two of the hearing people were advised that the only relevant topic for discussion was ‘...the performance of the onshore pipeline.’ How does the collective punishment of a community fit neatly into the performance of an onshore pipeline?
- Shell representatives can of course put emotion on hold, they have no emotional input, interested only, and no one should be surprised or shocked at this, solely in profit margins. The state however, has a different set of priorities which must be upheld. The reckless disregard for the welfare of local people cannot be permitted.
- If this catastrophic situation was beyond fixing or the project was completed then there might be grounds for discussing psychiatric intervention, mass counselling or any of the many therapeutic ways in which people pick up the pieces after traumatic times. But the project is not over; it is barely beginning, 26 months of tunnelling lie ahead.

- Under the licensing terms for offshore oil and gas exploration, development and production, the Minister at the Department of Communications, Energy and Natural Resources may “for such period as the Minister deems necessary, require that specified exploration, exploitation, production or processing activities should cease...subject to conditions which the Minister may specify, in any case where the Minister is satisfied that it is desirable to do so in order to reduce the risk of injury to the person...no claim for compensation may be made against the Minister on foot of any such requirement”
- It seems obvious that the urgency of today lies not in approving yet another contentious component of a failed project but in reviewing the entire process so that the people of Kilcommon parish can have their lives back.

### **Summary of Oral Hearing Submission by Micheál Ó Seighin (Submission 14)**

#### **Point Made**

- This is the extension of the OH from June 2009. As such all submissions made in 2009 have been considered and continue to be in play in so far as their significance has been measured to the satisfaction

of the Board.

- The events from the Gulf of Mexico and subsequent and ongoing disclosures on the relationship of fallible man to natural forces illustrate without ambiguity some of the main issues that have focused us in this community into this unequal battle and have ensured that we maintain our questioning of what has not yet been proven to be safe sensible viable or sustainable.
  - Pipelines fail; no pipelines are built to fail and so all pipelines that fail are pipelines of which some engineer or designer team such as we have here said initially “It is perfectly safe.”
  - Reference is made to the Johnson Report of 2002 (Government appointed adviser)
  - Safety is what we are about. We know the other issues – some of them, in Dick Spring’s words, bordering on “national treason” but those matters are not rightly on the menu of the Bord Pleanála, safety is near the bone and nearer again when one has been lied to consistently.
  - When this dubh-ina-gheal is company policy the pressures for professionals are enormous: Raymond Hollbeach last week gave a fine presentation on the visual but he made one vital mistake: when describing the area he pointed out directly and honestly the parts of the area that are heavily populated which happens to be the corridor chosen for this dangerous project compared with the rest. These clash with the company message of an empty derelict area.
  - The project monitoring committee has been mentioned at the hearing. Such an oversight is necessary wherever the project may be sited, whether sensibly sustainably or otherwise. However the one as presently manned is a right joke. There is no expertise represented on it apart from whatever is supplied by SEPIL. Whatever the future throws up is likely to be monitored by individuals that have no expertise whatsoever in the upstream gas industry.
  - It is for ABP to decide the ongoing significance of Advantica’s judgement which are always given under the heading of “**provided**”-i.e. human error, commission, omission – “provided” is the warning from the implemented expertise “be wary of perfection: it is not for us humans”. Exposure to full well head pressure 345 barg is a credible risk.
  - Advantica, since the hearing of June 2010 have verified that they were not given DNV Document which says “*Results indicate the potential for gas clouds to produce ground level flammable concentration at more than 350m from the leak*”. This information, were it available, may have changed somewhat Advantica’s approach to the submission of Captain Aldridge. It is for the Board to decide if the additional information on this point given to the hearing in June 2009 by DNV satisfactorily contradicts their earlier opinion.
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- There is the huge problem of Document 46, (reference, Advantica Report p. 63/117) reviewed extensively by Advantica which found the proposed pressure control regime therein described as very unacceptable indeed and whether it or Document 47 or neither and the control regime therein described form any part of the regulatory system now proposed to the Board and apart from whom it has not been externally assessed. This is the very basis of the safety system and I ask Mr. Nolan and Mr. Wright to make sure that Advantica’s concerns in this regard (especially Draft report Chapter 5 and again Final report same chapter) are fully and adequately addressed in the present submission.
  - I of course accept that there is a role for QRA in the design of a natural gas production system. But I insist with Advantica that it is not the whole story which is what the IOOA has got the Government and the Oireachtas to fossilise in law for the foreseeable future.
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- **Visual presentation by Mr. O Seighin shown as DRN OH 57** Shows in material form what QRA can degenerate into when given the status of biblical infallibility – (refers to Mr. Phillip Crossthwaite and





<p><i>inclusion in the QRA either because they are assessed as being (a) non-credible causes for loss of containment or (b) have such a low frequency of occurrence that their omission will have negligible impact on the risk predictions.” Are not these exclusions from consideration by the QRA a fair summary of the causes of many of the disaster failures that have been mentioned at this OH.</i></p>
<ul style="list-style-type: none"> <li>• Since this project has been typified by the use of misleading language we do not apologise for requiring the Board to know what the applicant means when it’s use of a technical term “wet” seems to conflict with the reality that water is present. Since the beginning the applicant has insisted that this gas stream is dry: but commentators from Andrew Johnson have said it is wet. Isn’t it time the Board found out the meaning of wet and dry as the terms are used by the applicant and what they imply for the present potential of H2S? We do not know the level of H2S that must cause the applicant to take remediation measures nor indeed what such measures must be.</li> </ul>
<ul style="list-style-type: none"> <li>• Accidents happen, pipelines fail, unfortunately it is human to err and further, human error is normal but I do not see any allowance for this undisputed fact in the risk analyses for this pipeline. Where there is room for subjective human judgement there is room for a Gulf – apart altogether from sins of omission or commission.</li> </ul>
<ul style="list-style-type: none"> <li>• ALARP is not a safety concept, it is a cost concern. It is an open declaration that the applicant does not aim at providing the best available technology (BAT) not even BAT not entailing excessive costs (BATNEEC). It is a declaration of a low standard project in a high technology industry. We do not accept that this is good enough.</li> </ul>
<ul style="list-style-type: none"> <li>• The issues with the LVI have not been put to rest. I have no answer to the query given to this hearing “What is the wall thickness of the alloy piping at and in the vicinity of the LVI?”</li> </ul>
<ul style="list-style-type: none"> <li>• As the applicant has not returned with the necessary information verified, the implications of this for the strength of the pipeline at this its weakest point (the LVI) where no Design Factor applies has not been teased out and remains worrying. There are obvious further implications if this most vulnerable part of the assembly is further weakened by a thinner wall pipeline. It cannot of course affect the D.F. because there is no D.F. to be applied, although the LVI and its associated pipes and fittings are inland and under the houses of Glengad.</li> </ul>
<ul style="list-style-type: none"> <li>• The presentation of the risk contours as required by ABP is anything but transparent. No thermal flux less than 35kW.m2 is considered (Q6.5 (i) P.9): this corresponds to a dose of 3500BTU and everyone caught by it is dead. The people are modelled 5 m from shelter, wait 5 seconds to move to safety at 2.5 m or 1m/sec. This scenario means that people ‘at risk’ are all only 5 m away from their residence and have 7 to 10 seconds to get to safety.</li> </ul>
<ul style="list-style-type: none"> <li>• 1800 TDUs or ca. 18kW/m2 represents 50% fatality outdoors up to 218 m [QRA: 8.1 Table 17]. Half the people are expected to live and half to die? What logic is there in ignoring all possible deaths expect a total wipe out – do 50% dying not merit protection from the Board?</li> </ul>
<ul style="list-style-type: none"> <li>• Argument that the system of evaluating heat doses is flawed because it does not take casualty other than fatality into consideration, because the model only reflects a 20 second exposure, because people at greater distances than 5m from shelter will become casualties, figures depend on the MAOP pressure onshore not exceeding 100barg, because the offshore pipeline and the LVI are not considered, because of concern that under the consent of 2002 that the offshore MAOP 150 barg cannot be guaranteed, a question is raised regarding differences in levels of exposure that a person on a rig would receive compared to a person on land (it is contended that a person on a rig is considered to receive half the dose compared to the person on land) [HSL Human Vulnerability to Thermal Radiation Offshore HSL</li> </ul>

2004/04].
<ul style="list-style-type: none"> <li>• The DNV admits that a cloud can form and explode from a leak somewhere between 88 and 350 m from the pipeline – DNV in 2009 and we in 2010 have documented this possibility – this pushes the danger to people who are further away from the pipeline.</li> <li>• The expressions “normal industry practice” “best industry practice “ “best international standard” are considered to mean the same thing, it is contended that these meaningless expressions are what has given rise to pipeline failures (list provided)</li> </ul>
<ul style="list-style-type: none"> <li>• It is our contention that any restrictions on the pressure of the gas stream or any decision to impose a D.F. of 0.3 up to and including the LVI and even to the entrance to the tunnel is a vain effort without legal basis and its only function is to mollify the community. We ask the Board to demonstrate that our analysis is incorrect and that there are no external limitations on the jurisdiction of the Board and on the implementation of its remedies resulting from a series of existing legalities. [This point relates to SEPIL position that 2002 consent is valid and the point extends to a situation where SEPIL decide they can use the 2002 consent up to the location where the pipeline route into the tunnel deviates from the 2002 consented route]</li> </ul>
<ul style="list-style-type: none"> <li>• With reference to SEPIL leaked emails, that show considerable disquiet regarding the actual ownership of the wells in Corrib and of their contents. Is it possible that we have done it again and left a legacy to the citizen of having to pay for the obligations of ownership, were a failure to occur, while extracting no benefit from the product itself? We ask the Board to satisfy itself that this possibility be clarified before proceeding with the decision making process a la this application.</li> </ul>
<ul style="list-style-type: none"> <li>• Issues from above are repeated regarding DEHLG and disturbance in Sruth Fada Conn, regarding whether condensate added 20% to the rupture intensity and DNV’s response to the OH in 2009 regarding same.</li> <li>• Mr. O Seighin is critical of equality afforded to observers at the OH where it is contended that the taking of questions on Design Safety Stability in block disadvantaged the observers who were expected to collate the contributions of experts in the face of SEPIL’s Senior Counsel who was given lee way to butt in at will to protect the experts against questions that might lead into dangerous territory</li> </ul>
<ul style="list-style-type: none"> <li>• The value of Corrib gas is placed at 5\$ per 1000 cubic feet of gas i.e. for one trillion cubic feet the overall value of the gas field is 5\$billion all the gas the entire load.</li> </ul>
<ul style="list-style-type: none"> <li>• Is ABP obliged to accept an application that purports to represent a 15-20 year (the submission calculates all gas could be gone in little over 6 years) project when the figures given in support of it show that this is impossible.</li> </ul>
<p>Third Party Deliberate Interference</p> <ul style="list-style-type: none"> <li>• One way or another attention has been drawn to this pipeline worldwide making this an attractive target for possible disaffected elements world wide.(It is contended this has been done by media campaign by SEPIL)</li> <li>• It is contended that SEPIL in their choice of security have brought known international mercenaries with terrorist associations into forcing this pipeline through the community.</li> </ul>
<ul style="list-style-type: none"> <li>• On the basis of good and rigorous science and the proper planning and sustainability of this area we ask the Board to make a logical decision and refuse this application, even if it is likely that the same applicant will then re-apply, armed with Minister Ryan’s new law that removes the lives of such as this community from the protection of the planning laws.</li> </ul>

**Summary of Oral Hearing Submission by Neil McEleney (Submission 21)**

**Point Made**

- We feel that the safety of our families are/will be compromised because of the close proximity of the proposed pipeline route to our dwelling houses.
  - We are extremely concerned as to how close the newly revised pipeline is to our local national school
  - We feel that the rules applied by ABP for one off houses and pipeline routes should be unilateral i.e. either refuse or grant not offer an alternative as they have done in this case.
  - We feel that by shifting the pipeline from one side of the bay to the other, is just shifting the problem from one community to the next while at the same time putting all the communities in danger.
- 
- As every household-family near the landslide of 2003 will know that house insurance is a major problem, what will happen if God forbid this tunnel-pipeline goes ahead as outlined, will we ever be in a position to be insured.
  - How can Shell reduce the pressure in the pipeline now when they have said in the past that it was necessary to have 144 bar in order to stop the build up of slug in the pipeline?
  - We have major concern in relation to the amount of construction traffic, given the appalling track record Shell has since their project began, with mud slides in Bellanaboy and houses damaged along the L1202.
  - Since drilling commenced in the bay, boats have been operating out of hours on a continual basis with no regard for people's health and well being.
- 
- We have concerns as to the accuracy of the distance – measurements documented by Shell between dwelling houses and the pipeline, this should be confirmed independently.
  - We feel that it is imperative that all of Shell's works are monitored stringently by a newly established and truly independent committee, and not as before, when the majority of the committee was made up of Shell employee's.
  - Due to the vibrations coming from the platforms, and from the construction traffic, and the fact that properties have been damaged from the last mentioned, then surely it is a must that good building standards are enforced and that independent conditional surveys are carried out on all properties that will and are being affected by the works, proposed or other.
  - We object to the works on the grounds of traffic, noise and vibration that has caused damage to property.
  - We strongly object to the works due to the fact that they are in an SAC area.
  - We object to the works on the grounds of the security company that Shell use, IRMS. As they operate in an intimidating manner.

**Summary of Oral Hearing Submission by Niall Harnett (Submission 30 RSC)**

**Point Made**

- In 2002, Mr. Kevin Moore, ABP senior inspector, rejected planning for the gas refinery at Bellanaboy from the perspective of the proper planning and sustainable development of the area. He concluded by saying that it was the wrong project in the wrong place.  
He was right.
- A development can only be considered to be sustainable if it can satisfy three very important criteria:-
  1. The social and cultural needs of the local community.

<p>2. The integrity of the natural environment.</p> <p>3. The economy.</p> <p>All 'three pillars' above are being undermined and threatened for no good reason.</p>
<ul style="list-style-type: none"> <li>• If compulsory acquisitions are ordered against local residents, we will see for the first time in the history of the Irish State, the lands of private citizens being controlled by mercenaries under the name of IRMS Security, paid for by Shell.</li> </ul>
<ul style="list-style-type: none"> <li>• With regard to the second pillar above – the environment – here's an example of the blatant disregard already shown for the local environment and its natural ecology: 500 acres of public land at Bellanaboy in the 'stewardship' of Coillte, earmarked for forestry (a sustainable resource), was sold in a secret deal to the Corrib Gas partners by strategically avoiding consultation with stakeholders – the local community.</li> <li>• This 'green field' site, a forest resource, was given to the development of the fossil fuel industry. Is this sustainable?</li> </ul>
<ul style="list-style-type: none"> <li>• With regard to the third pillar above – the economy – in deals done in the 1980's and 1990's, the fiscal and licensing terms of oil and gas exploration and development were changed to suit the wishes of the oil and gas industry. A tax take on the profits is only a distraction from what Dick Spring called it at the time – economic treason.</li> </ul>
<ul style="list-style-type: none"> <li>• Does the local community benefit or suffer?</li> <li>• Does the natural environment and local ecology benefit or suffer?</li> <li>• Does the economy benefit or suffer?</li> <li>• Are the institutions of the State being manipulated and is the law being used 'strategically' to benefit a third party only – Shell?</li> <li>• These are questions and arguments that we who oppose the project have asked the institutions of the State to engage with us on. But the tactics of the State and the government to push the project on, regardless of these questions, boil down to the same essential element – the utilisation of force to compel another's will.</li> </ul>
<ul style="list-style-type: none"> <li>• Why are you being asked to decide on the impact of a section of the project rather than the impact of the project as a whole?</li> </ul>
<ul style="list-style-type: none"> <li>• Is your decision making ability and integrity compromised by the imposing existence of an already constructed refinery and 80Km of laid offshore pipeline? Are you not under intolerable pressure to allow the 'last bit' to be fitted?</li> </ul>
<ul style="list-style-type: none"> <li>• Is this proper planning? Is it not a prime example of 'project splitting'? Are you in fact being asked to facilitate this 'planning by stealth'? Is this lawful? Is this sustainable?</li> </ul>
<ul style="list-style-type: none"> <li>• On the one hand, you are being asked to decide on 9Km of pipeline only, and on the other hand, you are under pressure to complete the whole project. This cannot be a case of the one hand not knowing what the other hand is doing.</li> </ul>
<ul style="list-style-type: none"> <li>• You are the deciders as to whether or not the Shell Corrib Gas Project will succeed. Given the implications your decision will have for the project as a whole, you must consider the impact of that whole development.</li> </ul>
<ul style="list-style-type: none"> <li>• Conceivably, the development of the oil and gas industry could multiply in the area to ten times the size of the current proposed development, with more land already earmarked across the road.</li> </ul>

- From a Climate Change perspective, this type of development and its future development is downright foolish. There is much weight to the argument that diminishing fossil fuel resources should be strategically used as energy to develop more sustainable energy producing technologies. The continuing exploration of finite resources for consumption only, is folly, and is bringing us closer to the tipping point of irreversible Climate Change.
- This is your opportunity to reject this application, justifiably, and by so doing put a stop to the mistaken culture of the past and provide a much needed kick into the realisation that a total rethink is needed here.
- This is a huge and burning issue, the pressure is pushing you to conform to regressive government policy. But in the same way, the spotlight on you can be used to influence future decision making to be progressive, participative and democratic, if you start by taking the correct and simple step of rejecting permission for the current plan.
- Attachments: Links to articles about IRMS security; Exert from OH given on 1<sup>st</sup> September by John Joe Barrett; Article by Colm Rapple – On the Great Oil & Gas Giveaway; Case Study taken from ‘Woodland League’.
- **Strategic Importance.** Mr. Keane, acting for the applicant, has stressed on a number of occasions that EU law forbids Shell from giving a guarantee to sell the gas to Irish State only. Mr. Mulrooney’s submission is that, in the absence of any guarantee to the State for security of supply, the Board has no jurisdiction to make a decision on the matter. Does the Board agree or disagree?
- **Compulsory Acquisition Orders.** Has the applicant satisfied the Board that the only way to Bellanaboy is through the lands of Laurence Coyle and Patrick McAndrew? More importantly, has necessity dictated that it go to Bellanaboy at all?
- Does the Board take any view on the suitability, or otherwise, of Shell’s security company, IRMS?

### **Summary of Oral Hearing Submission by Peter Sweetman and Monica Muller (Submission 26)**

#### **Point Made**

- I am advised that M/s Justice Mary Irvine, on the hearing of the case for Judicial Review brought –v- ABP, ruled, at the behest of and on the making of Submissions to that affect by ABP that if one does not raise an Issue at an Oral Hearing, an Applicant for Judicial Review cannot raise that Issue in the Judicial Review proceedings and cannot rely on or plead a point or issue not so raised at the Oral Hearing. Could the Board provide details on this judgment?
- We wish to fully adopt the submission of Martin Harrington as it is relevant to this submission.
- The Inspector has already stated that the offshore pipe, the refinery and the dump at Srahmore, that they are not part of this hearing. If the Board does not assess these developments, you will fail to apply the law governing EIA as you are required to look at not just the direct effects, but also any indirect, secondary, cumulative, positive and negative effects of the “project....not just part of the Project. That includes for example the like of traffic management plans, as they have had significant negative effects on the community. This project is from well head to terminal exit, and all its effects.
- The non-technical summary submitted with the FI does not comply with this requirement. There is no NTS with the addendum.
- **The planning history of the development**
- Different pipes have been proposed at distances 40m, 74m, from Ms Muller’s house then through Rossport commonage, and now through the Bay uncertain the distance from Ms Muller’s house .
- (a) They are currently drilling boreholes near Monica Muller’s home. How you can apply for a tunnel



when you don't know what you are tunnelling through is difficult to understand. The Board must decide that SEPIL have provided answers to the questions as requested by the Swedish expert from the RPA (refers to Metro North Project).

(b) I am not at this time able to make a full submission on the tunnel as the data required has not been made available to either the Board or us.

(c) We got the 2003 application for the terminal, The Board imposed conditions no 37 has not been complied with, this is admitted in the foreshore licence application.

As this was a monetary condition the permission for the terminal is no longer valid as this condition was required to be implemented prior to commencement of development.

(d) As it is our submission that no Environmental Impact Assessment as required by Article 3 of the EU Directive 85/337/EEC as amended by 97/11EC and 2003/35/EC has ever been carried out on the offshore pipeline and in particular on the construction compound and breach of the cliff at Glengad and as there is no facility in the EIA Directive for the carrying out of a post-construction assessment the Minister has no grounds on which he can legally grant a consent to the current application for a section 40 consent.

(e) Shell installed and constructed a section of the consented gas pipeline, from the proposed LVI to the wellhead under the 2002 Section 40 consent which includes the requirement to comply with all plans, drawings, specifications and conditions attached. This has not been done.

(f) The installed pipeline was not constructed within the terms and restrictions of the Rules and Procedures Manual for Offshore Petroleum Production Operations.

(g) The installed pipeline was not constructed as per the foreshore licence, as the Landfall is prescribed in the Foreshore Licence, as 81469E 336301 N. The map titled FORESHORE LICENCE OVERALL ROUTE dated 30.1.02, Number 05 2102 02 P O 199 02 states that these "Coordinated (? coordinates) given are to define the foreshore routing".

**Inspector's Note Co ordinates shown on Drawing Number 05-2377-01-P-0- 007 are 81542E and 338693N and Chainage 83+380 as the landfall (and point where the application to ABP starts. Details of the co-ordinate systems are provided on that drawing)**

(h) It is also our submission that the future submission, for agreement, of an Environment Management Plan is not valid under the judgment in Case 215/06 (extract from Case attached relates to carrying out of assessment before consent is given)

- Attached – Text of questions drafted by Ireland, The Attorney General and the Minister for the Environment, Heritage and Local Government and Agreed by Peter Sweetman.
- It is contended that no EIA was carried out in connection with the IPPC licence and that a condition of the Proposed Decision on a review of the licence was not subjected to EIA
- Attached – script from the OJ reference to Case C-50-09 'Action Brought on 4 February 2009 – Commission of the European Communities v Ireland' relates to a failure to include demolition works from the scope of Directive 85/337/EEC
- Argument that EC has concerns "...because Irish Legislation contains no obligation on decision makers to co ordinate with each other effectively..." that Irish Legislation is therefore contrary to articles 2,3,4 of the Directive of the EIA Directive
- S.I. No. 94/1997 – *European Communities (Natural Habitats) Regulations, 1997.*  
Point 27(1). The point being made is that Ms Neff claimed to have performed an EIA of a section of SEPIL's EIS. The assessment procedure should be carried out by the Planning Authority and that the Planning Authority shall ensure that where a proposed development is likely to have a significant effect on a European site that an appropriate assessment is carried out.
- **The Habitat Directive.** Re 190 m Blanket Bog  
It is clear from this that Ms Neff is mistaken in her approach - the species she chose to look for were not

<p>present then she stated that it is not a Priority Habitat. She is wrong. The term “active” must be taken to mean still supporting a significant area of vegetation that is normally peat forming; this bog land is active by this description. -extract from 7130 <i>Blanket bogs</i>. PAL.CLASS.:52.1 and 52.2.  Argument that SEPIL will not reinstate the area refers to Bord Gáis pipe restoration and contends that NPWS are not satisfied that the lands there have been successfully restored.</p>
<ul style="list-style-type: none"> <li>• <b>Machair.</b> The site designation notes and the map attached to those notes clearly show that some of the lands at the Eastern side of the SAC at Glengad is Machair.  Ms Neff for the developer claimed to have performed an EIA of their section of the development. The EIA has to be performed by the Planning Authority.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>The Stone Road</b> which was constructed without any reference in the EIS is UD (assumed this means unauthorised development) and is without consent under the EIA Directive.  The Planning Application is invalid as it does not contain the retention of the pipe at Glengad; the road in the SAC at Glengad for which no planning has ever been applied for, It is our submission that under Article 9 of the Planning and Development Regulations 2001 as amended the pipe was not exempt development</li> </ul>
<ul style="list-style-type: none"> <li>• The Board must ascertain that no reasonable scientific doubt remains as to the absence of such effects. The Board must do the relevant research to establish this fact within all reasonable doubt. We in this community have had too much put on us by the agencies of the State, without any sense of ‘such procedure shall be fair, equitable, timely and not prohibitively expensive’.</li> </ul>
<ul style="list-style-type: none"> <li>• Attached;  Judgment in Case C-66/06 of the European Court of Justice  Extract from the Official Journal of the European Union C 82/19  Copy of letters to;  An Bord Pleanála  Minister for Environment Heritage and Local Government.  Minister for Communications, Energy and Natural Resources</li> <li>• Stated Question to the European Courts of Justice.</li> </ul>
<p><b>Closing Submission of Peter Sweetman, Monica Muller, Greg Casey &amp; the Swans &amp; The Snails Ltd.</b></p>
<p><b>The Directions of An Bord Pleanála</b></p> <ol style="list-style-type: none"> <li>1. For ABP to suggest an alternative route (November 2009) through an SPA and SAC for in excess of 55% of the route, was a decision which could not have reasonably been reached on the basis of the provisions of the Planning &amp; Development (S.I.) Act 2006.</li> <li>2. Limitation of considerations in 2010 OH process: Tunnel vision adopted at the Oral Hearing regarding the project (believed this refers to decisions on relevance of material which the Inspector accepted or rejected at the hearing)</li> <li>3. File16. DA.0004: Reference is made to the Boards dealing with CAO’s in May and June 2010, and the submission states that the Board completely mixed up and confused itself in terms of its obligations and powers pursuant to the provisions of the Gas Act and the provisions of the Planning Act 2000, as amended.</li> </ol>
<p><b>Habitats &amp; Birds Directives</b></p> <ul style="list-style-type: none"> <li>• <b>Machair argument as outlined above is repeated no reasonable scientific doubt should remain as to the absence of effects on the site concerned.</b></li> <li>• <b>Blanket Bog argument as outlined above is repeated</b></li> <li>• <b>SEPIL have by their own admission accepted that the proposed development will materially affect the birds species for which the SPA is designated.</b></li> </ul>

<ul style="list-style-type: none"> <li>• <b>Salt Marshes: The development will affect the absolute destruction of a Habitat for which Glenamoy Bog Complex is designated (salt marsh)</b></li> </ul>
<p>4. The Board and the Inspector, in considering this Application, are obliged to adopt procedures and standards deriving from the EIA, Habitats and Birds Directives of the EU which may be somewhat novel to them insofar as the standards which they are mandated to uphold, adopt and implement are entirely different to the standards which have been historically followed by Planning Authorities within the State.</p>
<p>5. We wish to impress upon the Board and Inspector that they really do need to read, consider and understand documents such as the Habitats Manual of the EU, the Manual relating to consideration of projects affected by the provisions of Article 6 of the Habitats Directive prior to their embarking upon the Decision making process. We do not make this suggestion lightly.</p>
<p><b>Planning &amp; Development Acts</b></p>
<p>1. The developer has failed to supply the written consent of the landowner of the Foreshore (The State) and the State lands managed by Coillte Teoranta for the making of this Planning Application. (see Planning Regulations. 2001 – Article 22.2g) “Where the applicant is not the legal owner of the land or structure concerned, the written consent of the owner to make the application”.</p>
<p>2. The developer has failed to make an application for Retention of those parts of this Development which have already been carried out, without the benefit of planning permission i.e.</p> <ul style="list-style-type: none"> <li>The road into the lands and SAC site at Glengad,</li> <li>The Stone Road near the Refinery,</li> <li>The entrance to compound SC4 where the road exceeds 4m,</li> <li>The pipeline from the median HWM that has already been laid,</li> <li>The current entrance to the site at Glengad which is materially different to that for which the Board granted retention permission</li> </ul>
<p>3. Argument that the works carried out under the 2002 pipeline consent is unauthorised development due to an interpretation of the Exemption Regulations reference to Article 9(1) Class 25(c) article 6 (a) the carrying on of a development would cause .. (i)...laying out of a means of access to a public road the surfaced width of which exceeds 4 metres in width...</p>
<p>4. The information supplied on Noise does not stand up to scrutiny. The section of Noise sensitive receptors is fundamentally flawed. The seashore is not a noise sensitive receptor. The inspector’s refusal to consider evidence relating to the noise from the site investigation drilling was a mistake.</p>
<p>5. The submission claims that the works carried out at the refinery are unauthorised as some Conditions (namely 7(a), 7(c), 34 and 37) of the original Planning Permission for the refinery were not complied with.</p>
<p>6. Pursuant to the provisions of Section 35 of the Planning Act 2000, as amended, the Planning Authority may make Application to the Courts for Refusal of the Development Application on the basis of continuous non-compliance with the provisions of the Planning Acts and of Permissions and Consents issued pursuant to that Act. Given the cavalier attitude exhibited by the applicant towards the provisions of the Planning Acts in respect of this Project, we submit that it is a course of action which is mandatory for the Board to adopt.</p>
<p><b>Environmental Impact Assessment</b></p>
<p>7. Argument that where site is of “Priority” importance (Annex 1 with asterix) that the planning authority must have adequate information available on the potential effects before it including mitigation measures and that consequently the use of “Waste Plans” “Traffic Management Plans” and</p>

<p>“Environment Management Plans” are not to be countenanced in any grant of permission for this pipeline development.</p> <p>8. Argument repeating the issue relating to EC ruling that projects requiring EIA should not be able to obtain retention permission (in effect avoiding the carrying out of the EIA before the consent for the project and before the development is commenced).</p> <p>9. Argument that Foreshore Licence for Site Investigation at Sruth Fada Conn is unlawful- project splitting, Development in SAC and SPA no Appropriate Assessment, EIA was required no assessment was performed, Non compliance with Foreshore Act EIA regulations 1999.</p>
<p><b>The Seveso Directive</b></p> <p>10. The Project falls within the remit of COUNCIL DIRECTIVE 96/82/EC as amended on the control of major-accident hazards involving dangerous substances. It is clear that both the HSA and the Board have made fatally flawed decisions concerning the operation of and applicability of the Directive to this entire project.</p>
<p>11. The Irish Implementing Regulations of 2006 which seek to implement the Seveso Directive of 2003 are in fact illegal insofar as they seek to place Gas Pipelines, offshore and onshore, upstream and downstream, outside of the remit of the operation of the Directive in Ireland.</p>
<p>12. Any decision made by the Board other than to refuse this Application will be unlawful, pursuant to the provisions of Irish Planning Legislation, The Habitats Directive, The Birds Directive, The Environmental Impact Assessment Directive and The Seveso Directive.</p>

<b><u>Summary of Oral Hearing Submission by Paula and Michael King (Submission 6)</u></b>
<b><u>Point Made</u></b>
<ul style="list-style-type: none"> <li>• If you grant SEPIL permission to bring this raw gas pipeline up the strand in front of our home there will be no time when we will feel safe and secure in our home or when our children are at school or when we are out and about in the surroundings.</li> </ul>
<ul style="list-style-type: none"> <li>• Shell has in their EIS that we are situated (AG10 on Map) 413.15m away from the proposed pipeline. That measurement is taken from the house and not from the road which is our only exit. We are approx 50m from the road.</li> </ul>
<ul style="list-style-type: none"> <li>• Pullathomas NS by Shell’s measurements is (PU12 on Map) 647.92m from the proposed pipeline. That is the school and not the playground or the field adjacent to the pipeline which is owned by the school and is being developed as a football pitch and extra playing area for the children.</li> </ul>
<ul style="list-style-type: none"> <li>• We travel the L1202 every day and part of this proposed pipeline crosses the L1202 road, near where part of this road collapsed when it was being widened in 2008. How safe is the ground here for the proposed crossing of a raw gas pipeline?</li> </ul>
<ul style="list-style-type: none"> <li>• To speak of the pipe as being a safe distance from dwellings does not convince us that we can relax and not need to worry.</li> </ul>
<ul style="list-style-type: none"> <li>• From the very beginning of this project SEPIL have said it is safe, but have been proved wrong and had to make a lot of changes, so what does that say about what they say is safe. How can we trust them?</li> </ul>
<ul style="list-style-type: none"> <li>• We are not now and never were against the gas coming ashore, but there are other ways to do this and not put peoples lives at risk. We are ordinary people; we are not against development in Erris.</li> </ul>
<ul style="list-style-type: none"> <li>• We do not want our area and our lives to be handed over to people that we cannot trust. We chose to live here because it’s where we belong and want to stay. We see how beautiful the place is and we know</li> </ul>

it will not remain that way if it is interfered with to build a tunnel for a raw gas pipeline. We want this place which is a SAC to remain beautiful and safe.

- We are asking you to please make it possible for us to live with peace of mind by not exposing us to the danger of a raw gas pipeline beside our home and our School.

### Summary of Oral Hearing Submission by Pobal Chill Chomáin (Submission 23)

#### Point Made

- Presented by Leo Corcoran CEng MBA FIEI on behalf of Pobal Chill Chomáin
- Pobal Chill Chomáin have objected to the revised proposal submitted by the developer on the following grounds that the LVI at Glengad was not selected in accordance with the codes of practice, is not exempted development, and is not an appropriate location for such an installation.
- The LVI site at Glengad does not meet the risk criteria set out by ABP. The QRA in Appendix Q does not include the analysis requested by the Board. Had the analysis been carried out it is most likely the site at Glengad would fail the risk thresholds set by ABP.
- In relation to Shell's response to ABP's November 2009 letter with regard to their request for a QRA on the LVI and pipeline to be submitted; the Petroleum (Exploration and Extraction) Safety Act 2010 does not in any way limit the function of ABP in ensuring that the infrastructure is designed in accordance with the relevant codes of practice and that meets public safety.
- The developer is required to respond to all the criteria set by ABP in their letter on 2<sup>nd</sup> November in particular it should submit a QRA report which quantifies the risk of different sections of the pipeline infrastructure including the LVI at Glengad and including all failure modes as requested.
- Considering the individual risk threshold of  $10^{-5}$  set by ABP, the Glengad site could fail the Risk Assessment and could therefore not be approved.
- **Planning of Strategic Infrastructure.** It is common practice to reserve and zone sites of strategic importance and to exclude other commercial activities. We can see that the sites chosen for the Corrib project were not zoned for strategic infrastructure.
- The site chosen for the refinery at Bellanaboy lies within the drinking water catchment of the local community even though there were alternative sites available.
- Although the EPA were alerted that the Scottish EPA would not recommend locating a refinery within a drinking water catchment this advice was ignored and in his report to his Board the inspector failed to mention this important information. The Board of the EPA granted a licence without being informed of this important evidence in the inspectors report. Further the inspector incorrectly ruled that the code of Practice PD 8010 only applied to pipelines and not to "pipeline systems" including terminals (or refines as defined by the EPA).
- When the Minister for Energy granted consents for the Onshore and Offshore pipelines in 2002 he neglected to mandate that the pipelines should be built in accordance with a code of practice. Had a code of practice been mandated the infrastructure proposed would not meet with the requirement of the code. In particular the location of the Refinery within a drinking water catchment where other sites are available is in breach of the code of practice.
- When the developer briefed engineers to select the refinery site landfall and pipeline they did not

include a requirement that the infrastructure should be designed in accordance with a code of practice. The security provisions of the code of practice were not considered by the developer when selecting the site at Glengad.

- Government agencies and Ministers with the powers and duties to regulate this project failed to ensure that international best practice applied. It is now obvious that this location is entirely inappropriate for Strategic Hydrocarbon Infrastructure. The developer's current solution of boring a 4.2m tunnel to accommodate a 0.5m pipe would never have got beyond the planning stage if this was proposed in 1999.
  - There is no justification for permitting shortcuts or waivers on the basis that this is a project of Strategic National Importance.
  - It has been argued that this project is essential to meet our future energy needs however an examination of future energy needs from a 2010 perspective indicates that Corrib is not strategic to our energy needs.
  - The tunnel construction is likely to generate vibrations and shock waves that could induce bog slide/ landslide on the adjacent steeply inclined landscape.
  - The tunnel at 4.2 m seems oversized to accommodate a pipe of 0.5 m.
  - As regards the site at Glengad there is no provision under P&D Act 2000 to 2009 or the S.I. act 2006 for the local authority to exempt this development from planning.
  - The developer has not applied for planning permission for this site and ABP cannot grant permission for this site under the current legislation.
  - If ABP approves the gas infrastructure within the outer boundary fences as a Section 40 consent it would set a precedent which is contrary to all acceptable practice. There is no legislation for such a permit.
- 
- Development which is subject to an EIA cannot be exempt from planning under the Planning and Development Regulations 2001.
  - The granting of planning permission by ABP under the S.I. Act 2006 is in conflict with EU Directive 2003/35 which requires provision for substantive appeal at reasonable cost.
- 
- Mr. Corcoran confirms that he is an Engineer with experience of applying for planning permission for Gas infrastructure. He has never tried to get planning permission for physical infrastructure such as Block Valve Stations under Section 40 Consent. It is his belief that block valve stations require planning permission and the pipeline between block valves requires section 40 consent.
  - Mr. Corcoran confirms that he has not applied for planning for any LVI installation since the coming into effect of the P&D (S.I.) Act 2006.
  - Having been asked by Mr. E Keane if he would like to change his statement 'If ABP approves the gas infrastructure within the outer boundary fences as a Section 40 consent it would set a precedent which is contrary to all acceptable practice.' Mr. Corcoran confirms that he does not wish to change his statement.
- 
- **Philomena Moran begins Submission**



<ul style="list-style-type: none"> <li>• Objects to the pipeline and the LVI at Glengad. They are close to the School in Rossport where her son attends. The Gas will have no smell, how will they know there is a leak?</li> </ul>
<ul style="list-style-type: none"> <li>• Where is the rescue plan?</li> </ul>
<ul style="list-style-type: none"> <li>• Another Landslide from Dooncarton could rupture the pipeline.</li> </ul>
<ul style="list-style-type: none"> <li>• The pipeline is proposed to go through a SAC and a SPA, is there a different law for Shell?</li> </ul>
<ul style="list-style-type: none"> <li>• Asks ABP to refuse the application before them before it further destroys their lives.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>P.J. Moran begins Submission</b></li> <li>• The health and Safety of the people is the real issue, not money. It is irrelevant how much money Shell put into the local area if peoples safety is compromised.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Sean Ruddy begins Submission</b></li> <li>• Main concern is for his son and the pupils at Pollathomas N.S. The exit doors from the school face onto the bay and so does the football field.</li> </ul>
<ul style="list-style-type: none"> <li>• What will happen to the children when an incident occurs? How will they get safely out of there?</li> </ul>
<ul style="list-style-type: none"> <li>• <b>John Monaghan begins Submission</b></li> <li>• Refers to a statement made to him by Commandant Patrick Boyle (who was an expert witness at the 09 OH), ‘ any consideration of this application in the absence of a fully detailed emergency response plan being part of the assessment procedure, in his view would render the entire process irreversibly flawed under European Law. There should be full access to all material beforehand.’</li> </ul>
<ul style="list-style-type: none"> <li>• Closing Statement for Pobal Chill Chomáin made by Vincent McGrath</li> <li>• The oil companies, with the support of senior politicians, had already predetermined the location of the refinery and method of development before planning permission was sought for a gas processing plant at Bellanaboy. Therefore, any “<b>consultation</b>” or “<b>monitoring</b>” that followed could only be a sham process designed to facilitate the implementation of the project.</li> </ul>
<ul style="list-style-type: none"> <li>• In a follow up letter to Mr. Des Mahon from the residence of Knocknalower and Muingaroon following a breach of Condition 9 (PL16.207312) by SEPIL on 13<sup>th</sup> June 2007 when the L5243 was used for haulage work due to protesters blocking the R314 at Bellanaboy Bridge. Quote from letter: “ What alarms us most of all is the apparent unwillingness and/or inability of <b>Mayo County Council</b> and the <b>Project Management Committee</b> to take on Shell and compel them to comply with basic safety requirements.”</li> </ul>
<ul style="list-style-type: none"> <li>• In light of the performance of the DCENR and DEHLG during this hearing ABP would need to seriously examine the substance of any Government policy originating from these Departments.</li> </ul>

**Summary of Oral Hearing Submission by Ciarán Ó Murchú Ms Tallet & Angela Hefferon, Pobal Le Chéile (also Submission 19 2009)**

**Point Made**

- Appreciation is expressed to the members of ABP for their courageous decision not to grant permission for a pipeline through Rossport.
- Many members of the local community are still extremely disappointed and dissatisfied and feel that the ABP decision did not go far enough, and that once again Shell and the other developers have been shown preferential treatment to that which have been shown to any other citizen or company.
- We are extremely shocked that ABP have stated that due to “the strategic importance” of the Corrib gas and “the current status” and “it is their view that it would be appropriate to **approve** the proposed

onshore pipeline development should alterations be made”.

- As corridor C was already rejected previously by RPS we are very concerned by the decision of ABP to instruct the applicant that this is the optimum pipeline route for this development.

**In relation to the question of the strategic importance of this gas and the use of the Strategic Infrastructure Act in order to fast track the planning process**

- According to submissions at the last OH gas only supplies 27% of our country's energy requirements. There are obviously many other diverse sources of energy supplying the other 73% of the Irish energy market which will obviously be significantly developed in the event of any energy shortages.
- We understand that current energy policy in the USA is to slow down or stop production from their own domestic wells and transport their oil and gas from Mexico and other non domestic supplies, so that they do not deplete their own reserves. This seems like a logical and sensible approach towards the long term strategic management of their natural resources does it not? I would therefore like to ask why Irish policy directly contradicts US policy? Is Irish policy for the good of the Irish people or for the good of oil companies?
- It is therefore our belief that there is no need to accelerate the planning process in order to get Corrib Gas to market! It is actually much more strategically important to take sufficient time to get this project development concept right from the start as we believe we are looking at the start of an industry in the west of Ireland which will have a major impact on our lives, the lives of our children and many generations to come, an impact which all of hope will be of a positive nature.

In relation to the other issue which was given major weight in the decision outlined in the ABP November letter which is the question of **“the current status of work done to date”** as a factor for the board indicating again that it intends to approve this development we wish to make the following point;

- We do not understand how the developer can have the best of both worlds. On one hand they are allowed to progress this project by project splitting and seeking permission for one aspect of this project in isolation to the other aspects, while on the other hand ABP are considering the status of other aspects of this project while adjudicating on this aspect of the project.
- Reference is made to the response by a Shell representative to a question by Pobal le Chéile on the same issue at a meeting in Dublin last year, the response was “Phased permissions are normal practice internationally and are **undertaken at the developers risk**”.
- As has been already pointed out in a previous submission the Boards own inspector Mr. Kevin Moore, in his report recommended that “The Board should not be constrained by any decisions that may or may not have been made by other agencies to date”
- It is therefore our strong belief that as this company openly admits their strategy of gambling; by undertaking this large development on a piece by piece basis then ABP should not feel obliged or under pressure to grant planning permission as a result of this strategy. Pobal le Chéile requests that the board do not use the status of other elements of this project as a basis for determining the permission for this element.
- They wish to put on record their dissatisfaction at the response by Mr. Hanna, Dept of Energy to the ABP November letter, which in their opinion is a further illustration of the biased position taken by the Department of Energy in relation to the Corrib Gas project.

- **Independent examination of the entire project is required.** While the onshore pipe section of the project has been aided by independent expert consultants it is only one of four different significant elements of the project. It is our understanding that none of the other elements of this project have been

subjected to independent scrutiny, therefore how can we be expected to have confidence in, and accept this development in its entirety. As this decision by ABP will allow all the other elements of the project to become operational, in the interest of public safety, we ask that ABP seek an independent review of all the separate elements of this project to include the overall plan of development prior to making its decision on the onshore pipeline.

- **Political pressure exerted on the planning process.** A couple of incidents are referred to indicate that there has been political pressure exerted from the state and they appeal to the Board not to be influenced by this pressure in the forthcoming decision.
- Reference is made to a drawing titled Preferred Pipeline Routes, which appears to have been compiled at an early stage of this development by Enterprise energy. The diagram shows 3 preferred pipeline routes at this stage which do not involve coming in through Glengad to Bellanaboy. We therefore do not understand how these routes changed to the one we are now considering?

- **Polarisation of the community.** It is clear for all to see and from most recent amendments to this development that the developer has at all times adopted a minimalistic approach to community concerns. As was made clear to us during our meeting in Dublin, Shell will only diverge from their original plan if they are forced to do so by the authorities of the state.
- In relation to the social investment fund, there is agreement in principle with the investment in community facilities and local community organisations and, in businesses and tradesmen benefitting from the development. Pobal Le Chéile strongly believe however that the decision to allow and actually encourage the developer to embark on a programme of investment in 2006 prior to having all consents in place and prior to first addressing the fears and concerns of the receiving community was, to say the least irresponsible and premature, and possibly even negligent and illegal. It simply fuelled the conflict, and distorted the issue of community consent within Erris. They ask that ABP address this issue when they make their final decision.

- **Conclusion.** Does Industry best practice involve locating a refinery 8km inland, necessitating the routing of a raw gas high pressure pipeline in close proximity of peoples houses, in an area which has experienced landslides, and through SAC's and SPA's?
- In Pobal le Chéile we have always clearly stated that we are not against the Corrib gas being processed. We believe however that there are much safer and more community friendly alternatives to the plan of development being so stubbornly pursued by the developer.
- They have publically given their support for the Kilcommon priest's proposal which is to relocate the refinery to a remote uninhabited area such as Glinsk. Much more local employment would result by relocating the refinery to Glinsk at a time when once again employment is scarce in the country.
- (reference slide 5 and 6) Puts forward the use of Twister BV technology as an alternative. Twisters website clearly state that "this technology is suitable for processing gas offshore on unmanned platforms in remote hostile environments." Shell claimed at Dublin meeting that Twister was not yet operational on a commercial field. On Twisters website they state it's commercially operational on a field in Malaysia since 2004. A field which Shell operate.
- They respectfully request that the value that was put on the quality of life of the people of Rossport in the ABP November letter be extended now to the people of Glengad in the Boards forthcoming decision.
- They are still unsure as to what is the developer's Emergency Response Plan in the event of a major incident with the pipeline or the LVI and we ask that this is presented to us prior to the end of this

<p>hearing.</p> <ul style="list-style-type: none"> <li>This is one of the most important areas of the Mayo Gaeltacht and it is our understanding that the developer must assess what the impact of their development is going to be on the area through a language impact statement. We are also not aware that this language impact statement exists.</li> </ul>
<ul style="list-style-type: none"> <li><b>Angela Hefferon</b> – Ballyglass Pier Traffic Management Plan</li> <li>The inspector ruled that the Ballyglass Pier Traffic Management Plan was not relevant to the application before the Board.</li> </ul>
<p><b>Closing Submission Pobal le Chéile – 30/09/10 - Day 21 – Doc 178</b></p> <p>Pobal le Chéile submits that ABP should unequivocally refuse the application currently being pursued by the developer for the following reasons. The submission expands at length the points listed below.</p>
<ul style="list-style-type: none"> <li>Reason 1;- Inadequate <b>Emergency Response Resources</b> and absence of a credible Emergency Response Plan or even a draft Emergency Response Plan.</li> </ul>
<ul style="list-style-type: none"> <li>Reason 2;- Lack of <b>proper public consultation</b> in relation to this route and in relation to the overall plan of development of which this pipeline is a component.</li> </ul>
<ul style="list-style-type: none"> <li>Reason 3;- <b>Flawed &amp; Unsustainable Plan of Development</b>, Existence of Alternatives, Precautionary Principle is not being applied in this <b>SAC</b>.</li> </ul>
<ul style="list-style-type: none"> <li>Reason 4;- <b>Security</b> threat posed by the pipeline and the LVI at Glengad.</li> </ul>
<ul style="list-style-type: none"> <li>Reason 5;- <b>Psychological stress anxiety and suffering</b> being caused to many members of the <b>community</b> – all unnecessary.</li> </ul>
<ul style="list-style-type: none"> <li>Reason 6;- Lack of <b>trust</b> and faith in the applicant to self regulate this potentially highly destructive industry and specifically comply with the <b>MAOP</b>.</li> </ul>
<ul style="list-style-type: none"> <li>Reason 7;- <b>Roads unfit</b> for purpose, <b>inadequate Traffic Management Plan</b>.</li> </ul>
<ul style="list-style-type: none"> <li><b>Conclusion</b>;- We appeal to the Board, to take their time and once again represent the State and the common people of Ireland when re-evaluating this application and to further re instate our confidence in our statutory bodies and the procedures of our country and unequivocally <b>refuse</b> to grant permission to this developer for this planning application.</li> </ul>
<ul style="list-style-type: none"> <li><b>Attached</b>; Annex A – Exerts from the San Bruno Gas Pipe Explosion Annex B – Leaked email from Twister BV in relation to the Corrib Gas Project Corrib Gas Update. Issue 28, June 2010.</li> </ul>

<b><u>Summary of Oral Hearing Submission by Brendan Cafferty - Pro Gas Mayo (Submission 29)</u></b>
<b><u>Point Made</u></b>
<ul style="list-style-type: none"> <li>With regard to the reasons given by the Board for the rejection of the previous proposal. Feels that there were few problems with the removal of 450,000 tonnes of peat from the terminal site and the traffic associated with that, plus the construction of the terminal itself.</li> </ul>
<ul style="list-style-type: none"> <li>The group were quite satisfied that the pipeline applied for (2009) was quite safe and seemed to be rejected, as Mr. Bob Hanna of DCENR said, on the basis not of an accident happening, but on the dangers that might arise following an accident. It was clarified that the Board's decision was based on a full bore rupture of the pipeline.</li> </ul>
<ul style="list-style-type: none"> <li>Records show that in Europe no pipeline with wall thickness of 15mm or greater has ever failed. The pipeline here is almost twice that thick.</li> </ul>

- The EIS seems to have addressed issues of concern such as the Traffic Management Plan, wildlife protection, working hours etc.
- The group will abide by whatever decision the Board comes to. This project is very important for the prosperity of the country and the region.

**Summary of Oral Hearing Submission by Rosspoint Solidarity Camp (Submission 30)**

**Point Made**

**DRN 65F**

- During the OH we get more late information – improper procedure, unjust to the public.
- Proper procedure – consideration of appeals, questions Mr. Hanna’s letter of 20/01/2010 to ABP
- ABP letter of 02/11/2009 – current status of entire Corrib Gas Field Development Project. In this ABP considered the scheme as a whole.
- €0.00 guaranteed state take from Corrib gas.
- SEPIL profits add to Irish GDP...But benefit Shell only
- No discounts buy back or any contract with the state for supply – zero security of supply.
- Fossil fuel reserves & mined material is *Natural Capital*
- Truly sustainable development must increase our *renewable income*
- Possible extensification of life of the project? – Extract from Vermillion press release 9<sup>th</sup> Aug 2010 indicating same.

- Subsea installations – the four wells ready for production in the Corrib field (completed in 2008) were not intended for pressure regulation to an MAOP of 150 bar.
- Different type QRA – chosen method depends on objectives and purpose of the assessment.
- One objective of the Corrib bowtie workshop was to demonstrate that the risks associated with the pipeline had been reduced to levels which were ALARP (As Low As Reasonably Practicable) – Point 39 of Sheryl Hurst’s evidence
- Slide showing road blockage on 18<sup>th</sup> May 2009 involving Shell HCV.

- Vibrations – “*The model is deterministic...Consequently the accuracy of the results is dependent on the correctness of the input parameters*” – Rupert Thornley-Taylor in point 4.13 of his evidence. But the input parameters are based on the 2008 for the crossings at Glengad and Aghoos, so does the “garbage in, garbage out” principle apply?
- Vibrations - “There would be no significant effect even when the vibration from the TBM and temporary railway considered in combination with vibration from construction vehicles on the highway” – Rupert Thornley-Taylor in point 5.5 of his evidence. But SEPIL 2009 haulage to Glengad on L1202 damaged walls and foundations along route.

**ECOLOGICAL CONSIDERATIONS [DRN OH 65E]**

- The revised pipeline route poses unacceptable risks to habitats and species within several EU designated protected areas. Large section of the pipeline route are protected under the EU Habitats Directive and in Irish law under the following:
  - EC Natural Habitats Regulations
  - Wildlife Act 1976 & 2000
  - Flora Protection Act 1999
- Ireland is required to: Maintain favourable conservation status of all naturally occurring wild bird species

(EU Birds Directive), and

Protect listed bird species and their habitat requirements for breeding and feeding, in the wider countryside and through the designate of sites as Special Protection Areas (SPA's).

- Reference is made to the Irish governments' failure to fulfill its obligations under EU law in relation to the designation and classification of SPA's for wild birds. In response the Department of Environment is seeking to introduce new provisions relating to the regulation of recreational activities damaging to protected sites and wildlife. The Minister will therefore have new powers to give directions to prevent, halt or control operations or activities that are likely to damage such a site or protected wildlife.
- The same protection should be given to the Glenamoy Bog Complex cSAC and the Blacksod/Broadhaven Bay pSPA. All SACs & SPAs have the same protection under EU and Irish law. This law becomes a joke if the public is asked to refrain from certain pursuits in order to protect certain wildlife sites whilst Shell is given carte blanche to damage others. The EIS presented by Shell ecologists is a huge technical document, inaccessible to the lay person. Four weeks is not enough of time to read process and critically evaluate this enormous volume of information. The science of ecology seems to have been reduced to evaluation and mitigation; allowing corporations to damage habitats and species whilst ecologists benefit from mopping up the spoils in mitigation measures.
- **Protected Habitat;** Several protected habitats are on the route of the proposed pipeline and are at risk of disturbance from this project.
  - 1) Recovering eroded blanket bog at Aghoos. This is equivalent to EU Annex 1 habitat and of national importance. Shell admits that the blanket bog at Aghoos will take a few years to recover after removing the bog in turves. The removal of this habitat, consequent experimental reinstatement and length of recovery time is in contradiction with Shells conclusion that the impact will be temporary and moderate.
  - 2) Salt marsh at Leenamore River crossing is an EU Annex 1 listed habitat. This salt marsh will be damaged by open trench cutting and it is proposed to remove large turves and reinstate them afterwards. Is this what conservation of habitat now means? That protected sites can be up-rooted and then put back as long as the money is there to do it?
  - 3) Estuarine & intertidal habitats in Sruth Fada Conn Bay are Annex 1 habitats. Shell argues that estuarine and tidal habitats will not be affected because a tunnel is to be built under the bay avoiding any direct impact. However there are several ways that these habitats could be impacted upon. a) pollution during construction or operation, b) during the construction of an intervention pit. Shell state it is "highly unlikely" or "almost unprecedented" that an intervention pit will be required. However their basic ground investigation is not expected to be complete until mid October. In the addendum of the EIS data from only 13 sites have been included. This is wholly inadequate for a 4.6km route. Data from between 23 to 230 sites is needed under the regulations for this length of route. It is argued that if an intervention pit was required it would impact directly on several protected species in direct contravention to EU legislation.
- Very little information is given in the EIS regarding the operation of the tunnel. If the tunnel is to be permanently sealed as claimed how will problems be solved and how will this affect the wildlife of the estuary. There is also little information regarding the decommissioning of the pipe; it is claimed it will not corrode within the lifetime of the project. But what will happen then? How will it affect the estuary? If there is an explosion in the tunnel there is no environmental impact assessment as to how this would affect the cSAC and pSPA.
- Potential pollution incidents during construction of the tunnel include the release of



- a) bentonite slurry
- b) concrete/cement
- c) oil

Shell has poor record on protection in this project and internationally.

- **Protected species**

The EU habitats directive states that:

“If a species is included under this Directive, it requires measures to be taken by individual member states to maintain or restore them to favourable conservation status in their natural range”. This project will have negative effects on several EU protected species whose current conservation status is less than favourable.

- **Otters:** This new proposed route will disturb the otters foraging range during construction. They will be disturbed by the noise from the compounds and TBM. Pollution is a constant threat as we already have evidence that in 2007 an otter was covered in diesel from a spill at Bellanaboy. According to the otter Threat Response Plan a general recommendation is that a barrier should be set up to prevent works within 20m of a known otter resting place, in order to minimise disturbance. There are 52 sea caves recorded many of which are used as resting sites along the pipeline route however it is unclear as to how these are to be protected from disturbance due to the TBM or general construction works? NPWS state overall conservation of otters is inadequate.
- Appendix J p65 states “there is considered to be no expectation that otter populations and their use of the bay area will be affected in the long-term, provided that the holts with otters present are not directly impacted”. Any construction within 150-200m of active principle holts will be considered by Shell as having potential impact. 3 holts have been identified although there could be more as they are very difficult to find. Shells method of dealing with holts located close to the working width is to protect them from interference or disturbance by an exclusion zone until such time as affected holts can be evacuated. A derogation is needed to obtain a licence for evacuation.
- It also gives the criteria under which a derogation licence can be issued by the Minister, none of which are relevant to a private project such as this. The otter is a protected species and this project will disturb them and the mitigation measures proposed are both inadequate and inappropriate.
- **Atlantic salmon** is a qualifying Annex II species which is considered to have a bad conservation status according to the NWPS report. They migrate through Sruth Fada Conn estuary and spawn in Glenamoy river; these species are very vulnerable to sediment disturbance (TBM noise). Potential scenarios (such as oil/concrete spills) and their consequences to the salmon in the river/estuary are given.
- **Birds;** I dispute the quality of the bird survey data in Appendix J of the EIS. Bird surveys have rarely been conducted from the shore; surveyors have been seen making observations from the road above the estuary; hardly a close enough distance to observe birds such as ringed plovers which are camouflaged amongst the pebbled intertidal area. Local bird numbers are considered higher and at variance with Table 13.1 and 13.2 for ringed plovers and snipes.
- The submission draws attention to two particular species of bird, 1. Ringed plover – a qualifying species for the SPA and 2. Snipe – amber conservation status. There is concern that noise from the Glengad compounds and associated tunnelling activities could impact on the behaviour of these protected birds. It is felt that Snipe have been dismissed as unimportant in the EIS. These examples demonstrate the inadequate bird survey data presented in the E.I.S.
- There are many references to noise and lighting affecting various species and habitats in the EIS. Mitigation measures are suggested but our experience of bird disturbance this year in the bay makes it

hard to believe that these will be adequate or even adhered to. Currently up to 42 boat movements a day at high speed through the estuary. Flocks of birds are constantly being disturbed. Throughout the EIS monitoring is consistently stated as a mitigation measure to try to appease the public. Monitoring means nothing if no action is taken following the information gathered from it.

- **Seals-** cited as seen “occasionally” in the bay. There have been many sightings by local people over the years; far more than suggested by Shell. They are protected under the Wildlife Act. They may be affected by noise from the TBM or from a possible intervention pit. Shell’s response to how to mitigate for this is wholly inadequate stating that a marine mammal observer will be on site and there will be pre operational searches prior to the commencement of the piling. We have evidence of several instances where cetaceans have been sighted in Broadhaven Bay and IRMS and Shell workers have chased them away using their RIBs. Is this how Shell will operate on sighting seals during the proposed tunnelling operation? Evidence of this will be presented in other peoples submissions.

- **Planners Responsibility-** Article 32 of the EU (Natural Habitats) Regulations, 1997, requires planning authorities to ensure that an appropriate assessment of the environmental implications of a development proposal for a SAC in view of its conservation objectives is undertaken. Planning permission can be granted only after ensuring no detrimental effect, save under a small number of special circumstances. There is enough evidence provided in the EIS to show that this project will have a detrimental effect on habitats and species within the cSAC and pSPA. There is no evidence as to why this project should qualify as a special circumstance and I therefore ask the Board to refuse planning permission so as not to undermine the conservation objectives for the Glenamoy bog complex cSAC.

- **Climate Change-** In light of Climate Change this project cannot be seen as a sustainable development. Ireland is not meeting its emission targets and has spent €99.6 million on carbon credits for the period 2008-2012. The Corrib gas will merely replace gas that Ireland currently gets from the UK as stated by the Department of Energy. The energy we will need in the very near future has to come from renewable energy sources & governments must take the lead on this to support the public in converting to renewable supplies.
- On their website Shell appear to endorse the Ecology Foundations report that the Corrib gas will in some way act as a bridge towards building a renewable future. However this is nothing more than green wash as they have no intention of using the gas to back renewable research. Shell spends just over 1% of its budget on alternative technologies.
- Shell’s claim that this project will have a positive impact on Climate Change is ludicrous and this project should not be supported as it is both unsustainable and ecologically destructive.

#### **Mitigation measures [DRN OH 65D]**

- Shell has frequently breached planning conditions. A few examples are given of how Shell’s planned mitigation measures in the EIS have failed previously, which has put the community and environment at serious risk.
- Has Shell learnt from the mistakes during the construction of the refinery?
- How can we trust that this current EIS is thorough and sufficient?
- The refinery should never have been built upstream from a SAC Carrowmore Lake which provides the drinking water for 10,000 people. It is against code of practice to site a refinery so close to a drinking water source and reminds us why in 2002 ABP rejected the refinery because it was ‘the wrong site’. The failure of the authorities, especially Mayo Co. Co., to act when aluminum levels were exceeding the agreed action limits, meant once again the community had to monitor and test the water and site runoff themselves. Is this going to happen again?

- Another example given is Shell's mitigation against diesel spills. Previous experience of Shell's ability to deal with incidents has shown to be completely ineffective. Reference is made to a diesel spill in 2007 at Bellanaboy refinery. Reference is also made to Mayo Co. Co. And Shell's environmental monitoring report on the same spill.
  - Another example is given of where Shell's planned mitigation measures in the EIS have failed in that of SAC damage. Reference is made to Shell illegally drilling boreholes in the SAC in October 2007. Shell's methods for restoration of the damage that they had illegally created seemed to just further damage the SAC as once again there was a complete failure to follow planning conditions such as use of mats for vehicles.
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- How can we trust the current mitigation measures when they don't seem to be worth the paper they are written on, given Shell's poor track record here.
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- The submission raises concerns of Shell working with subcontractors with poor records in health and safety namely Transocean.
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- Is the Board aware of Shell's TFA policy? Referring to former Shell International Group Auditor Bill Campbell who spoke out against the "Touch F\*\*\* All" safety policy that he had discovered at Shell. The Submission includes a letter by Mr. Campbell in relation to same.
  - The emergency procedure in the current EIS is wholly inadequate and the EIS does not demonstrate that the pipeline is safe. We are very concerned with statements such as 'once the route and detailed design of the onshore pipeline are fully developed, the pipeline specific aspects of this document will be finalised. Consequently, parts of this document represent work in progress.' It is simply unacceptable that this aspect is still incomplete. How can the community possibly feel reassured that safety is being prioritised? This vital information must be given before any decision can be made.
  - The emergency response plan claims that Shell 'will liaise with all residents living within a pre-determined emergency planning zone'. Why have we not been informed of where this zone is?
- 
- It is strongly disputed that the LVI is in a remote location. A significant number of people will be exposed to an unacceptable risk.
  - Shell's description of their telephones suggest that there is very little of actual substance in their emergency plan.
  - Both the pipeline and refinery are surrounded by highly flammable spruce forest and bog. These frequently catch fire, and there are no mitigation measures in place for this.
  - Must we wait for another Gulf of Mexico before Shell's plans are properly scrutinised? There are countless lists recording Shell's environmental incidents globally. There are also pages of gas explosions and pipeline ruptures.
- 
- Shell has an appalling record on safety, environmental disasters and human rights abuse. If this project goes ahead, we need to realise the fact that at the very least there will be accidents, leaks and spills. Is the Board willing to accept responsibility for this? This is such a huge and potentially dangerous project; to grant permission to a company who have already such an appalling track record is to put the health, safety

and very lives of the community at risk.

**Community Societal & policy issues [DRN OH 65C]**

- This part of the submission deals primarily with community, societal and policy issues and refers to Kieran Kennedy's statement on behalf of Shell to ABP (24<sup>th</sup> August 2010).
- **Impacts on the local community** As the term community can be used with a wide range of connotations; this statement focuses on families and individuals within the local area who are opposed to the onshore location of the Corrib gas pipeline and refinery, unless otherwise stated.
- As members of the community have highlighted here in this oral hearing, there have already been massive social, cultural, interpersonal, psychological, environmental, political, economic, health and safety consequences. It is the local community that have suffered most and will continue to suffer from the negative consequences of the project.

- Mr. Kennedy's situating of the proposed pipeline route within the overall Corrib gas project is also crucial as it draws attention to the many difficulties this community has been subjected to over their ten years of opposition to the onshore location of the Corrib gas project. Such issues include human rights abuse, lack of consultation and participation in decision making of the community in relation to the project, and the ignoring and suppression by the Irish state of the widespread community opposition to the refinery.
- Mr. Kennedy refers to a planned roll-out of a long-term community investment project as being of direct benefit to the Erris area, as though this could be the panacea for the negative issues the community have experienced since the inception of this project. However, creating such a fund can never, and will never, compensate for ten years of conflict, suffering and upset in the community and cannot resolve the deeply rooted damage caused to this community by attempts by Shell and the State to force through a project to which there is significant opposition.
- Resolving the concerns articulated by the community can only occur through proper mediation, listening and responding to the concerns of the community.

- Of further concern is the proposed Compulsory Acquisition Orders which are essentially an instrument of force designed to coerce members of the community into having their land used for purposes to which they do not consent. To force landowners to have their land used for this development without their full consent, especially when they have social, environmental, health and safety concerns is completely unjust.

**Issues affecting the local community and the wider regional and national populations**

- The whole Corrib gas project raises fundamental questions about the idea of Ireland being a democracy when firstly, developments are forced onto communities without their informed consent, and secondly, when the state appears to serve economic interests above social and environmental interests.
- A serious concern which also affects the wider regional and national populations is the distribution of economic benefits from the Corrib gas project.
- Due to changes to legislation since the 1980s, Ireland receives very few benefits from its own gas and oil – no royalties, no profits, no guarantee of supply and Irish people have to buy their own hydrocarbons at full market prices.
- A 2008 study of forty five international fiscal systems (appendix 1 attached) by petroleum consultant Daniel Johnson shows that Ireland has the lowest returns from its oil and gas of all the countries studied.

- Some people are of the opinion, as evidenced by Fr. Hegarty’s submission, that Corrib is the only potential source of hydrocarbons in Ireland. This is untrue as research by the Petroleum Affairs Division (2005) indicates a potential 10 billion barrels of hydrocarbons in the Atlantic Margin which can be conservatively valued at €600 billion – of which the Irish state will see few benefits. Meanwhile, Province Resources recently announced a find of 870 million barrels of oil off the East Coast of Ireland.
- The arguments that the regional and national populations of Ireland will benefit from the Corrib gas project are misguided and the granting of permission for this development will allow the massive potential wealth of Corrib gas to accrue to a few wealthy shareholders at the social and environmental expense of the local community and to the economic detriment of the Irish state.
- While there may be relatively short term indirect and direct economic benefits to the wider Erris region, such benefits cannot be used to justify the loss of a potential source of billions of Euros worth of gas.

**Sustainable Development and policy issues**

- Sustainable development consists of four equally important strands: social, environment, cultural and economic and in their County Development Plan (2008-2014) Mayo County Council state that a ‘key aim of the Council is to provide a framework for sustaining and developing communities throughout County Mayo.
- Given the wide-ranging social, environmental and economic implications of this proposed development, Mayo County Council is negating their own plan by supporting the granting of permission for a project to which the community that will be affected, is opposed.
- By catering only for the economic desires of Shell and partners at the expense of social and environment issues, the facilitation of this project defies any logic of sustainable development and contravenes regional and national policies.

**Conclusion**

- It is highly apparent that the negative impacts on the local community (as referred to in ABP’s letter to Shell in November 2009) are still present and if permission is granted for this pipeline, serious damage will be caused to the community on top of the suffering they have already experienced.
- ABP requested that Shell provide an assessment of the societal risk for Glengad and the societal risk along the revised route (Section 4.k), and the applicant has failed to provide an adequate assessment of the risks to society or provide evidence of how these can be mitigated.
- Granting permission for this revised pipeline route, in turn enabling the operation of the overall Corrib gas project, will have major negative impacts for the immediate community, and regional and national populations. For the long term sustainability, health and wellbeing of this community, planning permission for this pipeline route should not be granted.

**Safety of the Project (Doc 65, part 5) [DRN OH 65B]**

- Asks the applicant to state the extent that well (18/20-G) that they (and Transocean) are currently drilling would extend the life of the Corrib platform. What is meant by the “life of the Corrib platform”? Concern is expressed regarding corrosion allowance for the life of the field.
- It’s totally disingenuous for the applicant to come in here stating there is no future plans for the Corrib platform, yet the oil companies involved are informing their shareholders that the life of the Corrib platform will be extended significantly.
- It is also not clear how the changes in the stated pressures for the offshore and onshore pipelines change the expected lifetime of the Corrib Gas field.
- Transocean has done much of the subsea work relating to the Corrib Gas field. Their work has now come



under serious question following the BP oil spill in the Gulf of Mexico.

- Extracts from an MSNBC article covering a Congressional investigation into the rig explosion (Gulf of Mexico) is quoted in the submission - relates to problems at Macondo well in Gulf of Mexico.
- Also includes an extract from Blowout magazine in November 2006 highlighting Shell's safety record, focusing on the Brent Bravo platform in the North Sea.
- **Gas leakage** At last years oral hearing it was stated that gas could be leaked out of a leak on Glengad beach for 16 hours before it could be shut off. How long now could gas be leaking out at both Glengad beach and at the road crossing close to the refinery before it would be shut off?
- It is not at all clear (from the EIS) how the developer would propose to deal with a gas leak if it were to happen in the **grouted tunnel**.

- In the 2<sup>nd</sup> November letter from ABP, SEPIL were asked to investigate all failure modes "including the possibility of **third party intentional damage** at Glengad". This has not been done as far as I can see.
- What if the hydrate blockage was troublesome enough to form at the controversial High Water Mark at Glengad? How would it be possible to ensure that there wouldn't be a large pressure drop across a hydrate plug? What would be the consequence of hydrate plug travelling at high velocity into the LVI or the terminal?
- What effects will the vibrations have on any unstable ground? Will the tunnelling operation in this area take into account the current state of the weather or the amount of water on the land close by?
- Quotes for the 2006 report "Landslides in Ireland" by the Geological Survey of Ireland and the Irish Landslide Working Group are included. *"The perception that landslides are too rare to cause concern is misguided and the apparent infrequency should not be relied on as an excuse not to take the potential dangers posed by landslides very seriously."*
- Also quotes from an article for Science Spin by Dr. Ronnie Creighton, GSI Landslides Susceptibility Mapping Project Manager, *"This is a natural event we are going to see a lot more of in the coming years in Ireland"*.
- NPWS - *"Drought and extreme weather events predicted as a result of Climate Change are likely to increase erosion and blanket bog landslides, particularly on poorly vegetated areas."*

- Argument that AGEC conclusions on landslides conflicts with Tobin report.
- Asks what would be the consequence of a debris flow from a landslide hitting the LVI?
- Debris could hit the pipeline in Glengad. Why is this only being revealed now?
- What volume of debris could hit the pipeline? What modeling of the landslides recurring has been done? How much pressure could be exerted on the pipeline or the concrete slab or tunnel?
- AGEC have not mentioned the road damaged (a drop of 6 foot) in 2003.

- AGEC have identified 6 watercourses as running across or close to the line of the proposed pipeline. Three of the Potential Channelized Flow paths (No 2, 3 & 5) are stated as that they could have a *"medium impact on onshore pipeline"* What does "medium impact on onshore pipeline" mean?
- At watercourse No. 2 it is proposed to put concrete slab above the pipe and have a deeper burial depth. It is stated that "this protection is considered satisfactory", yet give no justification or explanation as to how this "satisfactory" solution was decided upon. What force would this concrete slab withstand and what force could hit it?



### **Community Impact [DRN OH65A]**

- The community section in the EIS is simply insulting to the affected community who have been campaigning to protect their families and environment for the last decade. For Shell to say there will be *'No adverse impacts relating directly to the community...therefore no remedial or reductive measures are considered necessary'* (EIS Vol. 1 6.5.2) is simply untrue.
- The EIS noise study states that *'church bells ocean noise birdsong and children playing'* is the baseline noise of the locality. This indicates that construction work and noise pollution will be completely out of character with the area. If permission is granted by the Board, the character of this area which the Shell EIS admits *'has a high sensitivity to change'* will be severely impaired.
- We dispute Mr. Kennedy's claim that *'the 'hazard distance' is not a development sterilization zone'*
- If the community had not objected to Shell's original plans that are now agreed as unsafe, where would we be today? Why has it been left to ordinary people to highlight the grave errors in Shell's planning documents?

- The pressure put on the local people has been immense and many feel our lives are on hold. If the Board decides the project should go ahead, the quality of life and well being is severely threatened for the people directly affected
- We dispute the claim that Shell has conducted a consultation process. We have attended every meeting and have requested further meetings – our requests were ignored.
- Both the current and previous Managing Directors of SEPIL have stated – on record- that no changes will be made to the Corrib project in response to community concerns.
- The lack of response to the consultation process demonstrates how local people have lost faith in the process.

- Also attached is a letter signed by 403 residents of Kilcommon parish and 6 people from outside the parish to SEPIL. All of the people who signed the letter got a confirmation that Shell received the letter but none of the issues mentioned in the letter were addressed.

- Local people in the affected area do not feel like they have been adequately listened to.

### **Social impact on securing the project**

Refers to April 2010 Frontline Human Rights Report "Breakdown in Trust: A report on the Corrib Gas Dispute". Also refers to Indymedia article from 13<sup>th</sup> June 2009

- The incidents highlighted in the above reference material give more than reasonable ground for local concerns about IRMS presence in the area. And raise a lot of questions about Shell's care for and wellbeing of the local community.
- Since mid July 2010 there has been constant and continuous surveillance done by IRMS which is intrusive and inappropriate and breaches the privacy of the local community.
- Photographic evidence is mentioned (not included in the submission) to show how IRMS has been

handling protests in the last couple of weeks.

- It is the Board's responsibility to take into account all aspects of the project. The IRMS are subcontracted by Shell, and are therefore part of the project, and the Board should not allow this community to be battered and bullied for the sake of pushing the pipeline through.
- If the Board is going to put the concerns of the people of Erris to one side and give permission for this project in its current form, this community is going to be under siege by a private security company not just for 26 months of construction but for the lifetime of the project. Approval would also set a precedence whereby private security can be employed to deal with human rights defenders in this country

**Closing Submissions [DRN OH 166]**

Any points repeated have been covered above.

**Summary of Oral Hearing Submission by Eamon Keane on behalf of Shevlin Engineering ,Arctic Construction, Lennon's Quarries Ltd, Barrett's Quarries Ltd, Balcross Engineering Ltd, Carey's Plant and Tool Hire Ltd, Brendan Hegarty Electrical**

**Point Made**

- We have for the past number of years been employed as contractors on the Corrib Gas Project.
- The proposal by SEPIL as regards work procedure, health and safety and environmental measures we consider impeccable.
- On the basis of our experience over all aspects of the project we would have no concerns as the standards are the highest standards (health and safety environmental and work procedures)
- Our support is not based on technical expertise but on our experience of working for Shell
- The wider community in which our families live will benefit enormously from the project.
- Many of the locals we represent never had the opportunity to live and work in their own community as adults.
- Erris now has a strong and skilled workforce and hopefully other projects will consider setting up in this area.
- We have been impressed by the technical experts and by their comprehensive responses to the many questions asked.
- We are also impressed at the wide range of mitigations being put in place for environmental and community to ensure the impact of the project is at a minimum.
- We have experience of how difficult it is to hold a different view to those who oppose the project. We are not just contractors who have benefitted from the project we are also living in this community and our views are as valued as those who have different views and represent a significant portion of this community.
- We ask you to give this application serious consideration Erris Mayo and this country will benefit from this project.

**Summary of Oral Hearing Submission by Willie and Mary Corduff**

**Point Made**

- The development at the beginning we were told was safe but we did not believe it. Then we were told we had 30 seconds to escape. Now they propose a tunnel. It is a pity that ABP did not turn down the application last time.

- Local people have difficulty getting listened to by the project monitoring group representatives.
- The life of myself my wife and kids are in the hands of ABP now.
- I have experienced a lot of things from Shell since they came to the area. I was never in a courthouse in a jail in a hospital overnight until they brought me these things.
- It is contended that a lot lies have been told by SEPIL in relation to these applications
- The hope is expressed that ABP will get courage to protect the people otherwise the people will have to protect themselves otherwise they are going to be killed by a gas explosion.

**Summary of Oral Hearing Submission by Eamon Murphy**

**Point Made**

- As a local person living in Glengad for 29 years I feel we have been treated badly at this OH.
- Time limits were imposed on some observers.
- Much information was admitted from supporters of the project who live many miles away from Glengad. All those who said anything good about Shell have received money from Shell.
- The inspector was under pressure and he is only here for 4/5 weeks think about us who have been under pressure for ten years.
- Would any of you like to live near a time bomb?
- Why should our family suffer and be treated like second class citizens
- The reason for not cleaning up the gas at sea was the safety of the workers but they have a choice to work or not to work for Shell, we have no choice. If the ABP grant permission they will be deciding that we are less important than Shell employees.

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**Summary of Oral Hearing Submission by Terence Conway & Others (Submission 43)**

**Point Made**

- The submission consists of nine separate articles taken from The Irish Times.
- In long discussion with Inspector regarding relevance Mr. Conway stated that the material in the articles was he felt relevant as it showed the impact the project was having on the on the local community for the last ten years. SEPIL objected to the use and commentary upon the articles being admitted to the OH.
- Mr. Conway also submitted a series of 12 listed DVD's estimated running time greater than 4 hours- in effect some as listed contained more than one DVD. SEPIL objected to the DVD material being admitted as evidence at the OH. Mr. Conway wanted the submissions of the DVD 's to again demonstrate the impact of the project on the local community. There was discussion on relevance and eventually the Inspector reserved a decision on admissibility until he had seen what was contained on the DVD's.
- After viewing parts of the material on the DVD's the Inspector ruled them all not relevant material. The DVD material related to; Primetime programme on events in Bolivia; TG4 programme Rapairí on conflict between protestors and Gardaí; RTE1 Living on the edge Rossport story relating to the 2009 route; Ministers meeting at Inver relates to a public meeting; Pipe down a video film relating to conflict with protestors and Gardaí; Drilling on SAC relates to site investigation that has been the subject of other process previously and is not part of the onshore development proposed; Road Vehicle examination at Aghoos seems related to Tax and Insurance; Security conflict at Glengad; Broadhaven Bay Dumping Grounds relates to works on offshore pipe pull in; Photos and videos of same ; and unreadable DVD/ CD material .
- Mr. Conway does not accept the honesty of the applicant he refers to the letter of 2-11-2009 and the request to SEPIL to modify the scheme. Mr. Conway's position is that he does not accept that ABP told SEPIL to go up the Bay with the Pipe.

**Summary of Oral Hearing Submission by Winfred Macklin B. Schult & Others Submission 27**

**Point Made**

- Primary concern is the area of Glengad and its inhabitants.
- Shell keeps referring to UK standards. This pipe would not be allowed so near houses or water supplies in the UK. Also, the UK is well equipped with ambulances, fire brigades, rescue teams and hospital burn units etc.
- This is taking place not only in a pristine environment, but in an unstable landslide area totally unacceptable for such a mammoth plan.
- Why should we trust our very existence to these companies who have proved their incompetence.
- Ireland is blessed on the west coast with a wealth of wind and wave power potential to lead a green revolution reaping the rewards and exporting excess.
- Attached: Extract from 'The Herald' 19<sup>th</sup> Oct 2002 on 'The day 2 died as explosion blasted shopping centre EVENT THE CLARKSTON DISASTER DATE October 21, 1971'
- Submission refers to an Irish company 'Eco Pellets' who announced it is to build a €120m bio-mass plant in Wales instead of Ireland because of the absence of a commercial incentive for **renewable energy** in

Ireland. 300 potential jobs to Wales instead of Ireland.

### **Submissions to ABP**

The submissions to ABP regarding the proposed modified development are an important element within the E.I.A. process.

For the purpose of clarity the following sets out where the submissions received have been considered in this report.

### **Prescribed Bodies**

Mayo County Council	Discussed in Chapter 4
DCENR	Discussed in Chapter 12
DEHLG	Discussed in Chapter 13
An Taisce CER Inland Fisheries Ireland	Discussed in Chapter 13
EPA HSA	Discussed in Chapter 14

### **Observers Submissions**

Written Submissions	Summarised Chapter 3
Submission at OH	Summarised Chapter 15
Schedule of issues distilled from all observers submissions	Summarised Chapter 17

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## Chapter 16 Other Issues

### 16.1 Temporary Nature of the Development

#### 16.1.1 Observers Submission

Basically observers felt that 26 months was a long time and not considered temporary.

I do not agree. Some types of development are such that the construction phase extends over a longer time. Nevertheless it is very clear that the construction project is temporary the compound at Aghoos and the other compounds proposed will be completely removed and the site will be backfilled and restored on completion of the construction phase. In my view the 26 month period for construction is a temporary period. In my view the impacts of the construction phase are temporary. The important issue is that the extent of the impacts of construction and operation phases of the proposed development is fully assessed.

### 16.2 Mr. Hanna's letter of 20/1/2010 to ABP

Mr. Hanna makes the following points

1. Mr. Hanna is writing in his capacity as Chief Technical Advisor and Energy Installations Inspector DCENR.
2. The assessment methodology set out by the Board in its letter of 2<sup>nd</sup> November 2009 is based solely on consequence with no attention given to likelihood of occurrence or mitigation measures proposed.
3. This is different from international best practice in this area.
4. Risk or hazard assessment is considered to be a function of both consequence of occurrence of a specific event and likelihood or probability of the event occurring.
5. There are significant potential consequential implications arising, if deemed a precedent, the approach being taken by the Board would have the effect of prohibiting all significant infrastructure developments.
6. An example is used to illustrate that a consequence only approach means that one would have to design and build an aircraft which would protect its passengers from harm when it crashes.
7. The Boards letter (2/11/2009) also implies no relevant standards apply and proposes UK standards.
8. TAG did in 2006 designate the appropriate standards to apply to this project.
9. The written evidence given to the Board is that those standards are met and exceeded by the project.
10. Mr. Hanna now separately warrants that the standards referred to in the Boards letter are also met or exceeded by demonstrated compliance with the standards and codes prescribed by TAG.
11. The current competent authority for upstream gas safety, TAG, has concluded that the design and proposed construction installation and commissioning of the onshore

section of the Corrib gas pipeline meet or exceed all relevant safety standards and codes.

### 16.2.1 Discussion of Mr. Hanna's letter

Mr. Hanna has not seen my full report (2009) to the Board and therefore he has not seen my analysis and my conclusions which informed the Board's decision to seek additional information. Mr. Hanna has not seen Mr. Wright's 2009 Report to ABP which informed my recommendations to the Board.

Mr. Hanna in his evidence has pointed out that the process of obtaining consent, in most countries with more experience of natural gas projects, is that a safety case encompassing all aspects of design operations and maintenance is required at the outset of the project. However he indicated such process was not being followed by DCENR on the Corrib scheme. He indicated the safety case procedure would not be implemented until the appropriate phase of the current process was reached i.e. Phase 7 Hook Up Testing and Commissioning.

The Board has to make its decision on the proposed development in advance of the safety case examination and certification by the DCENR (or CER as appropriate). The Board has to make its decision in the absence of advice from HSA on the safety aspects of the proposed development.

The Board is obliged to consider the likely impact of this development on the health and safety of the public in the area as part of the consideration of the proper planning and development of the area.

I am satisfied that my recommendations (2009) to ABP were correct. I stand over my initial report in particular Chapter 27 – Pipeline Design & Codes of Practice, Chapter 28 – Quantified Risk Assessment Consequence of Failure, Chapter 29 – Landfall Valve Installation Adequacy of Proposed Installation, and Chapter 30 – Summation of Pipeline Safety Assessment and I make the following comments on Mr. Hanna's letter

1. Mr. Hanna as CTA and EI Inspector provides valuable information for the Board's consideration. His submissions, including his letter on 20/01/2010, are important considerations for the Board. Mr. Hanna gave important evidence at the 2009 OH and he assisted and facilitated the Oral Hearing by providing answers to many important questions.
2. In my recommendations (2009) to the Board (Chapter 30.5.2 page 30-193) I needed to establish a threshold for individual intolerable risk, tolerable if ALARP risk, and broadly acceptable risk. In the absence of advice from HSA in my recommendations I put forward the UK HSE risk threshold for gas pipelines as a standard that would have international acceptability.
3. Mr. Hanna's concern is more with my second recommendation where I needed to establish and define the standard that could be used to assess the impact of a development on the safety of the community.

Mr. Hanna is correct the standard I recommended is not a recognised international standard and it is a consequence only standard. It is certainly not a standard that is acceptable to the Industry.

4. I defend the standard put forward as follows.
  - (a) Quantified Risk Assessment (QRA) is a complicated analysis.

- (b) QRA is an analytical technique that is sensitive to the data figures used in the calculations and the assumptions made and to the models used to derive the figures and predict the risks involved. That is my opinion but one which I have confidence will provide the Board with solid advice in the circumstances the Board finds it has to make its decision.
- (c) The QRA as submitted (at that time) used frequency of failure rates from data base records that were not fully representative of the types of risks associated with the proposed pipeline (extremely high pressure, wet untreated gas).
- (d) The QRA submitted (at that time) was generic and did not take account of site specific conditions (lack of shelter on Bog or in the Bay) and as a result the QRA may have underestimated the consequences of failure.
- (e) While I was satisfied that the QRA as a methodology is acceptable, I had concerns that because of the uniqueness of the pipeline in Ireland and because experimental data regarding test failure of gas pipelines did not extend to the extremely high pressures involved in this case, the concern was that ABP needed a transparent and definite routing standard against which the Board could evaluate the proposed development. Accordingly, I proposed the 'consequence' based standard to the Board as a standard against which the SEPIL proposed development could be assessed. I choose a high standard. I defined a standard whereby existing dwellings would be safe in the event of a failure of the pipeline. A worst case scenario, a full bore rupture of the pipe was then chosen.
5. I expect that in time codes will be developed further for very high pressure untreated gas pipelines on land. I expect that in time experimental tests to failure on very high pressure pipelines will be carried out.  
I expect that in time sufficient data relevant to the pipeline similar to the Corrib gas pipeline will be collected and published by the Oil and Gas industry itself so that an appropriate and accurate QRA can be carried out. In the meantime this proposed development has to be assessed. I am satisfied that the 'consequence' based standard that I have recommended provides a reasonable and very transparent standard to enable the Board to assess the safety of the pipeline, the impact of the pipeline in the area and to enable the Board to assess the proper planning and development of the area should the proposed development be constructed.
6. The technology being employed for the Corrib pipeline "subsea tie back to onshore terminal" is unique in Ireland. Reference to such development in Norway Holland and Australia were given at the initial Oral Hearing (OH) however data base figures have not been provided to ABP that are relevant to those such developments. Mr. Hanna did indicate at the initial OH that the onshore terminal is the way such developments and technology is being carried out now.
7. The Boards letter on 2/11/2009 set out to obtain sufficient information to enable a fully transparent assessment of the proposed development to be carried out. Such transparency and such full assessment is what best international practice is all about.
8. I accept that in a normal QRA the risk assessment is based on both the consequence and likelihood or probability of the event occurring. In this proposed development as originally submitted and based on the additional material produced at OH and provided in

evidence at OH there were uncertainties surrounding how to apply the codes as designated by TAG to this pipeline at very high pressure. Mr. Wright was particularly concerned at extension of codes which went from 100barg [the maximum pressure in the code charts] up to 144barg [the design and implied MAOP for the onshore pipeline] and 345barg [the design and implied offshore MAOP]. Advantica in their Report had also recognised these uncertainties. There was also uncertainty regarding the prediction of consequences where shelter is not available and furthermore there was uncertainty regarding how the corrosion/erosion and hydrates risks were included in the QRA.

9. I do not accept Mr. Hanna's view that the standard set for this development would have the effect of prohibiting all significant infrastructure developments. In my report I made a clear distinction between the upstream pipeline assessment where QRA database figures do not seem to be available and downstream pipeline assessment where QRA database figures are available for pipelines in operation over many thousands of kilometre years. In the case of downstream pipeline I see no implication or precedent arising from the standard set by the Board.
10. In the case of upstream pipelines the implications are as I set out in my Report to the Board and I believe as follows: Where a QRA cannot provide a clear and transparent analysis based on relevant figures for frequency failures of pipelines and based on actual site conditions relevant to the development then an adequate routing distance should be adopted. Where a petroleum undertaker requires that a pipeline be operated at very high pressures that go beyond pressures covered by the codes then an adequate routing distance should be adopted.
11. The facts are
  - (a) The Board has set a very high standard in the case for routing distance
  - (b) In this case the applicant proposed a very high pressure pipeline (now modified significantly to meet the routing distance requirements of the Board)
  - (c) In this case the applicant proposed onshore pipeline for untreated wet gas running inland 9 Km to a terminal (this still applies).
  - (d) In this case the pipeline was routed through in and around an existing rural linear residential development where alternatives existed in an area of otherwise very low density population.  
The Board has sought a modification to the line proposed initially and which takes the pipeline away from the residential area which is what the codes advise.
  - (e) The modification of the route to remove the construction from Rossport was based on planning criteria. The proposal to construct the pipeline through Rossport was not acceptable for a number of reasons, not just inadequate routing distance.
12. I do not accept Mr. Hanna's analogy to the aircraft design. His analogy is very misleading.  
Aircraft design has benefitted from detail investigations into failures (crashes) which have been well documented and the lessons of which have been incorporated into modern aircraft design.

Upstream pipeline on land bringing gas to inland terminals is a different type of development. The local residents will be within the sphere of influence of the pipeline for the entire lifetime of the pipeline.

13. I agree with Mr. Hanna that the use of the thick pipe with a design factor of 0.3 and the construction technology proposed are significant parts of the pipeline design for safety in accordance with the codes. I agree with Mr. Hanna that it is the design which provides the safety of the pipeline. The consequence distance was proposed on the basis of taking a conservative view on the overall proposed development. It was proposed accepting that there were uncertainties - the very high pressure proposed (2009) and the untreated nature of the gas and the lack of a QRA database of figures relevant to the proposed development (2009) and the proposed site.

PD 8010 Part 3 is a help in the assessment of Risk however in my view if the Industry wants to push forward technological solutions at very high pressure then the industry itself will have to bring forward the relevant database information to enable the QRA process to be transparent and site specific.

Accordingly the standard set by the Board enables an objective transparent assessment of risk to be carried out and against which this development can be considered. This will enable the Board to consider the balance between the need for the development and the proper planning and sustainable development of the area (impact on the environment and the local community) to be made. The routing distance, consequence based, provides the confidence that in a worst case scenario the safety of the community is protected.

14. In my report the standards prescribed by TAG have been accepted. The use of UK HSE (who have developed a specific modelling system for advising planning authorities with regard to pipeline development and who in the UK have a statutory obligation to so advise and in absence of any similar advice available to the Board in this case) standards have been necessary to ascertain where if at all ALARP conditions apply to the proposed development. In my opinion these are reasonable standards and I expect in due course the CER will define a set of such standards that will properly apply in Ireland.

### **16.3 SEPIL Application is out of time**

- Out of date because ABP letter of 06/08/2009 set a final date for decision on the application
- Because J1 Appendix submitted after 31/05/2010

#### **16.3.1 Appendix J as submitted to ABP on 31/05/2010 was incomplete**

This issue was raised by observers, that because the revised appendix J1 was not made available as part of the full E.I.S. the application is out of time and should be rejected. Separately it was argued that there was not sufficient time allowed between the circulation of the revised appendix J1 and the closing date for written submissions to ABP for a full examination of the revised Appendix to be completed.

Mr. O'Sullivan has considered this in his report. In his view, there is no reason to believe that the omission could have had any prejudicial or otherwise significant effect on the environmental impact assessment process carried out with respect to natural heritage or public participation in the process.

I agree, the fauna figures 2.0-2.14 that were omitted from the E.I.S. as submitted on 31/05/2010 and the lack of clarity with regard to the location of other figures in that E.I.S. was not a major defect in the information submitted. The defect was remedied, notice was given to enable public participation to be informed about the missing information. In the programme for the OH there was in my view adequate time available for the information to be considered. In the programme for the OH adequate time was also made available for submissions on Appendix J1.

Accordingly, I bring this matter to the attention of the Board however, I am satisfied that adequate and sufficient procedures have been applied and that the E.I.A. process has not been prejudiced by the initial omission of figures 2.0 to figure 2.14 from the modified E.I.S.

#### **16.3.2 Application out of time**

ABP by letter (06/08/2009) notified that it intended to determine the application for the onshore upstream gas pipeline relating to the Corrib Gas Field Project on or before 23/10/2009. Observers contend that based on that letter, SEPIL's application is out of time and should not be further considered and that in effect ABP should have refused the application by 23/10/2009.

It is clear that ABP exercised the statutory functions as set out in 182c(5)(b) and by its letter of 2/11/2009 invited SEPIL to modify the development and invited SEPIL to submit additional information.

ABP on 01/02/2010 informed SEPIL that it had decided to extend the time in relation to the submission of the additional information to 31<sup>st</sup> May 2010.

The observers contention does not stand up. The Board acted in accordance with its statutory powers. SEPIL submitted the modified E.I.S. on the date (as extended) set by the Board. The application is not out of time in my opinion and is properly before ABP for decision.

### **16.4 The Reputation of SEPIL/SHELL**

- Concern at the track record of the applicant internationally with respect to community issues
- With respect to environmental protection
- Human rights impacts of SHELL worldwide



An Taisce and observers argued that ABP should consider the reputation internationally of SHELL and the reputation of SEPIL in Ireland as part of the E.I.A. It was contended that:

- (1) SHELL/SEPIL had a poor record in respecting community issues related to the proposed development.
- (2) SHELL/SEPIL had a poor record in relation to environmental protection.
- (3) SHELL/SEPIL had a poor record in relation to the protection of human rights. Mayo and Nigeria were identified as two areas where it was contended human rights had been infringed. Other locations around the world where SHELL operated were also mentioned.
- (4) An Taisce further argued that ABP should form an opinion on SEPIL in accordance with section 35 of the Planning and Development Act 2000 (as amended) and refuse to grant approval to this application accordingly.

#### 16.4.1 SEPIL Position – Extracts from Closing Statement

SEPIL's counsel, Mr. Keane, said:

- (1) "It is virtually certain that no other Irish development proposal has been subject to such an amount of study and surveys over such a period of time."
- (2) "In relation to those individuals who have sought to engage in abusive, false or defamatory allegations which are not relevant to the current proposal, I do not propose to engage individually with same."
- (3) "Any suggestion that the applicant, any security person engaged by it or the Garda Síochána have in the past engaged in intimidation or assaults are entirely rejected."
- (4) "A number of other false, unfounded and irrelevant allegations were made against SEPIL and these have been shown to be incorrect or withdrawn."
- (5) "SEPIL is justly proud of its record in relation to safety and its continuous strenuous efforts to obtain and comply with all relevant statutory consents as recorded by the High Court."
- (6) "No community concerns have been subject to dismissals by the applicant...the applicant has sought to listen to and take on board the views of the community in its design and routing of this development."
- (7) "The concerns of those opposed to the project have been taken on board by SEPIL. Short of changing the location of the landfall and moving the terminal offshore, those concerns have been addressed and the substance of same resolved."
- (8) "The design of the pipeline has been to place same at depth underground so as not to interfere with surface ecology."
- (9) "The current E.I.S. has fully and properly assessed the likely significant impacts associated with the proposed development on the natural environment."

## 16.5 Inspectors Conclusions

- (1) In the course of the OH much material put forward by observers regarding human rights was ruled not relevant and inadmissible.

That material related to perspectives shown on TV programmes, film, local video material and articles written about the past conflicts between protestors against the Corrib Development and Gardaí and SEPIL employees or contractors.

- (2) It is clear that in the conflict situation that exists between the applicant and those who object to the Corrib scheme, community consultation and communication between the parties will not work as well as it might do.
- (3) SEPIL have demonstrated very clearly that they apply for necessary permissions, licences, approvals and consents for the proposed development. The granting and enforcement of permissions, licences, approvals and consents is a matter for the relevant bodies to consider and to grant or otherwise and then if granted, to enforce.
- (4) I was not impressed by arguments that previous licences, approvals and consents already issued to SEPIL are invalid, illegal or otherwise considered to be not properly in place.

Such arguments were made concerning decisions by Mayo County Council, ABP, EPA, DMNR (now DCENR), DEHLG and DAFF.

- (5) An Taisce submission was made in support of those opposing the development and An Taisce retracted contentions made when they were challenged by SEPIL.
- (6) SEPIL is a petroleum undertaker and in making these applications to ABP did so with the benefit of a certificate issued by DCENR under section 20(1)(b) of the Gas Act 2000. A copy of that certificate accompanied the initial applications. That complies with Section 182(c)(2) of the Planning and Development (Strategic Infrastructure) Act 2006.

In my view by submitting that certificate, SEPIL have the required standing and ABP must now consider the applications on their merit and, in accordance with the statutory requirements, take a decision on these applications.

- (7) The consideration of the international performance of SHELL is not in my view a relevant consideration to these applications.
- (8) I am satisfied that SEPIL have put forward a very substantial response to ABP's invitation to modify the proposed development.
- (9) I am satisfied on the basis of the information presented by SEPIL in E.I.S. and in evidence and at OH that SEPIL has prepared these applications using necessary expertise and that SEPIL have the required experience to complete this development should ABP decide to approve the proposed development.

## Chapter 17 Community Issues

### 17.1 Summary of Community Issues

Community issues have been handled as follows in this report The following schedule of community issues has been extracted from the submissions made by observers. The written submissions have been summarised (Chapter 3). The submissions to the oral hearing together with the issues raised at the oral hearing and the summary presented in closing statements by observers have been summarised (Chapter 15). The issues from this schedule are considered in this chapter where indicated and otherwise they are considered in the report generally but also specific items are considered in the relevant chapters identified in the schedule. In Chapter 28 QRA, Chapter 30 Overall Safety and Chapter 35 The Tunnel, specific issues raised by observers are addressed individually.

#### 17.1.1 Schedule of Community Issues

	Issue	Where Discussed
<b>A</b>	<p><b>Assessment: Lack of in depth assessment by Applicant in areas</b></p> <ul style="list-style-type: none"> <li>• EIS is not sufficient as a document or supplied as such</li> </ul> <p><b>Advantica Report Findings</b></p> <ul style="list-style-type: none"> <li>• Advantica Report findings have been appreciated by observers.</li> <li>• Concern now that Advantica have not examined the 2010 proposed development</li> <li>• Issue relating to pressure control system that Advantica were unhappy with in 2002 scheme - Relates to LVI proposed</li> <li>• Issue regarding Chapter 5 of Advantica Report (Hazard Identification)</li> </ul> <p><b>Applicant:</b></p> <ul style="list-style-type: none"> <li>• Concern at the track record of the applicant internationally with respect to community issues</li> <li>• With respect to environmental protection</li> <li>• Human rights impacts of SHELL worldwide</li> </ul> <p><b>Alternative routes:</b></p> <ul style="list-style-type: none"> <li>• Alternative technology available to route the pipeline and to treat the raw gas.</li> <li>• Alternatives which are compatible with EU Directives and where people not at risk should be pursued</li> <li>• Better technology available (than offshore tie back to onshore processing) via drilling processing exporting all at sea from large ship</li> </ul> <p><b>Air Quality</b></p> <ul style="list-style-type: none"> <li>• Concern about emissions from HCV's, dust, particulate matter, NOX at Aghoos Compound</li> </ul> <p><b>Archaeology</b></p> <ul style="list-style-type: none"> <li>• No local information was sourced for E.I.S. or no</li> </ul>	<p>Chap 46</p> <p>Chap 18</p> <p>16.4</p> <p>Chap 45</p> <p>Chap 46</p> <p>Chap 46</p>

B	<p>landowners were consulted</p> <ul style="list-style-type: none"> <li>• Sruth Fada Conn was Mesolithic settlement – concern there will be archaeological degradation</li> <li>• It is considered that the area is rich in archaeology and this is not reflected in E.I.S.</li> <li>• The evidence on marine archaeology should be disregarded as investigation work in the Bay is incomplete.</li> <li>• The only pieces of archaeology found in the investigation have been lost inexplicably by SEPIL.</li> </ul> <p><b>Application to ABP out of time</b></p> <ul style="list-style-type: none"> <li>• Out of date because ABP letter of 06/08/2009 set a final date for decision on the application</li> <li>• Because J1 Appendix submitted after 31/05/2010</li> </ul> <p><b>ALARP :</b></p> <ul style="list-style-type: none"> <li>• ALARP is not a safety concept. It is a cost concern. Neither BAT – Not even BATNEEC – are being provided</li> </ul>	<p>16.3</p> <p>Chap 30</p>
	<p><b>Benefit from Social Investment Fund:</b></p> <ul style="list-style-type: none"> <li>• ABP asked to address issue where SEPILs are investing in the community in advance of receiving all necessary permissions. This polarises the community.</li> <li>• The benefit of 50 expert jobs is not equal to the loss of traditional cottage industry jobs that will result.</li> <li>• Perceived small level of benefit locally</li> <li>• Jobs - number of jobs is questioned</li> <li>• That Corrib may supply 60% of Ireland's gas needs is questioned</li> <li>• Actual value overall min €5bn –max €11bn. How could state take €3bn as per Goodbody report?</li> <li>• Benefit not worth the risks proposed</li> </ul>	<p>Chap 48</p>
	<p><b>Birds</b></p> <ul style="list-style-type: none"> <li>• Surveys presented are considered insufficient. SEPIL's actions at Glengad have impacted birds there (Sandmartin Colony)</li> <li>• Noise from the Glengad site could impact on the behaviour of Snipe and Ringed Plover. Snipe have been dismissed as unimportant in E.I.S.</li> <li>• Monitoring of birds in the area during construction is proposed - this means nothing if no action is taken on information gathered.</li> </ul>	<p>Chap 38</p>
	<p><b>Community Impact</b></p> <ul style="list-style-type: none"> <li>• Community Impact is similar to and resembles life during wartime.</li> <li>• Community pain is not being considered as an impact of the project.</li> </ul>	<p>Chap 17</p>

<b>D</b>	<ul style="list-style-type: none"> <li>• Community cost of 10 years controversy and conflict and division within the community.</li> <li>• Freedom to use natural environment and amenity of area will be restricted by the project</li> <li>• Psychological impact of stress and 10 years of confrontation on community</li> <li>• The Community do not trust SEPIL, they have no common values.</li> <li>• People entitled to the same protection as the environment</li> </ul>	
	<p><b>Poor relations between SEPIL and the community</b></p> <ul style="list-style-type: none"> <li>• Failing to provide real time information on the project.</li> <li>• Distrust in their operation with security</li> <li>• Distrust in their overall motive in the area</li> <li>• SEPIL have progressed with work before planning permission is granted</li> <li>• Lack of trust of SEPIL in providing information to the community</li> <li>• Lack of trust that mitigation measures will be implemented</li> </ul>	Chap 17
	<p><b>Consultation and Monitoring</b></p> <ul style="list-style-type: none"> <li>• Consultation and monitoring are only a sham process designed to facilitate implementation of the project</li> </ul>	Chap 41
	<p><b>Children’s Heritage:</b></p> <ul style="list-style-type: none"> <li>• Impact on the future for their children’s heritage</li> </ul>	Chap 17
	<p><b>Catastrophe:</b></p> <ul style="list-style-type: none"> <li>• Extraordinary Event Uncontrollable reference Gulf disaster</li> <li>• Gulf disaster has shown how out of control events can have devastating results on locality</li> </ul>	Chap 30
	<p><b>Compulsory Purchase</b></p> <ul style="list-style-type: none"> <li>• Does the pipeline have to go through Coyle’s and McAndrew’s lands?</li> <li>• Not acceptable – will restrict farmers</li> <li>• CAOs will lead to discord and heartache</li> <li>• Is CAO in the interest of the common good?</li> </ul>	Chap 49
	<p><b>Competent Authority</b></p> <ul style="list-style-type: none"> <li>• Should be independent of applicant and state - reference to role of state competent authorities and potential for political decision to influence competent authority</li> </ul>	Chap 20
	<p><b>Climate Change</b></p> <ul style="list-style-type: none"> <li>• Corrib Gas will make no improvement to Ireland’s Climate Change Policy</li> <li>• Greenhouse Gas emissions as a result of the project are not negligible</li> </ul>	Chap 46
	<p><b>Distances:</b></p> <ul style="list-style-type: none"> <li>• Concern that distances from pipeline are incorrectly measured, also from offshore pipeline.</li> </ul>	Chap 41
	<p><b>Distances:</b></p> <ul style="list-style-type: none"> <li>• Concern that distances from pipeline are incorrectly measured, also from offshore pipeline.</li> </ul>	Chap 30

E	<p><b>Disruption in everyday lives</b></p> <ul style="list-style-type: none"> <li>• Impact of noise activity</li> <li>• 24 hour working, 7 days over 15 months of tunnelling</li> <li>• Invasion of peaceful local area</li> </ul>	Chap 46
	<p><b>Development Potential:</b></p> <ul style="list-style-type: none"> <li>• Impact on Development Potential of their lands and development potential for their families, devaluing of their houses.</li> </ul>	Chap 41
	<p><b>Damage to Property</b></p> <ul style="list-style-type: none"> <li>• Impact on household insurance</li> <li>• Damage to walls and buildings from traffic impacts</li> </ul>	Chap 44
	<p><b>Drinking Water:</b> Possible drinking water contamination</p>	Chap 24
	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• No date is apparent. Concern that once in place the pipeline will continue in service indefinitely.</li> <li>• decommissioning plan is not available now</li> </ul>	Chap 41
	<p><b>Extensification</b></p> <ul style="list-style-type: none"> <li>• Future Extensification - additional pipelines</li> <li>• Further gas fields may be connected to the pipeline</li> </ul>	Chap 21
	<p><b>Emergency Plan</b></p> <ul style="list-style-type: none"> <li>• Lack of supportive infrastructure in the area to deal with construction and/or operational emergencies</li> <li>• No immediate availability of hospital/specialist medical services if a problem does arise</li> <li>• No emergency plan was prepared as part of the E.I.S.</li> <li>• Irish Aviation Authority manual should be used as the basis for licensing standards for emergency services</li> <li>• Concern that Emergency Response Plan is not available for consideration now</li> </ul>	Chap 41
	<p><b>Economics</b></p> <ul style="list-style-type: none"> <li>• Short term project life, long term project impacts</li> <li>• Argument that the project will not provide economic benefit to Ireland</li> </ul>	Chap 6
	<p><b>E.I.S.</b></p> <ul style="list-style-type: none"> <li>• Sufficient information must be supplied. The perceived deficiency relates to Waste Plan, Traffic Management Plan, Environment Monitoring Plan, Emergency Plan, Decommissioning Plan</li> </ul>	Chap 46
	F	<p><b>Forest Fires:</b> What impact will these have on the pipeline, Also Bog Fires</p>
<p><b>Financial Value:</b> Private Company will benefit. Project not for benefit of Erris/Kilcommon.</p>		Chap 48



	<p><b>Fear</b></p> <ul style="list-style-type: none"> <li>• Psychological influence of fear of the hazards</li> <li>• Residents on Inver side of Glengad are fearful of offshore pipeline and risks associated with that</li> </ul>	Chap 30
G	<p><b>Gas: Gas Constituents</b></p> <ul style="list-style-type: none"> <li>• Concern at SEPIL’s delayed acceptance that wet gas is present</li> <li>• Concern that H<sub>2</sub>S may be developed later on in the life of the gas field with consequent corrosion risks</li> </ul> <p><b>Gas Leak</b></p> <ul style="list-style-type: none"> <li>• How long before gas leak could be stopped at Glengad?</li> </ul> <p><b>Green House Emissions</b></p> <ul style="list-style-type: none"> <li>• Increased green house emissions will worsen air quality in area</li> </ul>	Chap 30 Chap 30 Chap 46
H	<p><b>Habitats Manual of EU</b></p> <ul style="list-style-type: none"> <li>• ABP should consider and understand this before reaching its decision on the proposed development</li> </ul> <p><b>Habitats Directive</b></p> <ul style="list-style-type: none"> <li>• This warrants consideration of alternatives with no impact SAC/SPA</li> <li>• Where potential is there for damage accept only where no other alternative then IPOPI test should apply</li> <li>• Where there is doubt about maintaining integrity of site – precautionary principle should apply</li> <li>• Short response time only allowed to respond to J1 – that is not acceptable for making submission to ABP</li> <li>• Impact of quarry expansion to provide stone for the development has not been assessed</li> <li>• Sruth Fada Conn ruled out before because that route was considered to have potential to damage the environment in Bay</li> <li>• Machair at Glengad is described as grassland in E.I.S.</li> <li>• Disagreement regarding evidence of SEPIL that Machair is not present at Glengad</li> <li>• Field notes and map from NPWS 1993 Survey claimed to be evidence that Machair is present at Glengad</li> <li>• Salt marshes will be damaged</li> <li>• The implications of the EPA licences PO738-02 (25/03/09) and W 0256-01 (29/01/2009) should be assessed by ABP</li> <li>• Potential impacts on oyster cultivation in Bay from sand/mud disturbances by TBM</li> <li>• Natura Impact Statement is like tissue of half truths</li> <li>• Restoration of environment post construction is not the same</li> </ul>	Chap 39 Chap 39

	<p>as conservation of the environment</p> <p><b>Blanket Bog 190m Priority Habitat</b></p> <ul style="list-style-type: none"> <li>• SEPIL’s analysis that species of vegetation required for designation are not present is not accepted.</li> </ul>	Chap 38
	<p><b>Honesty</b></p> <ul style="list-style-type: none"> <li>• Consent/Approval must be based on honest information, not lies - criticism of EIS.</li> </ul>	Chap 46
	<p><b>Hydrates</b></p> <ul style="list-style-type: none"> <li>• Will a hydrate plug induce corrosion?</li> <li>• Concern that hydrate plugs may travel at speed in the pipeline causing potential loss of containment/rupture</li> </ul>	Chap 30
I	<p><b>Ideological – State should own Natural Resources</b></p> <ul style="list-style-type: none"> <li>• Government policy should change to sustainable development and fair deal for Ireland</li> <li>• Project is not considered strategic</li> <li>• Benefit to Ireland is considered minimal on comparative basis with the return achieved by other countries</li> <li>• A 2008 study of international fiscal systems shows Ireland has the lowest return out of 45 international systems studied</li> </ul>	Chap 17
	<p><b>Impacts</b></p> <ul style="list-style-type: none"> <li>• What does “medium impact” mean for debris flow, Glengad?</li> <li>• Already Broadhaven Bay is changed because of loss of swimming pools and rock outcrop there on the beach.</li> </ul>	Chap 46
	<p><b>Insurance:</b> People have had difficulty with insurance at Glengad</p>	Chap 17
	<p><b>Leisure Activities Along Shore Beach:</b></p> <ul style="list-style-type: none"> <li>• concern for safety of users of the natural amenities in this area</li> </ul>	Chap 17
L	<p><b>Landslides are a cause for concern at Dooncarton</b></p>	Chap 34
	<p><b>Legal:</b></p> <ul style="list-style-type: none"> <li>• SEPIL have failed to provide written consent of Coillte and DEHLG (foreshore) for making this application – Regulations Article 22.2g</li> </ul> <p><b>Legal argument</b></p> <ul style="list-style-type: none"> <li>• Site investigations not part of E.I.S. for these applications therefore they must be part of the project itself and E.I.A. not conducted on impacts of site investigations</li> <li>• Original 2002 consent is contested and further exemption status of 2002 pipeline is contested</li> <li>• That the 2002 consent and the exemption deriving there from is invalidated by works carried out...means of access to a public road and which exceeds 4m...</li> <li>• Retention Planning permission issue for section of pipe laid at Glengad</li> </ul>	Chap 47

M	<ul style="list-style-type: none"> <li>• ECJ 215/06 Regularisation of permission after the event relates to the offshore pipe laid at Glengad</li> <li>• 96/82/EC Sevesco applies to the project. ABP/HSA have made flawed decisions concerning the applicability of this Directive to the project.</li> <li>• Irish regulations on same are somehow deficient as they seek to exclude pipelines from Sevesco Directive.</li> <li>• Code of Practice compliance is questioned</li> <li>• In particular the issue of ‘strategic importance and common good viz à viz constitutional rights of landowners</li> <li>• No E.I.S. performed on cliff face breach prior to the 2002 consent to construct the pipeline</li> <li>• EC has concerns that Irish legislation contains no obligation on decision makers to co-ordinate with each other effectively.</li> <li>• Contention that ABP not specifically designated as competent authority for E.I.A.</li> <li>• The decision of ABP and the invitation to modify the route could not have been reasonably reached on the basis of the provisions of the Planning and Development (S.1.) Act 2006</li> </ul>	
	<p><b>LVI</b></p> <ul style="list-style-type: none"> <li>• Does not meet risk criteria set by ABP</li> <li>• LVI is not located in a remote location</li> <li>• The location chosen for LVI is not in accordance with code requirements</li> <li>• The location is not an appropriate location for such an installation</li> <li>• LVI could fail the 10<sup>-5</sup> risk level set by ABP above which level risk is unacceptable</li> <li>• Concern that HIPPS system will be used when it was deemed unsatisfactory in 2002 scheme</li> </ul>	Chap 29
	<p><b>Lighting:</b></p> <ul style="list-style-type: none"> <li>• High intensity lighting at Glengad has been intrusive to residential amenity.</li> </ul>	Chap 46
	<p><b>Landfall site, Glengad:</b></p> <ul style="list-style-type: none"> <li>• There never was consultation about that location</li> </ul>	Chap 19
	<p><b>Multiplicity of approvals required:</b></p> <ul style="list-style-type: none"> <li>• each which has required engagement from community i.e. Consent for Plan of Development for Gas Field, Planning for Terminal, Pipeline Licences for Waste and IPPC at Terminal, Foreshore Licence, Planning approval for onshore pipeline etc</li> <li>• These processes are considered unfair to locals/those who oppose the project</li> <li>• Political interference contended</li> </ul>	Chap 22

N	<p><b>Modifications by Invitation of ABP 02/11/2009</b></p> <ul style="list-style-type: none"> <li>• ABP invitation to modify route via Sruth Fada Conn defies logic</li> <li>• The ABP invitation to modify the route is considered an unreasonable interpretation of legislation because the ABP invitation transformed the original proposal into an entirely different application.</li> <li>• ABP reference to the current status of entire Corrib Field Development undermines the impartiality of the Board in consideration of the proposed development</li> </ul>	Chap 45
	<p><b>Marine Environment:</b></p> <ul style="list-style-type: none"> <li>• Cetaceans, whales, dolphins are not given due regard in E.I.S.</li> <li>• 2010 E.I.S. is not comprehensive regarding marine mammals</li> <li>• ECJ 183/05 Gas Pipeline Broadhaven Bay</li> <li>• CMR.C study relating to impacts on cetaceans in Bay should have been included in E.I.S.</li> <li>• Disagreement with SEPIL regarding suitability of Bay for cetaceans many local sightings are claimed</li> <li>• Underwater noise impacts on marine mammals are a concern. The E.I.S. is superficial in this regard</li> <li>• Significant argument regarding potential impacts on marine environment should works be required (intervention pit)</li> </ul>	Chap 38
	<p><b>Natural Environment Impact</b></p> <ul style="list-style-type: none"> <li>• On the SAC/SPA areas</li> <li>• Interference of any sort with tidal condition Sruth Fada Conn - unknown impacts and changes could result there</li> <li>• NPWS at one time required work in Sruth Fada Conn to be carried out in Aug/Sept period only (to protect birds )– why has this changed?</li> <li>• Local wildlife and birds</li> <li>• Marine life and pollution risk</li> <li>• Intrusion into salmon and trout fishing areas</li> <li>• Timing of site investigation viz à viz salmon, trout migration</li> <li>• Damage to beach at Glengad</li> <li>• Development is not sustainable development</li> <li>• Aluminium pollution from peat excavation is a concern</li> <li>• Priority habitat peat land (190m) is impacted</li> <li>• SEPIL ecologist experience in terrestrial ecology is challenged</li> <li>• A wide variety of ecology along the roadside in hedgerows drains etc. will be affected by any road works</li> <li>• What is the point in giving an area a special conservation</li> </ul>	Chap 38

O	<p>status and then building a pipeline through it?</p> <ul style="list-style-type: none"> <li>• <b>Natural Environment:</b> The area is one of pristine quality. It is this quality that is most threatened by the proposed development.</li> </ul>	Chap 38
	<p><b>Noise &amp; Vibration</b></p> <ul style="list-style-type: none"> <li>• The information provided in the E.I.S. is contested – recorded levels of noise contested</li> <li>• Early morning HGV traffic cause disturbance to residential amenity</li> <li>• Noise from construction at Glengad &amp; Tunnel Construction</li> <li>• LVI Noise levels when reopening</li> <li>• Security at night disturbs residents Glengad</li> <li>• Noise from flaring off gas at terminal</li> <li>• Background noise levels quote church bells, birdsong. This shows incompatibility of construction activity</li> </ul>	Chap 46
	<p><b>Otters:</b> This new route will disturb the otters foraging range</p>	Chap 38
	<p><b>Opposition:</b></p> <ul style="list-style-type: none"> <li>• We do not want this, it is not good for us and it will not be good for those who come after us</li> </ul>	Chap 17
	<p><b>Offshore/Onshore</b></p> <ul style="list-style-type: none"> <li>• Offshore pipe laid onshore is not exempt and should not be included in this permission as retention has not been not applied for and could not be granted in any case</li> <li>• Considered that ABP should have acted to stop the offshore pipe being laid onshore in 2009</li> </ul>	Chap 23
	<p><b>Other Issues raised by Observers</b></p> <ul style="list-style-type: none"> <li>• Time allowed for scrutiny of E.I.S. too short</li> <li>• Lack of provision for appeal to 182(c) application decision at reasonable cost</li> <li>• Andrew Johnson recommendations - where are they now?</li> <li>• Concern over who owns the wells anyway – if there are problems who will fix them?</li> <li>• Lack of proper consultation with locals</li> <li>• Previously 144barg considered as min pressure so that slugs could not build up in line now MAOP will be 100 barg what about slugs at 100barg</li> <li>• ABP should use Section 35 (previous record of Applicant) of the Planning and Development Act 2000 to form opinion that applicant be refused and to refuse the development</li> </ul>	Chap 46
P	<p><b>Privacy: Invasion of Privacy</b></p> <ul style="list-style-type: none"> <li>- Photo and video use by Applicant of local community</li> <li>- Lighting used along rural areas</li> <li>- A long term presence of security at Glengad is considered likely</li> </ul>	Chap 17

	<p><b>Project Splitting –</b></p> <ul style="list-style-type: none"> <li>• Call for one overall body to assess all processes for the Corrib Gas Field Development</li> <li>• The Landfall is now established this constrains, ABP decision</li> </ul> <p><b>Pollathomas N.S.</b></p> <ul style="list-style-type: none"> <li>• Board of Management of school are concerned about safety of school, environment, playground and all who use the school</li> <li>• Guarantee of safety sought if permission is to be approved</li> <li>• 47 pupils and football field 70m from shoreline - concern for safety</li> <li>• Risk of explosion – school door faces Bay</li> </ul> <p><b>Planning Policy Consistency</b></p> <ul style="list-style-type: none"> <li>• A previous planning permission decision (refusal) relating to danger to public health from effluent from proprietary wastewater treatment plant in connection with renovation of a house is considered extraordinary compared to public health concerns regarding construction and operation of gas pipeline</li> <li>• It is considered that SEPIL should have been refused rather than allowed to modify the proposed development</li> </ul> <p><b>Permission being sought</b></p> <ul style="list-style-type: none"> <li>• Modification brings permission for the tunnel within the remit of Government (Foreshore licence)</li> <li>• ABP it is contended should not confine its attention just to onshore pipeline, it should look in detail at all the scheme</li> </ul> <p><b>Planning Monitoring / Project Monitoring Committee</b></p> <ul style="list-style-type: none"> <li>• Considered dysfunctional</li> <li>• Considered unrepresentative of local community</li> <li>• Reports/feedback not being implemented/not available to the local community</li> <li>• Nobody local is involved on the PMC or the EMG</li> </ul> <p><b>Peat</b></p> <ul style="list-style-type: none"> <li>• Storage of turves will damage vegetation</li> <li>• <b>Peat Stability</b> concerns that bog slide may develop and threaten pipeline integrity</li> </ul> <p><b>Pressure</b></p> <ul style="list-style-type: none"> <li>• 100barg is still very high – why are transmission gas pipes not allowed operate at such high pressures</li> </ul> <p><b>Pollution</b></p> <ul style="list-style-type: none"> <li>• Risk to bay from bentonite</li> <li>• Potential oil spills, umbilical leak, diesel spillage, etc. in the area</li> <li>• Oil spills will decimate local shell fish industry</li> </ul> <p><b>Piecemeal approach to the project</b></p>	<p>Chap 22</p> <p>Chap 30</p> <p>Chap 41</p> <p>Chap 46</p> <p>Chap 45</p> <p>Chap 41</p> <p>Chap 36</p> <p>Chap.30</p> <p>Chap 43</p> <p>Chap 22</p>
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Q	<p><b>QRA</b></p> <ul style="list-style-type: none"> <li>• Public Places: Church, graveyard, school, wakes at houses, where many people congregate – account has not been taken of these gatherings of people in the QRA.</li> <li>• Analysis of QRA does not meet ABP request of 2/11/2009</li> <li>• Concerns that failure mechanisms may have been screened out of the QRA.</li> <li>• Does not take into account of upset conditions. 40% failures occur in upset conditions</li> <li>• Scenarios where 90% of time projected for people as being indoors not real situation</li> <li>• The number of threats (112) in QRA is scary (Qualitative Risk Assessment)</li> <li>• At Glengad QRA based on pressures lower than MAOP</li> <li>• Natural phenomena, Climate Change, rising sea levels, wind changes, inability to work in bad weather – all these not accounted for in QRA.</li> <li>• SEPIL QRA is introverted and concerned at safety of pipeline – the community is not considered sufficiently</li> <li>• QRA system has been discredited since World Financial System Meltdown</li> <li>• QRA calculations are lazy attempt and should have computed for concrete houses (not timber ones)</li> <li>• SEPIL is relying on 2003 consent at Glengad, hence 345bar should be pressure used in QRA there</li> <li>• The QRA does not include analysis requested by ABP. It is considered had the full analysis been carried out, the LVI would fail.</li> </ul>	Chap 28
R	<p><b>Risk Criteria</b></p> <ul style="list-style-type: none"> <li>• Welcome for HSE (UK) criteria - believed CER may also use these</li> <li>• Criticism of consequence based criteria for routing distance. ABP asked to reconsider this as they have no statutory responsibility for safety</li> </ul>	Chap 28
	<p><b>Risk</b></p> <ul style="list-style-type: none"> <li>• Risk as presented is believed to be guess work</li> <li>• LVI has highest risk</li> <li>• Concern that old war mines will be attracted to pipeline and cause explosion</li> </ul>	Chap 28
	<p><b>Regulatory Regime:</b></p> <ul style="list-style-type: none"> <li>• It is considered unlikely that proper mitigation monitoring and regulatory and enforcement regime will evolve within the maximum life of the Corrib reserves.</li> <li>• <b>Lack of clarity in regulatory regime involved and lack of applicability of codes regulations</b> the project is at the front</li> </ul>	Chap 20

S	<p>end of technological innovation with regard to the tie back proposed on land for treatment of raw gas.</p> <ul style="list-style-type: none"> <li>• Concern that the Safety Act 2010 may be a light touch regulation,</li> </ul> <p><b>Safety of Community and Future generations</b></p> <ul style="list-style-type: none"> <li>• Offshore pipe potential to move in currents and pose additional risk to LVI</li> <li>• Straight pipe at Glengad may be safer. SEPIL have not accepted this</li> <li>• Why is 150barg possible now for offshore</li> <li>• Concern that Transocean installed the offshore equipment that will limit pressures to 150barg Transocean worked on Gulf of Mexico well catastrophe</li> <li>• Potential of damage from overpressure and explosion are not considered</li> <li>• SEPIL's concern for safety is for the pipeline, not for the people and local community</li> <li>• Concern regarding explosion, safety distances and overall risks</li> <li>• Security Risk from sabotage</li> <li>• No indication of how H<sub>2</sub>S will be detected if leaking</li> <li>• Sruth Fada Conn high risk of pipe rupture due to strong current</li> <li>• Concern where people congregate – church, school, graveyard, public house, at houses, walls, etc. for safety at those places</li> <li>• Leaking gas will have no smell – unknown danger</li> <li>• In rural area people will be outdoors, they need to be safe outdoors as well</li> <li>• Shelter not available to everyone in area</li> </ul>	Chap 30
	<p><b>Ground Stability</b></p> <ul style="list-style-type: none"> <li>• Landslide Danger at Dooncarton historically</li> <li>• Also due to extensive heavy work in whole area of unstable mountain landslide risk is increased</li> <li>• Tunnel likely to generate vibrations and shock waves that will destabilise the steep ground</li> <li>• Inadequate survey work, no seismic study in Dooncarton</li> <li>• New route is closer to Dooncarton Mountain than 2009 route.</li> <li>• Risk due to fault lines through Dooncarton mountain</li> <li>• Tunnel proposed through material of high plasticity</li> <li>• What are the consequences of a debris flow hitting the LVI?</li> <li>• Sufficient surveys have not been carried out on Barnacoille</li> <li>• Potential that unstable deposits in Bay could exist – risk to tunnel and pipeline</li> <li>• Tunnel across Caocáin and Codhlata and the soft sands there – new vibration study needed</li> </ul>	Chap 34

	<p><b>Security</b></p> <ul style="list-style-type: none"> <li>• Long term Compound and Security measures are expected to be required at Glengad: site easily overlooked and not secure</li> <li>• Intrusion of security personnel on the residential amenity of the local community</li> <li>• LVI does not meet code of practice criteria for same IS 328/14161/PD8010</li> <li>• It is believed that a full time security presence will be a requirement at Glengad LVI. It is considered that if Corrib becomes part of European Gas Network, international terrorism will become a threat</li> </ul> <p><b>Site Investigations</b></p> <ul style="list-style-type: none"> <li>• Deficiencies in information regarding fault lines, deep holes in bay, strong currents</li> <li>• This site investigation itself in Sruth Fada Conn is considered to have been damaging to integrity cSAC</li> <li>• Borelog information shows samples of high plasticity - concern that tunnel will fail in this material</li> <li>• Evidence in E.I.S. should be disregarded as investigations in the Bay are incomplete.</li> </ul> <p><b>Support for Project</b></p> <ul style="list-style-type: none"> <li>• Local contractors and suppliers indicate their experience of SEPIL is one of high standards</li> <li>• Welcome for investment in the area, local employment</li> <li>• Proposals meet highest international standards</li> <li>• ABP modification is considered unnecessary, is a delay and an additional expense on the project</li> <li>• The route through the Bay and in one direction minimises the impact on environment and community</li> <li>• Welcomes scholarship investment programme by SEPIL</li> <li>• Welcome for long term employment offered by the project</li> <li>• Supports the development because it has taken local views and environmental concern into account</li> <li>• Project is critically important to ensuring security of supply of gas for future</li> <li>• Delay in Corrib project may require investment by BGE in Scotland to improve security of supply for Ireland</li> <li>• Consequences of loss of supply from UK would be serious and potentially catastrophic</li> <li>• Since 2005 SEPIL have made significant efforts to communicate meaningfully with community</li> <li>• Fears about safety are grossly inflated</li> <li>• Stringent Irish and European standards give confidence in operation of pipeline legal issues</li> <li>• Employment provided helps keep local people at home</li> <li>• Vast majority of Erris Community, it is believed, support</li> </ul>	<p>Chap 26</p> <p>Chap 35</p> <p>Chap 41</p>
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	<p>the project</p> <ul style="list-style-type: none"> <li>• Significant number of jobs anticipated during construction work</li> <li>• Community welcome this investment. 30 young people have obtained grants from the scholarship programme.</li> <li>• The Modifications address the ABPs requirements</li> </ul> <p><b>Need for Scheme</b></p> <ul style="list-style-type: none"> <li>• 66% of fuel used for electricity 2008/2009 was gas</li> <li>• 94% of gas comes from UK</li> <li>• Corrib will potentially meet 73% of Irelands gas needs from 2012/2013 onwards</li> <li>• Corrib will help meet Ireland’s obligations to EU to meet standards of security of supply</li> <li>• Absence or delay in Corrib will potentially mean significant additional investment in the existing infrastructure to meet Ireland’s security of supply standards</li> <li>• The pipeline has been delayed and should now be concluded to allow completion of project</li> <li>• The number of Applications for petroleum exploration licences in Irish waters are much less than for UK waters. It is believed that this relates to 14 years delay since Corrib was discovered</li> <li>• Damage has been done to Ireland’s reputation for FDI projects because of delay in the start up of this crucial project</li> </ul> <p><b>Socio-economic Cost:</b></p> <ul style="list-style-type: none"> <li>• This is very high and is not being factored into consideration – the cost of the conflict from social point of view</li> </ul> <p><b>Scientific Doubt:</b></p> <ul style="list-style-type: none"> <li>• ABP must ascertain that no reasonable scientific doubt remains regarding the likely adverse impact of the development on Natura 2000 sites.</li> </ul> <p><b>Security of Supply:</b></p> <ul style="list-style-type: none"> <li>• Ireland has only 11 days gas storage. The security provisions of the codes of practice were not considered when selecting the LVI</li> </ul> <p><b>Status of the Project:</b></p> <ul style="list-style-type: none"> <li>• ABP should not have considered that the “<i>present status of the project</i>” placed any constraint on ABP in deciding this application</li> </ul> <p><b>Standards:</b></p> <ul style="list-style-type: none"> <li>• Argument that the thermal heat flux considered in E.I.S. does not take casualty other than fatality into account</li> <li>• Concern that exposure rates (1000 TDU) are too high and that lower rates should have been used</li> <li>• Argument that consideration of thermal heat flux is less than conservative and that the analysis is incomplete</li> </ul>	<p>Chap 6</p> <p>Chap 17</p> <p>Chap 38</p> <p>Chap 26</p> <p>Chap 41</p> <p>Chap 30</p>
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<b>T</b>	<p><b>Scepticism</b></p> <ul style="list-style-type: none"> <li>• Restrictions on pressure MAOP, design factor 0.3 – these are a vain effort to mollify the community</li> </ul>	Chap. 20	
	<p><b>Seals</b></p> <ul style="list-style-type: none"> <li>• Many sightings in Bay – concern that SEPIL will disturb and chase these from the Bay</li> </ul>	Chap 38	
	<p><b>Technology: Suspicion of the high technology involved in the pipeline</b></p> <ul style="list-style-type: none"> <li>- Materials used to withstand the proposed pressures and corrosion (experimental valve)</li> <li>- The safe and competent construction and maintenance of this pipeline (bends, slugging)</li> <li>- The safe operation of the pipeline at such <b>high pressures</b>, flares and venting</li> <li>- Fail safe devices do fail, as in Gulf of Mexico</li> <li>- Lack of transparency in the E.I.S.</li> <li>- Lack of trust – will someone at SEPIL change settings on LVI?</li> </ul>	Chap 27-30	
	<p><b>Loss of traditional lifestyle and income</b></p> <ul style="list-style-type: none"> <li>• Fishing in the bay due to development.</li> <li>• Loss of forestry permanently around the area.</li> <li>• Cultural traditions of area have not been considered in E.I.S. and are at risk of being destroyed by project.</li> <li>• Recreation and normal use and enjoyment of amenity of the Bay are now threatened by the risks involved in the pipeline</li> </ul>	Chap 17	
	<p><b>Affect on tourism in area</b></p> <ul style="list-style-type: none"> <li>• Construction project over 26 months will impact on the enjoyment of area and put tourists off coming.</li> <li>• Tourism will be negatively affected by the negative and intimidating atmosphere in the area</li> <li>• Public perception of the area has affected tourism investment in the area.</li> </ul>	Chap 17	
	<p><b>Traffic:</b></p> <ul style="list-style-type: none"> <li>• The needs of other road users are only marginally considered in the TMP</li> <li>• <b>TMP is indefinite:</b> People do not know the time or duration of works</li> <li>• <b>Past experience of TMP was bad :</b> no information was available, the actual written plan was out of date</li> </ul>	Chap 44	
	<p><b>L1202 Road Traffic Haul Route Issues</b></p> <ul style="list-style-type: none"> <li>• Dangerous because overrun with heavy traffic and Widening of roads and not widening in parts is dangerous practice for residents and school goers, speed sensors off at night.</li> <li>• Appearance of Gardai security on local road all the time is unsettling</li> <li>• Houses and walls are being damaged in process.</li> </ul>	Chap 44	

U	<ul style="list-style-type: none"> <li>• Health and Safety Authority should be monitoring it.</li> <li>• No hydrologist was available from NPWS for questioning at the OH regarding drainage affect on local area due to road construction</li> <li>• People on L1202 deserve same consideration as Rossport received</li> <li>• The traffic plan was not followed during Glengad works 2009</li> </ul>	
	<p><b>Tunnel</b></p> <ul style="list-style-type: none"> <li>• Tunnel and one direction drilling demonstrates SEPIL's concern to minimise impact on environment, cSAC, pSPA and on local community</li> <li>• At 4m it seems oversized</li> <li>• Application is premature pending site investigation works and analysis of those results</li> <li>• Insufficient data provided to make full submission</li> <li>• Concern that more pipes can be placed through this tunnel at later time</li> <li>• Insufficient E.I.S. to assess environmental and human safety implications of tunnel</li> </ul>	Chap 35
	<p><b>Traditions:</b></p> <ul style="list-style-type: none"> <li>• The culture of harvesting from the shore will be impacted</li> <li>• Ownership/use of the Bay will be impacted</li> </ul>	
	<p><b>Third Party Deliberate Interference:</b></p> <ul style="list-style-type: none"> <li>• Concern that because Corrib is now known internationally it can become a target for terrorism</li> </ul>	Chap 17
	<p><b>Understanding of Process:</b></p> <ul style="list-style-type: none"> <li>• Lack of understanding of the application process in terms of approval and consent. Also a lack of confidence in the Board/Government Bodies responsible for decisions on the proposed development</li> </ul>	Chap 26
	<ul style="list-style-type: none"> <li>• Frustration at sense of <b>inevitability</b> of the case</li> <li>• Overlap between ABP and DEHLG on Sruth Fada Conn aspect of development is unclear</li> </ul>	Chap 17
V	<p><b>Uncertainties:</b></p> <ul style="list-style-type: none"> <li>• Climate Change, wind direction, problems in inclement weather, human error, such factors are relevant for consideration and are not included in E.I.S.</li> </ul>	Chap 46
	<p><b>Visual Impact: Impact on pristine local natural environment</b></p> <ul style="list-style-type: none"> <li>• Visual impact on landscape not in conformity with Mayo CDP</li> <li>• SEPIL have not used the landscape character assessment from Mayo County Development Plan</li> <li>• Mayo County Landscape Policy indicated industrial development has high impact potential for the area</li> </ul>	Chap 42



W	<p><b>Vibrations:</b></p> <ul style="list-style-type: none"> <li>The analysis is based on 2008 data, not relevant to 2010 scheme</li> </ul>	Chap 46
	<p><b>Video:</b></p> <ul style="list-style-type: none"> <li>The use of video equipment by SEPIL is intrusive in private residential amenity of area and also use of Beach.</li> </ul>	Chap 17
Z	<p><b>Vegetation:</b></p> <ul style="list-style-type: none"> <li>Recovery Time is 1 – 7 years-long term impact</li> </ul>	Chap 38
	<p><b>Vulnerable People:</b></p> <ul style="list-style-type: none"> <li>How are these accommodated in any incident</li> </ul>	Chap 30
	<p><b>Waste</b></p> <ul style="list-style-type: none"> <li>No waste disposal proposed for tunnel arisings</li> </ul>	Chap. 31
	<p><b>Zoning:</b> The sites being used for Corrib were not zoned for strategic infrastructure</p>	Chap. 45

## 17.2 Observers Submissions

- Community Impact is similar to and resembles life during wartime.
- Community pain is not being considered as an impact of the project.
- Community cost of 10 years controversy and conflict and division within the community.
- Freedom to use natural environment and amenity of area will be restricted by the project
- Psychological impact of stress and 10 years of confrontation on community
- The Community do not trust SEPIL, they have no common values.
- People entitled to the same protection as the environment
- Failing to provide real time information on the project.
- Distrust in their operation with security
- Distrust in their overall motive in the area
- SEPIL have progressed with work before planning permission is granted
- Lack of trust of SEPIL in providing information to the community
- Lack of trust that mitigation measures will be implemented
- Impact on the future for their children's heritage
- Video:** The use of video equipment by SEPIL is intrusive in private residential amenity of area and also use of Beach.

- **Ideological** – State should own Natural Resources
- Government policy should change to sustainable development and fair deal for Ireland
- Project is not considered strategic
- Benefit to Ireland is considered minimal on comparative basis with the return achieved by other countries
- A 2008 study of international fiscal systems shows Ireland has the lowest return out of 45 international systems studied
- **Insurance:** People have had difficulty with insurance at Glengad
- **Leisure Activities Along Shore Beach:** concern for safety of users of the natural amenities in this area
- **Modifications by Invitation of ABP 02/11/2009**
  - ABP invitation to modify route via Sruth Fada Conn defies logic
  - The ABP invitation to modify the route is considered an unreasonable interpretation of legislation because the ABP invitation transformed the original proposal into an entirely different application.
  - ABP reference to the current status of entire Corrib Field Development undermines the impartiality of the Board in consideration of the proposed development
- **Opposition:** We do not want this, it is not good for us and it will not be good for those who come after us
- **Privacy: Invasion of Privacy**
  - Photo and video use by Applicant of local community
  - Lighting used along rural areas
  - A long term presence of security at Glengad is considered likely
- **Socio-economic Cost:**
  - This is very high and is not being factored into consideration – the cost of the conflict from social point of view
- **Loss of traditional lifestyle and income**
  - Fishing in the bay due to development.
  - Loss of forestry permanently around the area.
  - Cultural traditions of area have not been considered in E.I.S. and are at risk of being destroyed by project.
  - Recreation and normal use and enjoyment of amenity of the Bay are now threatened by the risks involved in the pipeline
- **Affect on tourism in area**
  - Construction project over 26 months will impact on the enjoyment of area and put tourists off coming.
  - Tourism will be negatively affected by the negative and intimidating atmosphere in the area
  - Public perception of the area has affected tourism investment in the area.
- **Traditions:**
  - The culture of harvesting from the shore will be impacted
  - Ownership/use of the Bay will be impacted
- **Understanding of Process:**

- Lack of understanding of the application process in terms of approval and consent. Also a lack of confidence in the Board/Government Bodies responsible for decisions on the proposed development
- Frustration at sense of **inevitability** of the case
- Overlap between ABP and DEHLG on Sruth Fada Conn aspect of development is unclear

### **17.3 Assessment of Community Issues - Ideological:**

Ownership of the natural resources. The Petroleum and other Minerals Development Act 1960 vests petroleum in the state. The definition of Petroleum under the Act includes Natural Gas. The Act provides for granting of a Petroleum Lease by the Minister. The Oireachtas has established the legislation providing for the ownership and development of natural gas. **In my view the ideological question of ownership of natural resources is outside the remit of planning considerations that can be considered in arriving at a decision on these applications. This is not a matter that is relevant in consideration of the proposed development. Accordingly I find this community concern is not a relevant consideration in this application.**

### **17.4 Assessment of Community Issues - Financial:**

Who benefits financially from Corrib Gas Field? This contention put forward by observers is that there is little or not enough benefit accruing to the Kilcommon / Erris region or indeed to the Irish economy from the overall Corrib Field Development. ABP under Section 143 of P & D Act 2000 must have regard to Government Policy in arriving at its decision on this application. Government policy has been clearly set out [refer Chapter 6]. The terms of the petroleum lease granted to SEPIL have not been made known to ABP. Therefore it is not possible to set down the financial benefit overall to the Irish economy that will arise from the Corrib Gas Field Development.

**I do not accept the concern expressed in this regard. The Kinsale Gas Field provided the economic impetus that underpinned the development of BGE and the gas transmission system in Ireland. That same scheme provided the impetus for re-investment in the gas distribution systems in towns and cities across the country. The Corrib Gas Field is already the economic impetus behind the extension of the National Gas Transmission Network from Galway into Mayo and 10 towns will immediately benefit by being connected to the natural gas energy source.**

**It is not realistic to state that because an international group of oil companies have formed the company behind the development and operation of Corrib, that that group will reap all the financial benefits. Erris itself has already benefitted financially from the investment that is taking place in the region. The balance of energy production has changed in the area from peat based energy production to the development of the**

infrastructure for natural gas production and there is also wind energy in production and more wind energy planned for the area.

The important financial impact which must be considered here is that any permitted development will have a positive and beneficial impact on the local economy. Gas Powered Electricity Generation is a type of technology that twins well with Wind Energy Electricity Generation. Government policy has identified in the recent white paper on energy that the development of both Natural Gas Infrastructure and the Wind Energy Sector is a priority. It is clear to me that Mayo and the Erris region in particular can benefit significantly from these developments. The completion of the Corrib Gas Field Development will in my view bring economic benefit to the region.

I find that this community concern is not sustainable and to say that the Erris region has not benefitted or will not benefit from the development is in my view an unrealistic statement.

### **17.5 Lack of confidence in the approval system for the project**

Lack of confidence or knowledge in the application process of approval, and concern at the inevitability felt by local community that ABP will grant this application without proper consideration of the issues.

**I bring this concern to the attention of the Board. It is clear to me that the process adopted by ABP is such as to provide access to all whether stakeholders or not, to engage with the decision making process and to make the issues of concern known to the Board who then investigate the issues before reaching their decision on the Application.**

At the OH there were expressions of confidence also that ABP would consider fully the issues involved and it is worth recording that fact. It is also worth pointing out that the Corrib Gas Field Development is a very large project and because it involves a number of different processes that observers are concerned at the extent of involvement demanded from them if they want to engage fully with all the processes.

In the E.I.A. process from the modified proposed development 2010 there has again been very full engagement by the local community in their submission to ABP, in attendance at OH and in raising significant issues with SEPIL and with the prescribed bodies at the OH.

The lack of respect given to various prescribed bodies by some of the observers and some members of the local community was obvious for all to see at the 2010 OH.

This was regrettable because the prescribed bodies contributed significantly to the process.

**In my view the actions of the large attendance and high degree of participation by the local community speak louder than the words of those few who continually tried to disrupt proceedings.**

**In my view those actions indicate that the local community took part in the E.I.A. process extensively because they do have confidence in the process, because they do rely on the prescribed bodies and in this E.I.A. they rely on ABP to take proper consideration of community concerns into account.**

**I have found that the observers that engaged with ABP and made submissions were well informed and had a good grasp of the technical and legal system involved in the application. I do accept that engagement by observers is time consuming and can be very cumbersome due to the process involved. I find however that this objection to the project is not sustainable.**

### **17.6 High Technology**

**The high technology involved has created a suspicion and concern that adequate information may not be available to properly assess the technology concerned. Much of this concern has to do with safety issues and the technology controls as applied by international and national standards and procedures. Chapters 27-30 deal with pipeline design issues and safety. Chapters 34-37 deal with ground stability issues. The Board has retained Mr. Nigel Wright, Gas Consultant, and Mr. Conor O'Donnell, Geotechnical Consultant, to provide the expertise and advice on the technological issues involved. Their reports were attached in Appendix 3 and Appendix 2 respectively to the Inspectors 2009 Report.**

**Mr. Wright has examined the modified proposed development 2010 and his report is attached in Appendix 2 in this report.**

**Chapter 20 deals with the regulatory system involved in overseeing the development and operation of the proposed development.**

**Both of the OHs in 2010 and 2009 did take up a lot of time however that time served an essential purpose of allowing for examination and questioning of SEPIL and the application by the observers who will be most affected by the proposed development.**

**It has been possible to examine the issues involved, including those areas where highly technical specification details were involved. I cannot accept this objection. I am again satisfied that a full examination of the issues involved has been conducted for the 2010 project. I am satisfied that sufficient technical expertise has been retained by the Board**

**to fully examine the issues involved and to provide the advice required to enable the Board to take a fully informed decision on the proposed development.**

### **17.7 Cill Comáin Development Plan 2006 – 2010**

The Cill Comáin Development Plan 2006-2010 was submitted to the (2009) OH. Comhar Dun Chaocháin Teoranta produced this plan. The mission of this community development co-operative [Registered 28<sup>th</sup> March 1995] is to promote the linguistic culture, infrastructural, economic, educational and social development of the parish of Cill Comain.

In the parish, 2002 census figures show 65% of population speak Irish [33% in Dun Chaochain itself] and 40% speak Irish on a daily basis [74% in Dun Chaochain itself].

The Parish population was 1927 in 2002. 1 person per 11.44 Ha. about 1/5<sup>th</sup> of the national average population density. Population declined by 9.5% between 1996 and 2002 [national population increased by 8% in the same period]. The settlement pattern is largely dispersed and the economy for the most part dependent of activities such as small scale farming and seasonal fishing.

There are 5 primary schools in the parish – Ceathrú Thaidhg, Ros Dumhach, Glenn na Muaidhe, Poll a Thomais, Inbhéar and one second level school, Coláiste Chomáin in Ros Dumhach.

The plan identified the potential negative impact on tourism, fishing and water supply as the dominant economic effect of the Corrib Gas Project. The plan identified a staffing complement of 27 proposed for the Corrib Gas project.

The plan identifies and profiles the resources of the parish and analyses the strengths and weaknesses of the area.

The plan proposes 57 actions under the following headings:

- Community, Enterprise, Employment.
- Education and Training.
- Environment and Infrastructure.
- Language, Culture and Tourism.
- Services and Facilities.

**The plan contains no actions related to the Corrib Gas Field Development. That fact indicates to me that the Corrib Gas Field may be too sensitive a subject for a local community group to address in their action plan.**

I found this plan quite a useful document in profiling the parish of Cill Chomain under the headings above, and providing a clear focus of what are the local priorities over the period of the plan. The plan provides a long list of actions, many of which are suitable for consideration as part of the process of using the fund from the Community Gain condition recommended in Chapter 48 should ABP decide to grant permission for this proposed development. The E.I.S. acknowledges the Cill Chomain Development Plan in Section 6.2.



The E.I.S however defines “community” as not confined to the local area within which the project is proposed to be constructed, but also community includes a wider local population and a wider national population that are expected to benefit from the Corrib Gas Field Development.

## 17.8 “Our Story the Rossport 5”

### “The Price of our Souls” Micheal Mc Caughan “Our Story the Rossport 5”.

These books were submitted by Mr. T Conway in 2009 as part of his submission to the oral hearing. “The Price of our Souls” subheading Gas Shell and Ireland. This book provides a series of articles in part 1 on aspects of gas field development and other technology developments which it relates to the Corrib Gas Field Development. In part 2, the articles focus on specific events and aspects of the Corrib Field Development in Erris, with emphasis on conflicts between SEPIL/EEI position and that of the local community.

“Our Story the Rossport 5” presents in an easily readable form, the events and family and personal experiences of Willie Corduff, Micheal O’Seighin, Brendan Philbin, Vincent Mc Grath, Philip Mc Grath. These 5 people have become known as the Rossport 5 following their committal to jail in 2005 for Contempt of Court following their prevention of SEPIL entering their lands to commence works on the pipeline [2002 consented scheme].

The conclusion I draw from these submissions by Póbal Cill Comáin, Mr. Conway and the local community is that there is a very strong community in the area. In the course of my examination of the project I noted that all the community energies, that were apparent, seemed to be fully engaged in dealing with the issues and impacts of the proposed development and principal among those issues was safety within the community. It seems to me that the situation is polarised to such an extent that there is a great difficulty within the community in considering or discussing potential benefits that might accrue from the Corrib Gas Field Development.

**The issue for me that comes out of this extraordinary energy being channeled by the local community into the examination of this project is that there is uncertainty there. I see therefore the need for transparency, the need for clarity in both information and decision making process.**

The submissions in 2010 to ABP in writing and at the OH draw further attention for the Board to the deep concern within the local community and to the extra-ordinary energy being devoted by the local community to the issue of safety within the community. Michael McCaughan [DRN OH 46] writes:

“In Erris, this situation, which has men, women and children on the edge of a nervous breakdown, has been going on for ten years and there is no end in sight.

...Panic attacks, sleeplessness, unease, anxiety about the present, fear of the future, disillusionment, disquiet, shattered assumptions, obsessional behaviour, excessive personal

sacrifice, lack of concentration, paranoia, headaches, backaches, edginess, irritability, endless tasks to be done, unprecedented stress, excessive demands on individuals, overwhelming sense of exhaustion, inability to function as normal, inability to make plans or take decisions, endless waiting, shock, depressions, trauma, physical injury, nightmares, daymares, burnout, lack of appetite, stomach pain, nausea, rage, regret, helplessness, hopelessness, feeling numb, inner pain, emotional outbursts, hyper vigilance, muscle tension, flashbacks, fatigue, fear, self doubt, loss of trust in institutions, lack of faith in the future, negative thoughts, inability to focus on your own life and plans.”

In my view the situation has changed considerably since 2002 when that uncertainty may have been created. There has been an admission by SEPIL that mistakes have been made. The history of the development of the Corrib Gas Field weighs heavily on the community. Concern with regard to safety within the community has built up over the last 10 years. **It is not easy for this community to rely on institutions of the state to protect the community.**

In reality that is what proper planning and sustainable development is all about. The planning authority in this case An Bord Pleanála has the duty of examining the issues and taking a decision balancing on the one hand the need for the development against planning criteria which assess the impact of the proposed development on the proper planning and sustainable development of the area and the likely effects of the development on the environment.

In my view ABP letter of 2/11/2009 sought further information that was necessary to enable ABP assess fully the impacts of the proposed development. The modified E.I.S. together with the other information provided into the E.I.S. process now puts the Board in a position to fully assess the proposed development.

The enactment of the Petroleum (Exploration and Extraction) Act 2010 and the Petroleum Safety Framework being established by CER provide certainty of process and the standards that will be applied in the issue of a safety permit for the petroleum undertaker, SEPIL.

The specialized expert advice, ENTEC, ENVIRON and KOIL appointed by DCENR to advise the Minister on the project was made available and provided valuable information for the Board and for the local community on the implementation controls that apply and that are being put in place to control this development in design, construction, commissioning and in operation.

ABP has retained Mr. Wright, Gas Consultant, to advise on the technical aspects of the proposed development.

These are all factors that should address the uncertainty and the local community concerns and in my view these factors can provide the confidence for the local community that safety of the community is the prime consideration among many considerations as regards the assessment of this proposed development.

The final conclusions and recommendations of this report will I hope provide that clarity and transparency, and will remove the uncertainty and enable ABP to take a fully informed decision on these applications.

### **17.9 SEPIL Community & Socio Economic Issues**

SEPIL provide a review of community and socio-economic issues in Chapter 6 of the E.I.S. This section deals with the impact of the proposed development on human beings as well as considering community concerns raised and the socio economic conditions in the area of the proposed development.

The attached Fig 6.1 shows the five electoral districts Knockdaff, Muingnabo, Barroosky, Glenamoy, Knocknalower. This is referred to as the study area. This area has been used as the basis for analysis of the local area within which 16.GA.0004 is located. The population was 1899 in 2006 census a decline of 10.8% since 1996. Employment levels show 545 people in employment, an increase of 20% over 1996 – 2006.

This compares with a 43% increase in employment in Mayo County in that same period. The E.I.S. Section 6.3.9 analyses the degree of deprivation using the National Deprivation Index 2007, and concludes that the analysis confirms a long term and unchanging pattern of relative material deprivation within the local and wider vicinity of the study area

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**LEGEND:**

- Overall Study Area
- Mayo EDs
- Study Area EDs**
- Barr Rúscail Barroosky
- Gleann na Muaidhe Glenmoy
- Cnoc An Daimh Knockadaff
- Cnoc na Lohbar Knockalower
- Muing na Bó Muingnabo

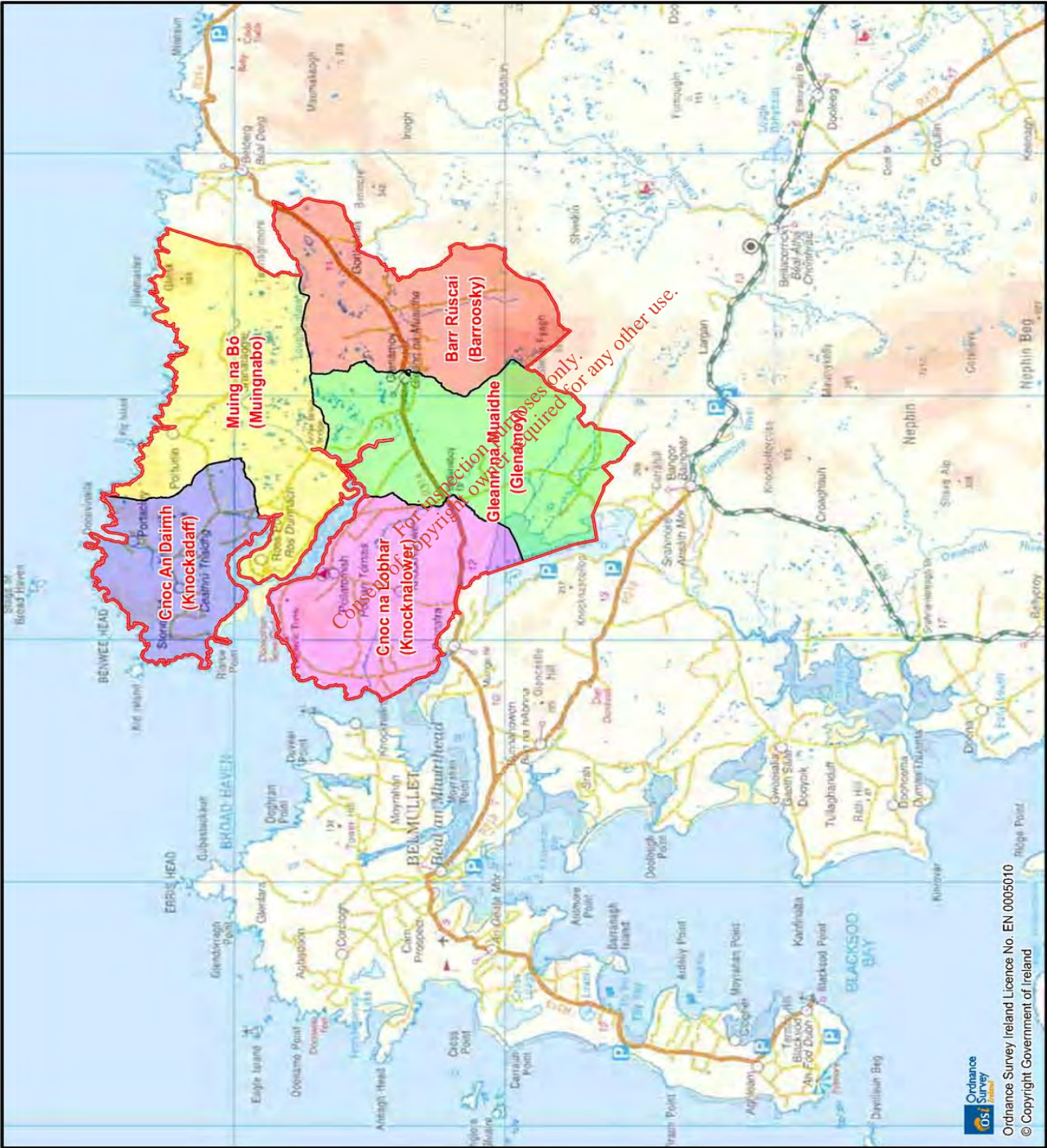
**Electoral Divisions (EDs)**

**Figure 6.1**

File Ref: CORRI06R020M/03A03  
Date: May 2010







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The E.I.S Section 6.4 identifies the following potential impacts:

1. In terms of demography no impacts during construction phase – workers will travel into the area to work.
2. Employment: At peak 120 – 140 construction jobs on the onshore pipeline construction (26 month programme). 55 Direct jobs during the operational life of the Terminal, and a further expected 76 people indirectly will be required during the operational life of the pipeline, in additional employment created or existing employment consolidated as a result of the support services required in logistics, construction, catering, transport and retailing.
3. Accommodation: It has been estimated that 40% of the construction work force will live in rented accommodation or B & B accommodation while working on the project.
4. Irish Language: It is not expected that the proposed development will have any impact either positive or negative on the Irish language.
5. In the operational phase it is expected that there will be a slight positive impact on the demography of the area, it is expected the proposed development will serve to consolidate population levels in the area.
6. Impacts: Community impacts are detailed for the construction phase at 6.4.1.3. These are identified as traffic noise, dust, severance across holdings, visual impact, disturbance including restricted access locally. It is not expected that the visiting community will be affected as the major visitor attractions are removed from the area. It is accepted in E.I.S. that the Corrib Gas Field Development has created a conflict within the community between those in favor and those against the development. Overall it is considered by SEPIL that the project will have a slight to moderate and short term localized negative impact on local residential and visiting community and a potential although short term impact on the working community.
7. Mitigation: The mitigation measures proposed are the use of the appropriate methods of construction and appropriate hours of operation during construction. It is proposed that the E.M.P. for the construction phase will detail how to deal with dirt and dust generated. The E.M.P. will also include details of road signage and public information and consultation proposed during construction. As no adverse impacts are expected during the operational phase of the development, no remedial or reductive measures are considered necessary.
8. Compensation comprises the significant mitigation for loss of land and property, either temporarily or permanently.
9. Benefits: The E.I.S. sets out details of the Social Investment Programme. This is proposed to include a short, medium and long term social investment programme in Kilcommon and in the wider Erris area. This investment programme has been made up of Corrib Natural Gas Erris Development Fund (€5million over 3 years), the Local Grants Programme (€350,000 allocated in 2009) and the Scholarship Programme (2007-2009 €450,000 investment). These funds will be administered by SEPIL with an advisory board who will help establish the vision, objectives and structure of the fund.

SEPIL indicate that the Community Investment Programme will continue to operate for the operational phase of the development. They predict that the proposed development will have a significant and positive impact on the local regional and national economy.

### **17.10 Protection of future of children's heritage**

Observers concerns in this regard were that the proposed development will impact on both the freedom to use the pristine environment of the area, the changes that will result to the area because of the development, and the change in behaviour of family relatives etc., who may not choose to come and visit the area because of the proposed development.

There was much comment in submissions about the enjoyment that observers had in the area in their own youth, about the natural environment and the warmth in the community. It was put forward that the proposed development is having a negative impact on all these things and that the community is concerned that their own children's heritage is being diminished or impacted negatively. It was put forward that use of the Sruth Fada Conn Bay for leisure activities, walking, shell and shore fishing and amenity activity would be seriously impacted because of concerns for safety should the pipeline fail. **The issue for me here is clarity regarding the impact of the onshore pipeline. If that clarity can be established, then objective review and assessment of the proposed development can be conducted by ABP. This clarity will also make possible objective review by the general public. It is my intention to seek to bring transparent and clear information forward for all concerned in this report. In this way I hope that this report will help address the uncertainty that exists at present in the local community.**

**In my view in this E.I.A. process sufficient clarity has been achieved to enable a comprehensive assessment of the impacts of the modified proposed development to be made. The proper planning and development of the area is also concerned with the heritage of the area and with the sustainability of any proposed development into the future.**

**In my view therefore ABP in carrying out its examination of this development will consider the many factors which will have a bearing on the future heritage of the children from the area.**

**I do not accept that the proposed development is incompatible with the future heritage of the children from the area.**

### **17.11 Loss of traditional lifestyle and income**

#### Observers Position

1. Observers made the argument that because of the proposed development a loss of traditional lifestyle and income would be a significant impact on the local community.
2. In effect the issues raised concern the impact of the proposed construction on farming and on fishing in the Bay, loss of forestry.



3. **It is contended that somehow traditional jobs will be given up because of the proposed development. I do not see any justification for this. Changes in traditional turf cutting practices are happening but not because of the Corrib project.**
4. SEPIL have indicated that mitigation will consist of the provision of access for those landowners involved across the temporary working area as will be agreed when required. SEPIL also propose compensation for landowners for the loss involved.
5. **As regards fishing in the bay, that matter does not relate nor is it relevant to the onshore pipeline; accordingly I have no remit to consider that matter. The impacts of the proposed development including impacts on the marine environment are considered in Chapter 38 of this report and in Mr. O'Sullivan's report.**
6. Loss of forestry. There is a loss of forestry involved along the route south of Sruth Fada Conn Bay. That forestry plantation is extensive and I do not consider the loss to be significant in terms of the overall area of forestry. **I find therefore that the loss of forestry involved from an economic point of view will be more than compensated for by the industry being created by the gas project.**
7. **As regards the impact on lifestyle, I find that the impact will be minimal and temporary, and will only impinge on the lifestyle in so far as construction works are concerned and the temporary working area will be fenced off during the construction works. Thereafter the use of the lands and the continuity of the lifestyle of the area will continue as before.**

## 17.12 The Community Cost.

### 17.12.1 Observer's position

The following summarises the different aspects of the impact on the community as presented by observers.

1. The whole project of Corrib Gas has had a negative impact on the community.
2. Safety and risk are causing fear and anxiety among the community.
3. The lack of proper information and the perceived lack of a proper process which locals could access and have a meaningful involvement in such process were identified as issues from the start of the project 10 years ago.
4. The historical peaceful pristine area renowned for tourism and visitors has in the views expressed, given way to fears, tension, depression, security personnel, garda escorted convoys and a division within the community.
5. Locals believe the infrastructure is not capable of handling the demands being placed by the project.
6. Among landowners, some have agreed to provide land for road improvements, others have not agreed, all for different reasons, but the result is considered to be a hazardous haul route (to Glengad) and not the same safe road where people could traditionally walk safely at will.

7. The local community believe that the multinational companies behind SEPIL have huge resources and up against the community who do not have the resources to fully engage in the process.
8. The local situation was one where tourist and visitors created a demand for sites in the area where there were low crime rates, and neighbours looked after each other, now it was argued that people are going to jail, confrontation is a daily event, public are denied access to beaches, court cases abound, and propaganda [locals accept it is two sided propaganda] is constantly being distributed.
9. The local views expressed dissatisfaction that there were advantages either for the local community, the region or the national benefit being derived from the Corrib Gas Scheme.
10. Locals see gaps in the due process and are critical that each part of the development is being considered to the exclusion of other parts.
11. The local views expressed concern that Health & Safety issues, landslide issues, the conservation value of designated sites along the route, and the movement of large quantities of peat over 9 miles into another bog, that such issues were being ignored or that adequate attention was not being taken of local rights or local views in deciding what should happen with the project.
12. Views were expressed that an overall look by an independent body should be taken of the entire project.
13. A number of alternative proposals have been put forward, terminal at Glinsk, offshore terminal, large ship acting as terminal.

These matters were brought out in many submissions and statements and in written submissions and by many observers.

### 17.12.2 Applicants Position

The applicant presented details of the consultation process engaged upon and presented details of measures to mitigate various impacts. These matters are considered in the individual chapters of this report. The applicant did not specifically respond to the impacts and the community cost as expressed by observers. However, and as outlined above, details of the applicants contribution to the local community were presented and the community investment programme which has been established was outlined. The applicant also presented a summary of the benefits to the local regional and national economy from the project.

### 17.12.3 Inspectors Assessment of Community Cost

1. **I think it is worth considering all these matters. While 16.GA.0004 and 16.DA.0005 applications are very specific, there is a need to assess the wider implications and impact that the proposed development and other associated development on the Corrib Gas Field has on the area and on the environment of the area including the impact on the local community.**

2. The local community was represented by a wide cross section of people from diverse backgrounds. The main participants were by and large from the communities of Glengad, Pollatomais and Rossport. There were between 30 and 80, often over 100 people attended each day at the OH. The level of participation was very high.
3. The level of information and knowledge demonstrated by the local participants was well informed and at times highly technical in both matters of legislation and in matters relating to the proposed development itself and the gas industry.
4. I recognise that relations have broken down between SEPIL and the local community to such a serious extent that there exists mistrust on both sides.
5. The impacts to date of the project have been severe on this communities spirit.
6. My approach to the overall assessment of the proposed development is to establish as precisely as I can, the factual position. This includes clarity with regard to the alleged pollution of drinking water sources, clarity with regard to the impacts of the proposed development on the designated sites in the area, clarity with regard to the road proposals that will serve the proposed construction of the pipeline, clarity of precisely the consequences of failure of the pipeline itself and the other associated umbilical's, clarity of the actual construction proposed through the tunnel and in the peat lands and the analysis that has been carried out for that, clarity of any end point connections and boundaries between the proposed development and other aspects of the overall Corrib Field Development at Glengad and along the route of the pipeline and at the terminal, and as much clarity as possible on the many issues raised by observers in submissions and questions, as well as seeking clarity on the regulatory regime that is responsible and that will be responsible for regulating and controlling the proposed development and clarity about the standards being implemented in the design, construction, commissioning and operation of the proposed development. Mr. O'Sullivan, Mr. Wright and Mr. O'Donnell have assisted me in assembling and interpreting the factual situation.

Having established the factual position, I believe I can then advise the Board in as objective a manner as possible, on the various issues so that the Board itself can make a decision on the applications before it.

This is I believe the only possible response to meet the concerns and objections of the local community. In summary therefore in response to the cost to the community and the negative impact of the proposed development on the community, I propose to present an objective factual assessment of the proposed development to ABP. That in my view is the best response to the community.

### **17.13 Working Relationship SEPIL and Local Community**

1. Notwithstanding the situation whereby on one side there are those who may continue to confront the proposed development, and on the other side that SEPIL have a

determined plan to complete the Corrib Gas Field development, there is a need for the leadership in the local community and the management in SEPIL to have a system of machinery in place whereby the many issues that have to be dealt with can (1) be communicated, (2) provide feedback and suggestions, (3) be reviewed.

2. SEPIL have indicated that 4 Community Liaison Officers have been appointed to work in the community. The Liaison Officers for the proposed development are essential positions. However, the Liaison Officer cannot provide either the time or the required level of communication, feedback and review required on their own.
3. The Project Monitoring Committee (PMC) established by Mayo County Council to oversee the terminal construction under one of the conditions of the planning permission is an essential part of the control of the project. Nevertheless, it seems to me there is room for a group which has representatives of the community and representatives of SEPIL which could usefully be established to act as a clearing house for communication, feedback and review of the ongoing issues as they arise.
4. Such a system of clearing house direct contact between SEPIL and the local community can work. Indeed, such a system works well on many difficult projects, and in my own experience such a system can avoid legal confrontation and can resolve difficult issues by discussion and agreement where the leadership exists on both sides to make the system work.
5. Regardless of whether such a system of “clearing house” is possible, I strongly believe that there is an obligation on the Applicant to provide good timely accurate information to the community on issues that will affect that community, I recommend that such a condition be attached to any permission that the Board may decide to grant for this development.
6. I accept that the community otherwise will find themselves being confronted with an activity unawares such as heavy slow moving equipment mobilisation which potentially causes delay on the local road L1202.

### **17.13.1 Inspectors Recommendation**

In the event that ABP decide to grant permission for this development I therefore recommend that SEPIL be requested to establish a group within the Project Monitoring Committee structure and reporting to the PMC and subject to the agreement of Mayo County Council. The group would work to provide a local liaison function for communications feedback and review of ongoing issues on the construction site.

- (a) Representatives of the local community who are prepared to represent their community to the best of their ability.
- (b) Management of SEPIL who will be prepared to be responsive to issues of concern locally.

**Reason:** To establish a direct system of local liaison between the applicant and the local community

## 17.14 Community Concerns: Privacy

1. This issue relates to the observers concerns about the use of photographic and video equipment along the site by SEPIL in respect of activities that relate to previous or other parts of the development of the Corrib Gas Field. Apparently video cameras and photography is used by SEPIL. SEPIL indicated at the OH that where such equipment is necessary or becomes necessary, it may be used on the proposed development. SEPIL indicated that the purpose was to safeguard the security of the site and to safeguard workers on the site and equipment and materials on site.
2. It was clear from evidence at OH that video equipment is used by the local community – film was shown of confrontations at the terminal construction site, and at other sites where SEPIL work was being undertaken. It was also clear that such local video material shows individuals whether security personnel or other contractors or employees of SEPIL. This material is widely distributed.
3. Observers were concerned that images and videos of innocent activity by members of the local community were being collected, and that it was unclear how these images might be used. Observers indicated that images of their children had been included, and that the whole issue was a serious invasion of privacy.

### 17.14.1 Inspectors Assessment

In the normal course of events, a certain amount of photography and video images would be collected for site record of the site, and of matters related to the construction project. A number of questions arise:

- (A) Is this a planning question in the first place? I believe it is. The manner in which SEPIL proposes to conduct the construction project is a planning issue. Should SEPIL invade private use of lands or normal private activity with noise, vibration, dust, disturbance, light etc. Such matters would be assessed and could be controlled through conditions on a planning permission or indeed if the invasion of privacy was considered excessive then refusal of permission could be based on such excessive invasion of private activity.
- (B) How can such activity be controlled in any planning permission? I accept the position of observers that innocent activity, everyday activity, activity such as the enjoyment of the beach and sea at Glengad where it is filmed or photographed such filming or photography should be controlled. I propose the following conditions to control the activity.

### 17.14.2 Inspectors Recommendation

Accordingly I recommend that SEPIL be conditioned, on any permission that is to be considered for the proposed development, to establish a system whereby all photography and video footage taken by SEPIL employees, contractors, anyone associated with the proposed development, be controlled. The system and method of control shall be set out for agreement in the EMP. SEPIL shall pay to Mayo County Council the costs involved in putting in position a person who will verify that the control system for images is working properly and that a system for destroying such images is put in place. While this condition will be onerous

on all concerned, the uncontrolled use of photo and image footage would not be an acceptable impact of the proposed development.

**Reason:** To manage and protect the privacy of the local community from any unnecessary impact from photo or video imagery.

### **17.15 Community Concerns: Impact on Tourism**

Observers have made a number of points here.

1. That the impact of the construction of the proposed development on the natural environment would reduce the attractiveness of the area for tourists.
2. The construction works have generated demand for accommodation and use of facilities including boats such that tourists to the area are being excluded and business's relying on tourism are being impacted upon.
3. The extended construction period of 26 months will in effect be for three tourist seasons. The traffic impacts of previous works on L1202 have disrupted tourists in the area.

**I cannot accept any of these matters as realistic propositions. In the first case while I can accept there will be a visual and traffic disruption during construction of the pipeline. That impact will be temporary and indeed it may in itself promote visitation to the area out of interest to see construction under way. In the aftermath of the construction there will be very little impact on tourism, visual and otherwise.**

**I do accept there will be visual and traffic impact associated with the proposal to construct a tunnel and the Aghoos compound and tunnel reception pit. However, I believe the tunnel option reduces potential impact and is a very substantial mitigation factor because of (1) the location of the Aghoos compound accessible from the regional road network without disturbing local residential amenity; and (2) 4.9km of the project will now have no linear presence in the area as it will be tunneled under the Bay.**

**In regard to the second issue, if the construction business is filling up the demand for services, be that boat hire, accommodation or other services in the area that economic boost must be positive not negative for the providers of these services. Accordingly I do not accept this community concern it is not sustainable.**

### **17.16 Examination of Issues Raised**

The Corrib Gas Field Development is made up of various parts. There are many statutory processes involved each with particular documentary requirements. The E.I.S. for the onshore pipeline, the submissions received and the additional material considered at the oral hearings for the onshore pipeline are considered in this report. Many observers had concerns that went outside these matters, concerns that related to other consents, licences, permissions, etc. and concerns regarding issues that the observers felt should be re-examined by ABP as



part of the assessment of these applications that are now before ABP for decision. It was not within my remit from ABP to examine or re-examine such other processes or to examine matters that did not relate to the onshore pipeline, and I have not done so.

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## Chapter 18 Advantica Report and 144 Bar

The Advantica Report was presented in January 2006 to the Minister for Communications Energy and Natural Resources. That report considered the 2002 approved pipeline scheme.

The modified proposed development as set out in the 2010 E.I.S. has changed considerably from the scheme examined by Advantica – in route, in MAOP now 150/100 bar, there is now an LVI at Glengad, and in method of construction 4.9Km tunnel now proposed and the scheme has changed in some other details as well.

Notwithstanding the changes however the technical appraisal carried out by Advantica is still an important reference in the consideration of the 2010 modified proposed development.

One of the basis on which SEPIL was invited to modify the route can be clearly traced to the Advantica Report Section 3.3 Proposed Onshore Pipeline Route. In this section Advantica discussed proximity distance to dwellings as follows

*“...In our opinion ,the minimum acceptable proximity distance for the pipeline should have been considered further at these early stages, prior to finalising the pipeline route, particularly given the unusually high design pressure for an onshore pipeline above the range for proximity distances given in the available standards. The most cautious approach would have been to estimate the maximum hazard range for the worst case event, so that in the highly unlikely event of a pipeline failure , the proximity distance would be sufficient to prevent any significant level of harm to residents or damage to property. This approach, which has in Advantica’s experience occasionally been adopted for high pressure projects, is rarely possible except in very remote areas with little population present. The technical justification for an appropriate minimum distance could have been agreed with the approving authorities and then used in the process of considering the routing options for the pipeline. This approach would have addressed many of the safety concerns expressed by local residents at later stages of the project.”*

### 18.1 Observers Submissions

- Advantica Report findings have been appreciated by observers.
- Concern now that Advantica have not examined the 2010 proposed development
- Issue relating to pressure control system that Advantica were unhappy with in 2002 scheme - Relates to LVI proposed
- Issue regarding Chapter 5 of Advantica Report (Hazard Identification)

Now in 2010 ABP has the benefit of the advice provided by Mr. Nigel Wright in his Reports. ABP also has the benefit of the submissions made to the Board by DCENR. Technical submissions were made to ABP in 2009 and 2010 by DCENR. In 2010 ABP also received the benefit of reports from Mr. Waite (ENTEC) Mr. Hancox (Environ) technical advisers appointed by DCENR to assist the DCENR in examining the 2010 proposed development.

## **18.2 Inspectors Conclusion**

1. Notwithstanding the changes in the onshore pipeline scheme since 2002 and that are now incorporated into the 2010 modified proposed development, the Advantica Report continues to be an important technical appraisal reference report in the consideration of the 2010 scheme.
2. The proposed development (2010) is considerably different to that examined by Advantica.
3. The routing distance set out by ABP in the letter of 2/11/2009 follows the most cautious approach to proximity distance as identified by Advantica in The Independent Safety Review of the Onshore Pipeline Section of the Corrib Gas Pipeline.
4. External expert advice is being provided with regard to the 2010 proposed development. Mr. Wright provides this to ABP.
5. Mr. Waite [ENTEC], Mr. Hancox [ENVIRON] and Mr. Keane [KOIL] provide expert advice to DCENR and these experts provided much evidence at the 2010 OH.
6. At the OH, 2010 there was considerable discussion, question and answer and clarification of the issues relating to the proposed development that concern DCENR. Mr. Keane [KOIL] the engineering auditor appointed by DCENR for the offshore operations was available and provided clarification on the DCENR oversight of the project.
7. The CER are now in the process of establishing a risk-based Petroleum Safety Framework within which the safety of designated petroleum activities (Corrib included) will be controlled.

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## Chapter 19 Selection of Landfall Site Location

The considerations have not changed and my conclusions as set out in Section 19.3 of my report (2009) are still valid and I restate these below, conclusions 1-6.

### 19.1 Observers Submissions

- **Landfall site, Glengad:** There never was consultation about that location

### 19.2 Inspectors Conclusions on choice of Glengad as Landfall for the Pipeline

1. **The fact is that consent (2002) was given to the project plan for development, to the foreshore licence application to construct the facilities, and the consent was granted to construct the pipeline both offshore and onshore. Those consents followed the submission of an E.I.S for the original pipeline route. That consent confirms the acceptance of the then regulatory regime of Glengad as a suitable landfall location. That consent was confirmed following an EIA process by DMNR (now DCENR) as was confirmed in evidence at OH.**
2. **In considering file 16.GA.0004 for approval, An Bord Pleanála is not in my view constrained by that consent in considering the acceptability or otherwise of the Glengad site as the landfall for the onshore pipeline.**
3. The onshore pipeline requires ABP approval in the present regulatory regime. SI Act 2006 in Section 182c (3) says *“The proposed development shall not be carried out unless the Board has approved it with or without modifications”* **However the facts that approvals to the plan for development and that the consent to construct a pipeline had been issued and that the foreshore licence had been issued are a significant consideration of which the Board needs to take account in making a decision on the proposed development.**
4. I have inspected the potential landfall sites at Inver, Glengad, Garter Hill, Portacloy, and Glinsk. **I have reviewed the 2001 E.I.S. Route Selection carried out. It is my view that a suitable landfall had been identified at Glengad in 2001.**
5. The proposed development at Glengad must be acceptable from a proper planning and from an environmental impact position on the same basis as the other parts of the proposed development.
6. The suitability of the site does not in itself constrain ABP in considering all aspects of the onshore pipeline proposed development.  
The suitability and the full examination of the proposed development is set out in the following chapters.
  - i. The impact of the proposed development at Glengad on the environment (Chapter 38 Natural Environment)
  - ii. The impact of the Glengad Landfall on the proper planning and sustainable development of the area and the Health & Safety of the community (Chapters 27-30 Safety)

- iii. The visual impact of the proposed development at Glengad. (Chapter 42 Landscape and Visual Impact).
- iv. Traffic (Chapter 44 Haul Routes and Traffic Plan)

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## Chapter 20 Regulation System of Operations of Pipeline

### 20.1 Regulation of the Corrib Gas Field

This issue was discussed in the 2009 Report. Events have moved forward since then and the Petroleum (Exploration and Extraction) Safety Act 2010 has been enacted.

Observers expressed considerable concerns regarding the ABP Section 182(c) decision making process because the observers believe and perceive that a lack of adequate regulation framework exists.

The following sets out the position.

### 20.2 Observers additional concerns raised 2010

- The competent authority should be independent of applicant and state - reference to role of state competent authorities and potential for political decision to influence competent authority

#### Regulatory Regime:

- It is considered unlikely that proper mitigation monitoring and regulatory and enforcement regime will evolve within the maximum life of the Corrib reserves.
- **Lack of clarity in regulatory regime involved and lack of applicability of codes regulations** the project is at the front end of technological innovation with regard to the tie back proposed on land for treatment of raw gas.
- Concern that the Safety Act 2010 may be a light touch regulation

#### Scepticism

- Restrictions on pressure MAOP, design factor 0.3 – these are a vain effort to mollify the community
1. The fundamental concern of observers is one for the safety of the community through which the pipeline will be constructed.
  2. In relation to regulation of this development the concern is that the technology (offshore gas well tied back to onshore refining facilities) proposed and the pipeline proposed (very high pressure raw untreated gas) are new technology (observers use the word experimental) and that the regulatory authorities and the legislation and standards are not in place to adequately manage the safety of the operation of this development.
  3. The following particular concerns identify the underlying concerns of the observers for the transparency of the regulation of the project. These were raised in many questions to DCENR and to applicant.
  4. Concern at what additional safety management systems need to be put in place to control modifications that may arise after construction.
  5. Concern about rectifying defects if they occur with the pipe within the tunnel.

6. Concern that DCENR as competent body satisfy themselves that the accredited body for verification of the reliability of 100 barg and 150 barg MAOP and operating system is of good standing and fully independent.
7. Concern that information about defects in pipelines laid in tunnels was not available on a worldwide basis (Europe was referenced but not the rest of the world).
8. Concern that parallel processes are taking place at ABP for approval under planning legislation and at DCENR under other legislation. The concern expressed was that each process should have all the information available from the other processes.
9. Concern that the pipeline integrity management system should begin at the manufacture stage of the pipes and not later in the process.
10. Concern how changes in the MAOP of the pipeline could be possible and how these would be regulated or how such changes could be made by SEPIL and in some way might avoid regulation.
11. Concern that in relation to regulation of and acceptance of LVI that the use of an accredited body to certify this acceptance is considered sufficient to protect the public.
12. Concern about the monitoring independently of the MAOP and assurance that this will not be exceeded.
13. Concern that all parts of the pipeline receive an independent evaluation similar to the evaluation now being conducted for the onshore proposed pipeline.
14. Concern that decommissioning is proposed but the time is indefinite to decommissioning – what happens if SEPIL sell rights through the community to other companies?
15. Concern regarding regulation of use of the pipeline by three partners, each selling their share of the product.
16. Concern that the life of the pipeline will be extended, that the first gas pipeline at Easing from the North Sea was estimated to last 12 years now it is 45 years old.
17. Considerable concern was expressed at the monitoring role of the existing EMG and PMC and in particular the lack of representation from the local community on these regulatory overseeing committees. These at present act to monitor construction of the terminal and offshore pipeline. There is a proposal that similar committees PMC be established by Mayo County Council to oversee the implementation of any planning approval for the onshore pipeline and for an EMG committee be established by DCENR to oversee the implementation of any section 40 consent to construct the onshore pipeline.
18. Concern that, in light of the Gulf of Mexico disaster, Ireland may have light touch regulation.

### 20.3 Discussion

1. Observer's position is understandable as regards regulation. The proposed modified development is complex, the legislation is complex, and the technology involved is complex.
2. The idea, widespread amongst observers is that a "one stop shop" type of regulation where all aspects of the proposed development could be considered in one event is unrealistic. There are many processes involved in the development of a Gas Field and the consideration of all the regulatory requirements and legal processes and all such aspects of the project as one single event would be absolutely unwieldy.
3. In my view that type of system would not help the observers or make it easier for them to deal with the project on the contrary I believe, in that scenario, that it would be more difficult for observers to obtain the clarity and transparency which is possible in the ABP process for examination and assessment of the onshore pipeline and the issues involved.
4. In my view, the idea that light touch regulation may be implemented on the Corrib Gas Field Development and in particular on the application before the ABP for the modified onshore pipeline development does not stand up to scrutiny at all. Anyone who was engaged in the process for assessing these applications and who participated at the oral hearings will be fully aware of the full participation by ABP and the experts appointed by ABP with the applicant, SEPIL, and the many specialists involved on behalf of the applicant in the scheme.
5. ABP also has the benefit of the prescribed bodies in particular DCENR, DEHLG, CER, An Taisce who have all involved themselves very fully in the EIA process. The observers participated fully as well and made their contribution to the process.
6. Anyone who sat through the 22 days in 2010 and the 19 days OH in 2009 and anyone who examines the ABP letter of 02/11/2009 to SEPIL will in my view see very clearly that the Corrib Onshore Pipeline Development has been undergoing a full examination as part of the ABP decision making process and in the EIA that is being conducted by ABP.
7. It is clear to me (and it was clear also in 2009) that DCENR, the competent authority for the petroleum industry, are engaging in a full examination of the project. It is also clear that DCENR have retained expert advice to assist them in that examination and in the EIA process which they are also undertaking.
8. The legislation promised by DCENR in 2009 has now been enacted by the Oireachtas i.e. The Petroleum (Exploration and Extraction) Safety Act 2010
9. It is also very clear that the local community have taken a full hands-on involvement in all the aspects of the proposed development being considered by ABP. This involvement has been useful and has further informed the Board on the issues that need to be considered.

## 20.4 Commission for Energy Regulation

The CER outlined in its submission to the Board that its principal objective under the 2010 Act is to protect the public by fostering and encouraging safety as respects carrying on of designated petroleum activities.

In the submission Mr. Blaney, Commissioner, indicated that a safety case procedure would be operated governing design, construction, operation, maintenance, modification and decommissioning of petroleum infrastructure and the applicable standards and codes of practice for the designated petroleum activation.

It will be an offence for a new facility to undertake petroleum activity without a safety permit from the CER for that activity and it will be a condition of a safety permit that a petroleum undertaking must act in accordance with its approved safety case.

The CER will not issue a safety permit to a petroleum undertaking unless it is satisfied the submitted safety case complies with the requirement of the safety case guidelines and demonstrates to the CER that the petroleum undertaking can implement its safety management system and carry on its activities in such a manner as to reduce any risk to safety to a level that is as low as reasonably practicable. The CER submission to ABP has been outlined in detail in Chapter 11 of this report.

## 20.5 Inspectors Conclusions Regarding Regulation System For Operation of the Pipeline

The conclusions in my 2009 report are valid and repeated below updated to reflect all submissions received by ABP from DEHLG, DCENR, Mayo County Council and CER.

1. Observer's very real concerns contain a recognition by observers that a substantial safety regime and thorough and independent system for regulating the proposed development is what is required throughout the lifetime of the development.
2. The procedures for evaluating and approving design, construction, testing commissioning and operation of the proposed onshore pipeline were outlined by DCENR in some detail in 2009 by way of submissions to ABP and in evidence at the 2009 OH.
3. These procedures were subject to much more detailed submissions by DCENR and the consultants advising DCENR on the section 40 application in submissions and in a lengthy question and answer section at the OH in 2010.
4. The Petroleum (Safety) Act 2010 has provided that the CER will be responsible for safety of the upstream gas pipelines.
5. The procedures being established by CER in the Petroleum Safety Framework will provide a comprehensive system of regulation for the proposed development. In my

view the system as outlined will provide for the protection of the public. The system will be designed to govern design, construction, operation, maintenance, modification and decommissioning of petroleum infrastructure and to prescribe and control the operation of petroleum infrastructure to the applicable standards and codes of practice for the designated petroleum activation.

## **20.6 Inspectors Recommendations**

1. 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 satisfaction of the competent authority DCENR. Confirmation to be provided accordingly to Mayo County Council Planning Authority 14 days before the pipeline commences operating.

**Reason:**

1. In order to ensure that before the pipeline becomes operational that the development has been completed properly to the satisfaction of the competent authority DCENR.
2. In the interests of protecting the Health and Safety of the Public

2. Prior to commencement of operations of the Corrib Gas Field Development the Petroleum Undertaker SEPIL shall obtain a safety permit from CER (or DCENR as appropriate at that time). A copy of the safety permit shall be submitted to Mayo County Council the Planning Authority 14 days before commencement of operations.

**Reason:** In the interests of protecting the Health and Safety of the Public.

3. The onshore upstream pipeline shall not be operated for the purpose of bringing gas onshore from the Corrib Gas Field until such time as an emergency plan has been prepared for the area between Glengad, Rossport, Aghoos and Bellanaboy. The plan shall have been agreed by HSE, Mayo County Council and Gardaí and shall be in compliance with any requirements set down in the Major Emergency Plan for the area.

**Reason:** In order to ensure that a fully detailed emergency plan is in place in the interests of public health and safety in the area.

4. Prior to the commencement of the operation of the pipeline SEPIL shall obtain the agreement of the Planning Authority for a plan for the control of traffic close to the terminal close to the LVI and in the vicinity of the route of the pipeline for use in the event of a major accident.

**Reason:** In the interest of Health & Safety.

## Chapter 21 Extensification of the Well Field Development

### 21.1 Proposed Development 2009 Scheme

The issue was considered and discussed in the 2009 Report as follows:

### 21.2 SEPILs Position [2009]

Additional wells are planned at the Main Drill Centre. EIS 2009 Appendix Q1 Section 2.

*“The Base Case subsea configuration comprises an 8-well manifold providing a commingling facility for five cluster wells and two satellite wells. A spare connection is available for one additional well. The facility for further wells is provided via tie-in to the upstream end of the manifold header.”* EIS 2009 Appendix Q1 Section 2.1

1. SEPIL in Section 2.9 of the letter accompanying the February 2009 application 16.GA.0004 have discussed the issue of extensification of the well field.
2. SEPIL state the Corrib Gas Field has an envisaged finite capacity. They state that this proposed development does not refer to any planned extension of the life of the Corrib Gas Field or indeed extensification of the upstream infrastructure to serve other possible hydrocarbon discoveries or the associated development infrastructure.
3. SEPIL state that having regard to detailed consideration of in situ reserves *“...it is not considered likely that there will occur any significant future extension to the life of the Corrib Natural Gas Field”*. [Letter Section 2.10]
4. However, SEPIL go on to say without prejudice to above that should gas reserves be greater than predicted, then a requirement to extend the operational life of both onshore and offshore pipelines may arise.
5. In such an event the monitoring of the pipelines including umbilical and outfall pipe as per pipeline integrity management system [PIMS] will enable the condition of the pipeline to be assessed, and will ensure the integrity of the overall pipeline is assured for the duration of its operation to the satisfaction of the Regulator. [Letter Section 2.11].
6. SEPIL confirm that no viable reserves have been discovered. Any such reserves would come within the petroleum licensing regime and regulatory process of the DCENR. [Letter Section 2.12].
7. SEPIL concludes *“assuming however that there is compatibility between any future gas reserves and the existing Corrib Natural Gas Field, it is likely to be the case that in theory at least, such reserves could be connected to the Corrib pipeline system without impacting upon its design, safety or functionality”*.



### **21.3 Assessment [2009]**

Issues have been raised by observers based on news media reports of additional prospecting for oil and gas reserves, and based on Government Licensing data for petroleum exploration and development offshore. There are concerns that once in place the onshore pipeline will be a natural target to service such developments in the future. The concerns are that this pipeline may be used to carry gas which has less benign constituents, or a higher pressure system, and in those circumstances the less benign constituents and/or the increased pressure may pose an increased risk to the local community.

It is clear that what is before the Board in 16.GA.0004 is the onshore pipeline to facilitate the bringing ashore of the existing Corrib Gas Field.

I am satisfied that a suitable condition whereby any proposal to extend the use of the onshore pipeline to transport gas from other wells within the Corrib Gas Field can be imposed on any grant of permission to protect and safeguard the integrity of the onshore pipeline.,

I am satisfied also that a suitable condition whereby any proposal to connect other gas field developments to the onshore pipeline can be prevented until such proposals have been fully assessed, and until the technical assessment of the compatibility of such developments with Corrib has been proven and satisfies the appropriate competent regulating authority.

The consents, licences or permissions that would arise in relation to such development can in my view be dealt with under existing legislation.

### **21.4 Conclusion [2009]**

In my view, this is a relevant consideration for ABP. While the ongoing regulation of the operation of this onshore pipeline is not a matter for ABP, I believe it is necessary that ABP be satisfied that during the operational life of the pipeline, that health and safety issues and the risks to the public are adequately regulated. I believe it is also necessary that ABP can be satisfied now that the integrity of the pipeline will be protected. Chapter 20 above considers the regulatory system for the operation of the pipeline.

I am satisfied that the integrity of this onshore upstream pipeline can be protected from any risk that may arise from extensification by the use of a suitable condition in the event that the Board decide to grant a permission for the proposed development whether this extensification of use of the Corrib Gas onshore pipeline, arises by way of new Corrib Gas Field wells, or whether the extensification arises from new gas fields outside the Corrib field itself.

### **21.5 The 2010 Proposed Modified Development**

The issue of extensification of the Corrib Gas Field and the potential for connection of future hydrocarbon finds into the upstream pipe network and by implication the connection of future hydrocarbon finds to the onshore pipeline was raised again at the 2010 OH. The context was generally a statement publicized by Vermillion Ltd. that the Corrib platform could be extended to enable other fields being explored to be brought into service (statement not provided at OH nor verified by Inspector).

## 21.6 Observers Submissions

### Extensification

- Future Extensification - additional pipelines
- Further gas fields may be connected to the pipeline

## 21.7 DCENR Clarification Regarding New Gas Finds

DCENR clarified the position that would apply in such circumstances as follows: The pipeline is a gas pipeline so it could not be used for oil. A separate petroleum lease, a separate plan of development and a separate consent process to build a pipeline would be required for any new gas find. If the pipeline was to be used for gas finds then the gas would have to be of similar composition to the Corrib Gas.

## 21.8 EU Directive 2003/55/EC Regarding Access to Upstream Pipeline Networks

EU Directive 2003/55/EC concerning common rules for internal market in natural gas contains the following:

### Access to upstream pipeline networks

- Member States shall take the necessary measures to ensure that natural gas undertakings and eligible customers, wherever they are located, are able to obtain access to upstream pipeline networks, including facilities supplying technical services incidental to such access, in accordance with this Article, except for the parts of such networks and facilities which are used for local production operations at the site of a field where the gas is produced.
- The access referred to in paragraph 1 shall be provided in a manner determined by the Member State in accordance with the relevant legal instruments. Member states shall apply the objectives of fair and open access, achieving a competitive market in natural gas and avoiding any abuse of a dominant position, taking into account security and regularity of supplies, capacity which is or can reasonably be made available, and environmental protection. The following may be taken into account:
  - a) The need to refuse access where there is an incompatibility of technical specifications which cannot be reasonably overcome;
  - b) The need to avoid difficulties which cannot be reasonably overcome and could prejudice the efficient, current and planned future production of hydrocarbons, including that from fields of marginal economic viability;
  - c) The need to respect the duly substantiated reasonable needs of the owner or operator of the upstream pipeline network for the transport and processing of gas and the interests of all other users of the

- upstream pipeline network or relevant processing or handling facilities who may be affected; and
- d) The need to apply their laws and administrative procedures, in conformity with Community law, for the grant of authorization for production or upstream development.
- Member States shall ensure that they have in place dispute settlement arrangements, including an authority independent of the parties with access to all relevant information, to enable disputes relating to access to upstream pipeline networks to be settled expeditiously, taking into account the criteria in paragraph 2 and the number of parties which may be involved in negotiating access to such networks.

## **21.9** Inspectors Conclusions 2010

1. It is clear that there will be control through the Petroleum Lease, through the Plan for Development for the Corrib Gas Field Development and through the Consent to Construct a Pipeline on any proposed extensification or any addition of a new gas field into the upstream pipeline.
2. It is also clear that there will be control through the Petroleum Safety Framework being established by CER and through the Safety Permit system on any additional connection into the upstream pipeline.
3. In recommending below, that control of the use of the onshore pipeline and a requirement for appropriate planning permission to be obtained before connecting any new Gas Field to the proposed development I am conscious:
  - i. That the ABP has other options should the Board decide to grant planning permission for the 2010 modified proposed onshore pipeline development.
  - ii. The Board could (a) leave open the question of control of potential future Gas Field discoveries and/or (b) control such potential connections through a condition requiring DCENR and CER approval/consent before such potential future gas field discoveries could be connected.
4. In recommending that a planning approval be required I am conscious SEPIL have clearly stated the current permission is required for the Corrib Gas Field Development and nothing more. I am also conscious that the concerns of observers and in some ways the strength of opposition to the proposed modified development of the onshore pipeline is as a result of a fear that the process and decision-making machinery will work without adequate regard for local community and the issues of concern to the safety of that community and that such decision making will not be transparent.
5. The need for appropriate planning approval will, in my view, address these concerns in a manner that is not restrictive in any way in respect of the current applications that are before the Board for decision.

## **21.10** Inspectors Recommendation

In the event that the Board decide to grant permission for the proposed development I recommend the following conditions

1. The use of the onshore pipeline shall be confined to the transportation of natural gas from the Corrib Gas Field.

**Reason:** To ensure proper regulation of the development and to protect the integrity of the onshore pipeline.

2. Any proposal to connect additional gas fields to the onshore pipeline shall be the subject of an appropriate planning approval.

**Reason:** To protect the integrity of the onshore pipeline.

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## Chapter 22 Project Splitting

### 22.1 Observers Complaints that SEPIL has Split the Project

This issue had been fully discussed at the 2009 Oral Hearing. The issue has been considered fully in the Inspectors 2009 Report. Notwithstanding that observers again raised the issue of project splitting in the written submissions to ABP on the 2010 modified proposed development. Observers raised the issue also at the 2010 OH. In particular there were repeated attempts at the OH to have matters discussed which related to

- (1) The offshore pipeline construction at Glengad and the validity of the 2002 consent for the Section 40 application.
- (2) The foreshore licence for site investigation works in Bay [ongoing during 2010 OH].
- (3) The permission for the Terminal and aspects of that permission relating to emissions from the flare stack at the Terminal, emissions of treated water from the Terminal, change of ownership of the lands at Terminal from Coillte (public) to SEPIL (private company), the role and advice given by HSA regarding the Health and Safety issues arising at the Terminal, issues relating to the transportation and deposition of peat from the Terminal site to the Bord Na Mona site at Srakmore from the Terminal site, issues related to the conditions that attached to the permission for the Terminal.
- (4) Issues related to the IPPC licence (Terminal), and the review of that licence by EPA.
- (5) Observers also sought to use the 2010 OH process to enquire into the decision making process within some of the prescribed bodies – Mayo County Council, The Department of Environment Heritage and Local Government including the National Parks and Wildlife Service, The Department of Communication Energy and Natural Resources.
- (6) None of the issues raised in 2010 regarding project splitting are different to those raised in 2009 and which were considered in the 2009 Inspectors Report.

### 22.2 Important to note complexity of Corrib Scheme

1. It is important for ABP to understand where the very strongly expressed concerns on project splitting are coming from.
2. The Corrib Gas Field Development project is a complex project. There are multiple statutory processes involved. Over time the legislation has been updated and new legislation both National and at EU level has come into effect. The consents/permissions processes are themselves complicated and there are some repeated processes involved for instance, the most obvious being in the case of GA.0004 the original 2009 Scheme and the modified 2010 proposed development which is now before the board for decision.
3. In the eyes of the observers these factors – the complexity, the different statutory processes, the repetition of same consent applications etc are seen as project splitting. In reality, in my view these factors are part and parcel of a scheme such as Corrib Gas Field Development. In my view it is unrealistic to expect that all aspects legal, regulatory, planning, acquisition of land, licencing, etc. can come within a single process. Any such process would be totally unwieldy and there would not be the

opportunity to examine in detail the issues involved as there now is under the applications now before the Board for decision. In my view the observers and the general public are better served by the statutory processes under which these applications are being assessed than would be the case under a process as being put forward by the observers. Such process does not exist and would, as I have said, be totally unwieldy to operate.

### **22.3 Sepil's Position**

In the letter of application to the Board SEPIL had outlined a view of the EU Commission that project splitting was not an issue for the Corrib Scheme. Although the Corrib Development is made up of a number of components undergoing different development procedures all components have been made the subject of EIA procedure. This was outlined again by Mr. Keane on SEPIL's behalf at the 2010 OH.

### **22.4 Participation by the General Public**

In my experience the observers have engaged fully with the Corrib project and they have participated fully certainly in making submissions to ABP on these applications and at oral hearing and in the 2009/2010 process for consideration of these applications before the Board. It is now a matter for the Board to take all these factors into consideration, to examine the E.I.S. and the impacts of the onshore pipeline as well as impacts related to other aspects and stages of the overall Gas Field Development and to make the decision.

### **22.5 Further Observers Submissions**

#### **Multiplicity of approvals required -**

- each which has required engagement from community i.e. Consent for Plan of Development for Gas Field, Planning for Terminal, Pipeline Licences for Waste and IPPC at Terminal, Foreshore Licence, Planning approval for onshore pipeline etc
- These processes are considered unfair to locals/those who oppose the project
- Political interference contended

#### **Project Splitting –**

- Call for one overall body to assess all processes for the Corrib Gas Field Development
- The Landfall is now established this constrains, ABP decision

#### **Piecemeal approach to the project**

### **22.6 Inspectors Conclusions**

1. In summary I find that the objection of project splitting is not well founded. The original approval to the Corrib Field Plan of Development in 2002 included an EIA procedure. The present application for the proposed development includes an E.I.S. which will be assessed by ABP. In relation to matters under construction on site I find that these are outside of my remit and they are not in my view relevant considerations for ABP in arriving at a decision on 16.GA.0004.



2. I have reviewed again the consideration of project splitting in Chapter 22 of my 2009 Report. I conclude that the issues involved were adequately addressed in that Report.
3. The project has to be progressed in discrete parts all integrated within the overall scheme but each such part relating to a particular statutory requirement for consent or permission. Project splitting has not taken place in my view.
4. The Applications before the Board 16.GA.0004 and 16.DA.0005 include a full E.I.S. and ABP will in due course perform the Environment Impact Assessment on the modified onshore pipeline development as proposed in the 2010 E.I.S.
5. There are aspects of the observers concerns which though expressed as one of project splitting are in my view more properly related to project monitoring and control on the construction activities of the applicant SEPIL. I will deal with those aspects in Chapter 41 Other Issues in the context of the proposal that a Project Monitoring Committee be established to oversee the construction of the project should ABP decide to approve the applications.

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## Chapter 23 Boundaries of the Permissions Sought

### 23.1 Further Information Request of 22/2/2009

ABP sought clarification from SEPIL as set out in the following paragraph of that letter:

*“That part of the route of the pipeline which is onshore (between chainage 83+390 and 83+400) has been omitted from the application, i.e. between chainage 83+400 and the high water mark (HWM)”* Page 1 [Point 3]

*“Revised drawings should be submitted which fully describe the full extent of the onshore pipeline from the HWM to the terminal site. These alterations to the extent of the site the subject of this planning application shall be accompanied by revised public notices as referred to below.*

*The site of the proposed development has been incorrectly detailed in the EIS between chainage 91.537 and chainage 92.539, i.e. the existing stone road at the Terminal end of the pipeline. The applicant is invited to amend the details of the proposed development at this location.”*

### 23.2 Background

ABP sought this additional information following on from the responses provided by SEPIL to questions from the Inspector at the OH 2009. The responses were:

- Drawing DG 011 and DG 0099 (copy attached here for convenience) which showed the overlap situation between onshore and offshore pipeline. These drawings show the landfall end point for the onshore pipeline at chainage 83+400 and they show the county boundary at a different location west of that point interpreted as chainage 83+390 in ABP request for further information.
- Drawing No 001 (copy of relevant part of that drawing is attached for convenience) which detailed a section of site near the terminal where a stone road had been constructed.

### 23.3 Further Information Provided in E.I.S

#### for the Modified Proposed Development 2010

- (a) SEPIL has now included that portion of the proposed development between the county boundary (HWM) at Glengad and the cliff face.

This is shown in Appendix A and in the Book of Drawings (Refer. Drg DG0101, DG 0302 P03 in that the pipeline is shown commencing at chainage 83+380 at HWM. In the original document the pipeline commenced at chainage 83+400 which was at the cliff face and not the HWM.

- (b) SEPIL has now properly detailed the site between chainage 91+537 and chainage 92+539 (original chainage) this now includes the existing stone road and has been shown in Appendix M3 Drawing No. DG0112R14.

I am now satisfied that the E.I.S properly describes the extent of the site and the extent of the proposed development and the existing condition of the site for the proposed development.

## **23.4 Offshore Pipe Laid at Glengad**

### **The Offshore Pipe laid at Glengad and clarity of the extent of works included in the onshore pipeline Application 16.GA.0004.**

#### **The Facts**

1. The 2009 E.I.S. as originally submitted to ABP was less than clear on the extent of works or the boundary of the works proposed as the 2009 pipeline. The cliff face chainage 83+400 was shown as the landfall.
2. SEPIL provided a Drawing DG0111 and DG0099 (DRN 44 2009) to the 2009 OH which clarified SEPIL's position and which showed the overlap in reasonable detail between offshore pipeline and the 2009 proposed pipeline. The Mayo County Boundary was shown on those drawings.
3. The modified 2010 proposed pipeline was submitted on 31/05/2010 and shows the landfall at chainage 83+380 (Mayo County Boundary) as requested by ABP. This is shown in Drawing DG0101 2010 scheme and shows the pipeline extending to the landfall.
4. SEPIL's position is that, in acceding to ABP's request they do so without prejudice to their contention that the pipe that has been pulled in is fully in accordance with the statutory consents already granted (2002 consent). This was further confirmed in evidence (refer stenography 26<sup>th</sup> August 2010, page 10)
5. SEPIL clarified in evidence (Refer stenography 26<sup>th</sup> August 2010, page 9) that "...the drainage of the LVI will include the insertion of an outfall pipe to a head wall on the western side of Glengad i.e. associated works connected with the development will extend further west than chainage 83+400 and may go up as far as the red line". (Landfall 83+380 implied)  
"So there will be works generally beyond chainage 83+400 to the west of that they would generally be connected with the construction of the drainage pipe and head wall to drain the LVI and associated fencing works, etc."
6. The LVI and works associated with LVI itself were not part of the 2002 consented scheme.
7. The drawings submitted in 2009 clearly set out the overlap of offshore and onshore pipeline as SEPIL had proposed it in 2009. It was my view in the 2009 Inspectors Report and still is my view now that the county boundary (HWM) is the correct point for commencement of the site and commencement of the proposed development

works for the onshore pipeline applications before the Board, i.e. files 16.GA.0004 and 16.DA.0005.

8. The methods of construction and the technology that is being used in the construction and the timing of construction is such that apparently a discrete and exact point of interface between offshore and onshore pipeline is not possible or practical precisely at the county boundary (HWM) which is located at the beach.
9. As regards the existing stone road at the terminal, the site has been corrected detailed in the modified proposed development 2010 drawings and E.I.S.

## 23.5 Observers Submissions

### Offshore/Onshore

- Offshore pipe laid onshore is not exempt and should not be included in this permission as retention has not been not applied for and could not be granted in any case
  - Considered that ABP should have acted to stop the offshore pipe being laid onshore in 2009
1. As was the case at 2009 in both written submission and in submissions to the OH, observers again expressed very strong objection to SEPIL's contention that the pipeline laid during 2009 was laid on basis of full statutory consent.
  2. It was contended that the pipe as laid is a part of the onshore pipeline and as such it has been laid without the permission required in accordance with S.1. Act 2006.
  3. It was argued that ABP cannot consider this pipe and grant permission on the basis of the EU Court of Justice decision in the Derrybrien case (215/06) retention permission in a case where an E.I.A. is required.
  4. The original 2002 consent process and E.I.A. was criticised and believed not to be a valid E.I.A. because of aspects of the then proposed development at the cliff face and how they were described and or how they were assessed in 2002. It was contended that the cliff face is cSAC and pSPA.
  5. It was contended that the piece of onshore pipe chainage 83+380 to chainage 83+430 was being laid by applicant under one Section 40 consent and that the remainder of the onshore pipe was to be laid under a second Section 40 consent for which a current application has been submitted to DCENR. (Chainages used are as put forward by observer)
  6. It was contended that SEPIL had given an undertaking to the High Court (SEPIL v McGrath and others 84OP 2005, 23/04/2007). It was contended that in the undertaking SEPIL had agreed not to rely on the 2002 consent in so far as the laying of the onshore pipeline was concerned. The contention is that the matters related to the undertaking are subjudice and as such reliance on the 2002 consent for laying that portion of the offshore pipe onshore (chainage 83+380 to chainage 83+442) was wrong. (Chainages used are as put forward by observer)

7. It was contended that the advertisement which publicised the 2010 scheme was flawed by referring to chainage 83+400 instead of chainage 83+380.
8. It was contended that the 2002 consent for the pipeline was not exempt development because of restrictions on such exemption (Article 6(1) and Article 9 were referenced in this regard). The issue is the laying out or materially widening a means of access to a public road surface or carriageway which exceeds four metres in width. It is contended that the onshore section of the 2002 consent necessitated a development at Aghoos Road crossing SC4 Compound subject to this restriction and therefore the 2002 pipeline is not exempted development.
9. It was contended that in pre-application discussions between ABP and SEPIL in respect of the application for an onshore pipeline that ABP confirmed that the legislation confined its jurisdiction under 182C to the functional area of the planning authority.
10. A question regarding the existence of a declaration of exemption of the pipeline at Glengad was raised.
11. A further question regarding the existence of an appeal of any such declaration to ABP was also raised.
12. Clarification was sought regarding what High Court proceedings were taken in the case of (O'Donnell v SEPIL Court Ref....) was it by judicial review proceedings?

#### **SEPIL's Position in Relation to Observers Concerns**

1. The existing pipeline has been constructed on foot of the section 40 consent of 15/04/2002.
2. The original undertaking perfected on foot of the High Court judgement of 18/04/2007 was an undertaking "...not to rely on the compulsory acquisition orders...and to cancel the effects of the orders off the title of the defendants remaining in the proceedings". That in no way alters reliance by Shell on section 40 consent in relation to the pulling in of the offshore pipeline to chainage 83+442.
3. A new section 40 consent has been applied for the modified route because there is no provision for amending an existing section 40 consent.
4. In the absence of a stay being granted by the High Court, which has not been granted,...a decision by a competent authority, the Minister, remains absolutely valid...until declared otherwise in a competent court with jurisdiction.
5. As regards the newspaper notice it says "the section of pipeline from chainage 83+400 to the high water mark at Glengad has been included within the development application".
6. "Documents going back to the 2001 (EIS), (and related to the) (2002) consent that is not under review...and is not the Board's function in these proceedings".
7. The pipeline at Glengad has not been subject to expressed decision under section 5 of the Planning and Development Act 2000. However, Mayo County Council in response to a request by An Taisce under section 5 of the Planning and Development Act 2000 stated:  
*"whereas a question has arisen as to whether the construction works being carried out by Shell E&P Ireland Ltd. in the townland of Glengad which are related to the*

*accommodation of the Corrib gas pipeline on land above the median high watermark and as set out in section 1.1 of the Corrib Field Development Project Onshore works, Landfall Site Establishment Environmental Plan 2009, are exempted development...it is concluded...works...pipeline on land above the median high water mark is development and is exempted development”.*

8. It is understood by SEPIL that no appeal of Mayo County Council’s decision was made to ABP.
9. The O’Donnell v Shell proceedings were a section 160 application and included an order seeking declaration. The proceedings were not by way of judicial review.
10. There is no basis for suggesting the existing Section 40 consent could not be relied on following the coming into effect of the Planning and Development Strategic Infrastructure Act 2006. This is confirmed specifically by section 22 subsection 3 of the Energy Miscellaneous Act of 2006 and as stated by Charleton J in the course of his judgement in the O Donnell v SEPIL case.

### **23.6 Inspectors Conclusions**

1. There were a number of matters raised which I have no authority to examine and I do not propose to do so:
  - (a) 2002 EIA process
  - (b) The 2002 section 40 consent
  - (c) Construction of the offshore pipeline
  - (d) Undertakings given to the High Court in SEPIL v McGrath and Others
  - (e) Issue relating to material widening of a means of access to a public road at Aghoos and that relate to the 2002 proposed development.
2. I am satisfied that ABP was correct in requesting revised drawings “...which fully describe the full extent of the onshore pipeline from the HWM to the terminal...” It was confirmed by SEPIL that works related to the construction of the onshore pipeline will extend into the areas between the chainage 83+400 cliff face and the HWM chainage 83+380 i.e. site works and fencing and the laying of the drainage pipe from the LVI and the head wall at the cliff face.
3. SEPIL’s position, that the 2002 consent is valid in respect of the gas pipeline and such parts of the umbilicals and outfall pipeline as are laid at Glengad is concerned has been clarified by reference to the provision of section 22 subsection 3 of the Energy Miscellaneous Act 2006 and by the decision of the High Court in the O Donnell vs SEPIL case. However those parts of the proposed development that were not included in the 2002 consent i.e. the LVI and drainage pipeline for the LVI compound and associated construction works up to the HWM are properly part of the onshore pipeline and need to be included in this application. This has now been clearly done.
4. I am satisfied that it is construction practice that there be an overlap between the construction of the offshore and the onshore pipelines at Glengad where the offshore pipeline comes ashore. I am satisfied in regard to this overlap the offshore pipeline which has been laid at Glengad extends onshore and does so on the basis of the



consent granted in 2002. I am also satisfied that the modified proposed development, the subject of these applications extends beyond the cliff face and as far as the HWM. This proposed development as I have said above includes the LVI and associated drainage works and the works required for their construction.

5. The important point in regard to this overlap is that there is full clarity for all, for applicant, for ABP, for landowners, for general public, for the planning authority, for prescribed bodies, of the extent of development proposed in the application under consideration.

This is now fully clarified and I am satisfied that there is no uncertainty regarding the applications before the Board as it relates to the point of commencement and extent of the development.

6. I am satisfied that sufficient clarity of information has been made available between the 2009 EIS, the additional information provided at the 2009 OH (DRN OH2009 44) in particular) and the 2010 EIS together with the additional information provided at the 2010 OH to enable me to assess the issues involved.
7. I note for the record here the DCENR position that the Minister is of the view that the section 40 consent issued on 15/04/2002 is valid.
8. I note for the Board's information the High Court decision of 22/07/2010 (233 MCA/2009):

*"that there has to be a provision in law whereby if a matter changes, such as, as is argued in this case, the bringing into force of the Strategic Infrastructure Act 2006, that it is a matter of necessary implication of law that what has been permitted up to that point continues in force unless the new Act in some way affects it. But even if that were not the case, by reason of ordinary or necessary implication, it seems to me also to be clear that by reason of Section 22 of the Energy (Miscellaneous Provisions) Act 2006, the Oireachtas expressly provided for the continuance of previous consents whereby the continuing of a project under the Gas Act, 1976, was to be regarded as being lawful, notwithstanding the fact that in the meantime the Act which I have mentioned the Strategic Infrastructure Act, came into force, and that by reason of that planning permission need to be applied to, as it has now been applied to in relation to the land ward side of this, to An Bord Pleanala.*

*Part 8, Section 22, states that: "no approval shall be required in relation to a development referred to at Section 182C if-in the case of a development so referred to it has been subject to the grant of a consent under Section 39A or 40 of the Gas Act of 1976 before the commencement of this section and that consent is in force immediately before such commencement"*

*That is, it seems to me, a prophylactic measure which is probably not necessary as a matter of law, to state that where a new Act comes into force, and the new Act being the Strategic Infrastructure Act, does not specifically affect, by its expressed terms, a permission that has hitherto been given, that in fact once the permission has been given it has no effect at all on the permission, and that the permission continues to be valid as a matter of law". Mr. Justice Charleton High Court 22/7/2010*

9. I am satisfied that the Advertisement placed by SEPIL properly describes that the development extends to the HWM.

10. Following on from the above conclusions, I do not accept the observer's contention regarding that part of the offshore pipeline laid onshore that it requires a retention permission.

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## Chapter 24 Protection of the Drinking Water Supply

### 24.1 No New Concerns Arise From 2010 Modified Proposed Development

The issues that arise in relation to drinking water supply for the 2010 modified proposed development are the same issues assessed for the 2009 scheme.

I do not have any new concerns because of the proposed tunnel construction. Accordingly I repeat my conclusions and recommendations from the 2009 Report below.

### 24.2 Surface Water Discharge Points Proposed

The location of surface water discharges from the proposed modified 2010 development were provided by the Applicant in response to Questions at Oral Hearing. [DRN OH 140]

It is my belief that the applicant has a typographical error in respect of current outfall DL2 where it is stated that this is to be located at chainage 86+500. In 2009 the reference was DL8 which actually would correspond with chainage 88+500 in the 2010 modified scheme. That is the chainage I believe was intended for the DL2 (2010 outfall numbering).

I am satisfied with the discharge points provided on [DRN OH 140] except for DL7 which it is proposed will be handled within the existing terminal drainage infrastructure. I have recommended below that surface water from that part of the construction site during construction within the Carrowmore Lake (Drinking Water) catchment should not be discharged into that catchment i.e. DL7 should not be used as a discharge point at chainage 91+720. Rather this surface water should be collected and discharged into the Leenamore River Catchment and details to be agreed with Mayo County Council.

### 24.3 Inspectors Conclusions [2009]

1. I am satisfied that the proposed development has the potential to impact on the Carrowmore Lake Water Supply catchment during construction of the section between chainage 92+273 and chainage 92+573 approximately. (2009 original chainages)
2. I am satisfied that the evidence provided by Mayo County Council shows that the water quality in the Carrowmore Lake Water Supply is satisfactory and has been satisfactory during the majority of the construction period of the Terminal.
3. I am satisfied that it should be possible to manage the construction project for the proposed development so that there will not be an impact on the water quality of Carrowmore Lake Water Supply.

### 24.4 Inspectors Conclusion [2010]

1. While concern was expressed that a well on Mr. Philbin's land at Rossport may be affected by the proposed development, I am satisfied that there should be no impact on this well. The proposed development is located a long distance from lands at



Rosspart and the construction proposed is located a minimum of 5.5m below the bed of Sruth Fada Conn. The construction will be within a tunnel under the Bay and the tunnel will be grouted on completion. On the basis of these factors I believe it is reasonable to conclude that should be no impact on Mr. Philbin's well.

## **24.5 Inspectors Recommendation [2009]**

1. In the event that the Board decide to grant a permission for the proposed development I recommend the following condition

SEPIL shall include in the EMP a detail method statement for construction of surface water drainage and discharge from the construction site in the chainage 91+420 to chainage 91+720 area approximately, i.e in the Carrowmore Lake Catchment. The EMP shall be agreed by Mayo County Council. Surface water from the construction project shall not discharge into the Carrowmore Lake Catchment.(Chainages given here refer to the 2010 chainages)

**Reason:** To protect the Carrowmore Lake Water Supply

### **24.5.1 Inspectors Recommendation [2010]**

1. I recommend that prior to construction, the location of wells which serve as water supply sources shall be identified and that these wells shall be monitored before, during and after construction. [I note that the extent of the piped network of the Rosspart GWS and Pollatomais GWS are such that there may not be many such wells serving as individual water supply sources.]

**Reason:** To protect existing wells in the area.

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## Chapter 25 **Construction Methodology and Programme**

### **25.1 Introduction**

A large component of the impact of the proposed development arises from the impact of the construction, the construction technology, the traffic and the programme for the construction. These impacts are considered in the different chapters throughout the report.

This Chapter presents a brief outline along the length of the pipeline on a section by section basis and brings together the modified development and those parts of the 2009 project that have not changed materially. The various concerns of Observers have not been addressed in this chapter rather the concerns are dealt with in the chapters on each specific topic.

#### **25.1.1 Construction methods and Construction details**

A 26 month construction programme is prepared which includes mobilisation, construction, tunneling, testing and commissioning and reinstatement. SEPIL propose that a project monitoring committee be established and comprising SEPIL, Mayo County Council, NWRFB, Department of Environment Heritage and Local Government and Community representatives. It is proposed to carry out pre-construction surveys to include ground investigations, environmental surveys, ecological surveys, archaeological testing and safety hazard identification. Responsibility for Health & Safety during the construction project has been allocated to RPS (Project Supervisor Design Phase) and to the Construction Contractor (Project Supervisor Construction Phase).

The construction method to be used is:

- 1) The open cut technique known as the spread technique with temporary working area of 40m wide
- 2) Tunnelling across Sruth Fada Conn Bay which can move 8m either way horizontally from that shown
- 3) A varied open cut technique known as the stone road method in all areas of Peat land, including the forestry section with temporary working area of 40m wide
- 4) Increased working areas are proposed at the Glengad site, at the road crossing, river and stream crossings and across the Sruth Fada Conn Tunnel area and at the compounds.
- 5) The attached Figure 5.3 shows the typical temporary working area in grassland.
- 6) The area within which deviation rights are being sought are shown on Maps 1 and 2 of file 16.DA.0005. These deviation limit areas extend beyond the normal working widths outlined above.

### **25.2 Chainage 83+380 to Chainage 83+880 Glengad**

#### **25.2.1 Pipe Construction Summary**

This Section will be constructed using the open cut or spread technique.

The pipes will be welded and weld tested on site. Pipes will be bent on site (or preformed or forged bends may be used) to form pipe changes in elevation or direction along the pipeline route. Pipes will be coated with electrical insulation and resistant material to corrosion and soil bacteria action. Pipe strings when welded and coated, are inspected and checked before being laid in long strings into the trench. The water outfall (250mm) and services (2No. 63mm ducts for fibre optic cable and copper cable) will be laid in the same trench as the gas pipeline. Three umbilicals will be laid in the trench (1No. 63mm, 2No. 81mm).

Where rock occurs and ground conditions are not suitable for normal excavation it may be necessary to break the rock using rock breakers.

The pipe will be laid 1.2m (top of pipe) below agricultural land, and 1.6m (top of pipe) below watercourse river/stream bed level. The pipe will be laid on a layer of bedding material (sand, pea gravel or a layer of geotextile may be used as coating on pipe) 150mm thick.

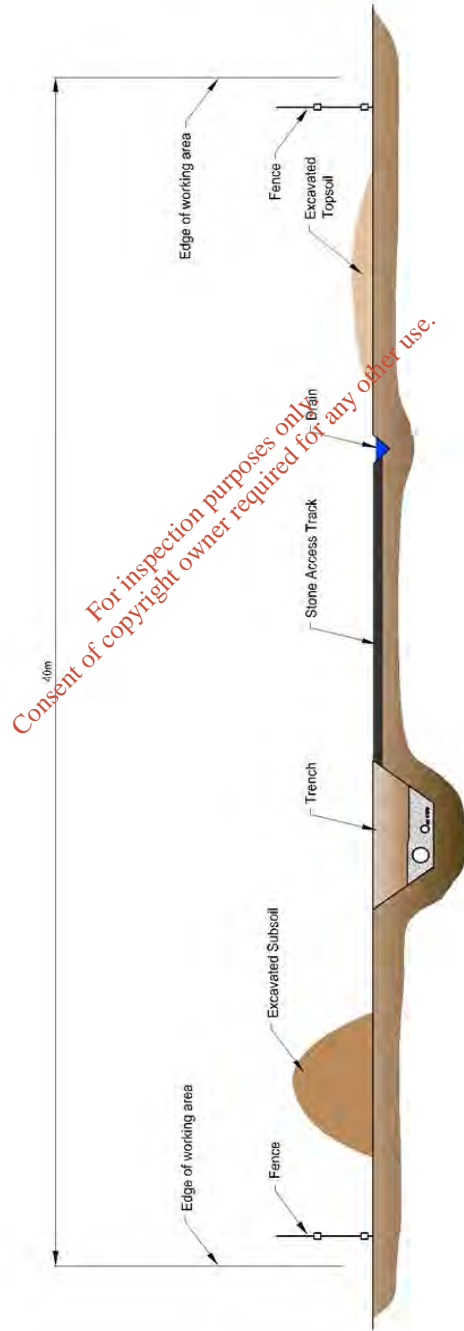
The water outfall and services will be laid at a minimum separation distance of 500mm from the gas pipeline and the services umbilicals will be 1m minimum from the gas pipeline.

At crossings of the road/streams, a pre-installed section of pipe within a sleeve may be used and the pipeline string will be tied into these. A concrete slab will be laid above the pipeline for protection at these crossings.

The pipe when laid receives 150mm of cover using the bedding material. Marker posts are placed at field boundaries, road crossing etc., to mark the pipe route and coloured plastic film is placed in the backfill 300mm above the buried pipe/services pipe.

The 2010 modified proposed development includes fibre optic cable along the pipeline. It is proposed to use this technology as leak detection, movement detection, and as third party interference detection along the pipeline.

Reinstatement involves replacing top soil and land boundaries and will be carried out shortly after construction.



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Typical Temporary Working Area in Grassland

Figure 5.3

File Ref: C:\P\000000\ACT\TWP5\_3403  
 Date: May 2013

CORRIB ONSHORE PIPELINE



### 25.2.2 LVI

This section has been redefined and now includes that part of the proposed development from the HWM to the cliff face. The major change in respect of the LVI installation itself is in the MAOP which is now stated 150 barg offshore and 100 barg onshore from LVI to terminal. Otherwise the LVI proposal is very much as was set out in the original (2009) E.I.S. In the case of the CAO one change is that it is now proposed to acquire rights over the access roadway itself from L1202 down to the LVI. The pipeline construction for this section is largely as set out in the original (2009) E.I.S.

### 25.2.3 Landfall Valve Site Construction

I believe the offshore pipe has been constructed at Glengad. It is expected that the pipe work and equipment for the landfall valve site will be fabricated off site and brought and assembled and tied into the offshore pipe and onshore pipe. It is proposed to use a “geo” mat on the slopes at LVI to stabilise topsoil against erosion. The following issues need to be considered.

### 25.2.4 Sand dunes and Glenamoy Bog Complex cSAC: (Site 0500):

The pipeline and the LVI are located the Glenamoy Bog Complex cSAC in grassland beside the sand dunes and south of the sand dunes. It is important that construction works do not extend beyond the fence-line as proposed. SEPIL in evidence indicated that part of the site along the northern boundary (at sand dunes) while included within the acquisition order area that there will be no construction activity there (DRN OH 92 Slide5). This is an important issue and should be regulated by condition in the event that ABP decide to approve these applications.

#### **Recommendation: Limit the extent of Spread of Construction at Glengad.**

SEPIL shall prior to construction confirm the minimum construction spread required across the Glengad cSAC and shall take such precautions including the relocating of temporary site cabins required appropriately, to minimize the extent of the construction works that impinge on the cSAC at Glengad.

Reason: to minimize the area of cSAC disturbed in the Glenamoy Bog Complex cSAC

### 25.2.5 Excavation at cliff face Glengad

#### **SEPIL Information**

Mr. Johnson in his evidence to the OH presented a summary of the Geotechnical assessment of the cliff at Glengad. He outlined for the Boards attention the following.

- The cliff is 3 m – 4 m high formed of glacial soil with bedrock exposed at locations along the cliff



- The foreshore fronting the cliff comprises gravel and a cobbles area that represented a beach berm which the tide rarely covered as evidenced by vegetation at the base of the cliff, no evidence of wave undercutting and the line of seaweed at some distance from the base of the cliff.

Mr. Johnson carried out analysis on the likely regression of the cliff and concluded:

- a) It is concluded that there is no risk to the LVI from regression of the cliff in the lifetime of the pipeline.
- b) The set back distances recommended for the LVI temporary works should ensure no adverse loading on the cliff.

**Mr. O'Donnell** in his report Section 3.2.3.3 has considered this matter and his conclusions can be summarised as follows:

- a) The removal and changes to boulders on the beach has altered the coastline protection.
- b) The disturbance of the overburden at the cliff face will make it more susceptible to erosion
- c) Climate Change could result in more severe storms over the design life of the pipeline.

Mr. O'Donnell notes that the 40 m set back of the LVI exceeds the minimum recommended setback of 7 m for permanent works. Mr. O'Donnell accepts that the observational approach may be the most appropriate for the site which is in a cSAC. The observational approach will allow the erosion of the cliff to be monitored and would allow further protective measures to be implemented should this become necessary.

### **25.2.6 Inspectors Conclusion on the cliff face at Glengad**

I am satisfied with the consideration given to cliff face erosion by the applicant. I accept Mr. O'Donnell's opinion that some form of natural coastal protection should be included in the works at the cliff face to prevent erosion. This matter also affects the foreshore as well as the cliff face.

The construction of the offshore pipeline pull in has involved a large excavation through the cliff at Glengad. The reinstatement of this cliff face has not been detailed. The Applicant does not expect the sand martin colony along this section of the cliff face to be able to use the restored site.

### **25.2.7 Inspectors Recommendation cliff face at Glengad**

1. In the event that the Board decide to grant a permission for the proposed development I recommend the following condition

SEPIL shall, as part of the EMP, set out a detail method statement for the reinstatement works to be implemented on the beach between the HWM and the cliff face at Glengad. This shall be agreed with Mayo County Council and DEHLG foreshore section.

**Reason:** To protect the natural environment of the restored cliff face from erosion.

2. A drawing should be prepared detailing the heights of materials and elevation treatment of the reinstatement of this cliff face for approval by Mayo County Council.

**Reason:** To ensure that the restoration of the cliff face is constructed in appropriate materials and to a satisfactory standard for combating erosion and for visual treatment of the reinstated cliff face.

### 25.2.8 Beach Reinstatement

The beach has been subject to major excavation and trench work during the construction of the offshore pipe. There will be further work on the beach associated with the Corrib Gas Field Development – an outfall drainage pipe down from the LVI itself, restoration of the cliff face after construction. There will also be further work in 2011 when it is proposed to lay the umbilical offshore pipe section and works associated with commissioning of the offshore pipeline will take place at Glengad. Observers raised issues that damage to the amenity of the beach was being done by the excavation works there which among other excavations involved removal of a large rock there. Observers raised issues related to material imported and stockpiled there and material from trench excavation for the offshore pipeline and subsequent deposition of those materials on the beach. These matters are related to the Foreshore Licence and the 2002 consent. I have dealt with matters relevant to 16.GA.0004 and 16.DA.0005 in the recommendation above regarding reinstatement at the base of the cliff and of the cliff face itself.

### 25.2.9 Inspector's Conclusion Beach at Glengad

The beach apart from the immediate area at the base of the cliff face and to the HWM is outside of the site relevant to this application and comes within the remit of the DEHLG and the Foreshore Licence granted by DEHLG (now has responsibility for Foreshore Licencing) for the works concerned.

Any restoration plan that is required should be agreed with the appropriate authority DEHLG in respect of the Foreshore Licenced part of the overall site for the Corrib Gas Field Development.

### 25.2.10 Inspector's Recommendation Beach at Glengad

SEPIL shall make arrangements such that access to the beach at Glengad will not be unduly restricted for the duration of the construction works and while the construction spread is in situ across the traditional access to the beach at Glengad.

**Reason:** To ensure that the amenity of the beach at Glengad is protected for public use during the construction works.

### 25.2.11 Glenamoy Bog Complex cSAC (0500)

The Glenamoy Bog complex cSAC description contains the following.

“This site is of immense ecological importance because of the presence of a number of EU Annex 1 habitats, including two priority habitats, blanket bog and machair. It supports populations of an Annex 2 fish species (*Salmo Salar*- Salmon), two three Annex 2 plant species (*Petalophyllum Ralfsii* – a liverwort, *Drepanocladus vernicosus* – a moss and *Saxifraga hirculus* – Marsh Saxifrage) and 6 Annex 1 Birds Directive species (*Branta leucopsis* – Barnacle Goose, *Hydrobates pelagicus* – Storm Petrel, *FalCounty Councillumbarius* – Merlin, *Falco peregrines* – Peregrine Falcon, *Pluvialis apricaria* – Golden Plover and *Pyrhocorax Pyrrhocorax* – Chough) It also has nationally important populations of other seabirds. Despite serious damage to parts of the site in recent years, large areas remain in good condition. Considerable archaeological interest is contained within the site, including the renowned Céide Fields. Furthermore, the site is of outstanding scenic value”.

The Glenmoy Bog Complex is a candidate SAC selected for active blanket bog and machair both priority habitats Annex 1, also for sea cliffs, wet heath, juniper scrub, transition mires, dystrophic lakes, and rynchosporion, all habitats Annex 1 [EU habitats directive]. This site is also selected for the following species Annex 2 – Atlantic Salmon, the plant marsh saxifrage, the liverwort petalwort and the moss drepanacloodus vernicosus [protected under flora protection order 1999].

The landfall valve site and the pipeline site in Glengad are all within the Glenamoy Bog Complex cSAC. The landfall valve site adjoins and is an influence on the Blacksod Broadhaven Bay SPA now also being considered as a pSPA.

The construction method proposed at Glengad is open trench excavation for the pipeline which will be buried right through coming in under the foreshore then across Glengad in open trench before deepening to join the segmented tunnel at the reception pit and then up underneath the Sruth Fada Conn Bay. This will be quite invasive during construction, particularly at seaward side where the pipeline will tie into the offshore pipeline and also at Sruth Fada Conn Bay side where the reception pit complete with compound for the tunnel is located.

Mr. O’Sullivan in his (2009) report (Section 3.4.4 in Appendix 1) states that the loss of grassland at the Landfall Valve Installation and the road would not have a noticeable impact on natural heritage. He further states that the works would not have a significant impact on the ecological value or the natural heritage of the habitat and lands there.

Mr. O Sullivan in his 2010 report (Section 3.5.5) considered that the very substantial nature of the works proposed dictated that an appropriate assessment of the implications of the

proposed development was required. Mr. O Sullivan's report is contained in Appendix 1 of this report I do not intend to repeat the detail of that report. Mr. O Sullivan concludes his analysis and says "... *An Appropriate Assessment of the implications of the project for the cSAC in view of the site's conservation objectives can therefore ascertain that it will not adversely affect the integrity of the site.*"

I am satisfied with Mr. O'Sullivan's conclusion. I am satisfied that restoration and reinstatement after construction and commissioning can be achieved in such a manner as to minimize the residual impact of the works on the cSAC at Glengad. Mr. O Sullivan's report on the impact of the proposed development on the Natural Environment is fully considered in Chapter 38 of this Report.

### **25.2.12 The Valve Compound and Visual Impact on the Area**

Initially as one looks at the proposed industrial type finished / design on the over ground fence, valve equipment and control equipment it appears that the design may be insensitive in a visually important landscape.

The L1202 South of Sruth Fada Conn Bay and around Glengad is designated as a scenic route and there are protected views from that route looking down from Glengad and looking across towards Broadhaven Bay (highly scenic views in the Mayo CDP 2008 - 2014). The CDP provides advice ... "New Development should only be considered where it can be demonstrated that it doesn't obstruct designated highly scenic vistas not alter or degrade the character of the surrounding landscape."

However, when one views the actual site from the Glengad L1202 the distance and the topography is such that development along the ground level can be seen to have little impact on the vista of the view. Similarly even more so when the site is viewed from the Ceathrú Thadhg side of Broadhaven Bay the distance is greater again and it can be seen that development along the ground level will have very little impact on the view from that side.

The applicant provided two models at the Oral Hearing (2009) showing the LVI area and showing both the access road and LVI area. The set down of the LVI compound below ground level and the vegetation finish proposed for the surfaces should reduce the visual impact involved. It is proposed that natural regeneration of the laneway (permanent access roadway proposed for the LVI 3.5m wide from the L1202) be hastened by the use of gravel and peaty material under the guidance of a landscape architect and the project ecologist. The net affect expected is that while the road will be solid, grass and vegetation will obscure the roadway in the landscape.

Observers have objected to the construction of the roadway and the LVI compound in the cSAC. ABP has considered this roadway (16.RL.2293 Question 10) and decided that the construction of the roadway was development and was not exempt development when this question arose. ABP also considered part of this roadway (PL.16.223463) and decided to grant a temporary planning permission for 5 years (expires 2012) for that part of the roadway

from the L1202 to the edge of the cSAC. The conditions attached to that permission sought to protect the ecology of the site at the temporary road.

Mr. O'Sullivan has considered the Landscape and Visual impact of the development in his (2009) report in (Section 4.5 in Appendix 1) Mr. O'Sullivan concludes that the small size of the proposed structures, their situation in a dished area below the natural line of slope to the bay; their colouring in neutral colours; and the grassing of the access road and surrounding slopes will work to ensure that the scale of the visual (negative) impact of the permanent above ground structures associated with the LVI is slight. Mr. O Sullivan in his 2010 report reaffirms his earlier assessment. I fully agree with this assessment as I have outlined above I am satisfied that the visual impact of the LVI and compound at Glengad is acceptable. The visual impact of the overall development on the landscape is considered fully in chapter 42 of this report.

### **25.2.13 Inspectors Recommendations LVI and Access Road to LVI**

The Access Road: I am satisfied that the proposed road access is acceptable I recommend that permission be granted for this road subject to conditions (1) Sufficient care and attention is taken in the final reinstatement of the road side margins and that the work is supervised by the project ecologist

**Reason:** To ensure that the integrity of the cSAC is maintained in the reinstatement work

The following condition recommended by Mr. O'Sullivan be included. The Measures to mitigate the visual impact of the proposed development set out in Chapter 10 of the modified E.I.S. on Landscape and Visual Assessment and submitted with the application shall be implemented in full in the course of the development.

**Reason:** To protect the visual amenity and character of the area.

## **25.3 Section Chainage 83+880 to Chainage 88+770 the Tunnel**

### **25.3.1 SEPIL's Proposal**

This proposal in response to the ABP's invitation to modify the route is a substantial modification of the original scheme and involves building a tunnel under Sruth Fada Conn.

The tunnel proposed is a segment lined tunnel that will be constructed using a Tunnel Boring Machine. The tunnel will be 4.9Km long, 4.2m in external diameter and on completion of installation of the gas pipeline the tunnel will be filled with grout.

The original proposal to cross Sruth Fada Conn Bay twice using micro tunnels will no longer be used. The tunnel will be constructed under Sruth Fada Conn Bay from Aghoos to Glengad with construction activity proposed to be centred on a large compound at Aghoos. The revises E.I.S. sets out that in addition to the cables and

umbilicals and outfall pipe required for the proposed development a spare duct and a spare electrical and a spare fibre optic cable and a spare umbilical will be laid in the tunnel section of the proposed development The tunnel route is more direct and will have the effect of shortening the overall pipeline by 0.9 Km when compared to the 2009 proposal.

Details of the tunnel are set out in Section 5.5 of the EIS and Appendix S, which also provides information on how SEPIL propose to handle tunnel arisings. See also Figure 5.5 and Figure 5.6 attached.

The top of the Tunnel will be located between 5.5m deep below the bed of the Estuary and a point such that a maximum of 10m below the centreline as shown will be achieved. Both launch pit at Aghoos and reception pit at Glengad are located on lands and some distance above the HWM and water edge of the Estuary. The tunnel will be constructed through sands and gravels with rock expected at either end of the tunnel. Sruth Fada Conn Bay is an SPA(4037) and now a pSPA is under consideration for this area, and is within the Glenamoy Bog complex cSAC (0500). The impact of the proposed tunnel construction is considered in Mr. O Sullivan's report and in Chapter 38 of this report. The tunnel has been considered by DEHLG and NPWS whose submission has been considered in Chapter 13 of this report. Briefly and it is concluded that the tunnel construction methodology proposed will have minimal impact on the cSAC. It is also concluded that there will be minimal impact on the SPA. It is accepted that an intervention pit is unlikely to be required in the Bay.

### 25.3.2 Impacts from Tunnel proposed



1. It is considered that the modified proposed development will reduce the impacts of the proposed development on the environment and on the local community.
2. However the tunnel does give rise to additional impacts:
  - (a) Longer construction period - much of this is tunnel boring and less intrusive than the original proposed open cut development through Rossport.
  - (b) Aghoos Compound is a large construction site as now proposed. The important factor is that this compound is not immediately within a residential area and access to and from the compound can be achieved over an already improved L1202 and R314 without significant traffic/ noise and construction associated impacts on residential properties and schools and local neighbourhoods.
  - (c) Increased tunnel arisings Appendix S sets out SEPIL's analysis of this issue and details proposals for handling these tunnel arisings. (See Chapter 31)
  - (d) While the Compound is outside the cSAC and pSPA areas it is nevertheless adjacent to these sites
  - (e) There are potential impacts that could arise pollution from activity and stored materials at the Aghoos Compound
  - (f) The potential impact of an intervention pit in the Bay can't be ruled out but I do accept that this is unlikely to be required. (See Chapter 35)

### 25.3.3 Tunnelling Compound

The tunnel will require a very substantial tunnelling compound at Aghoos which will be removed on completion of the construction. This compound with associated storage areas, stringing areas, tanks and lagoons is shown on the attached figure 5.7.

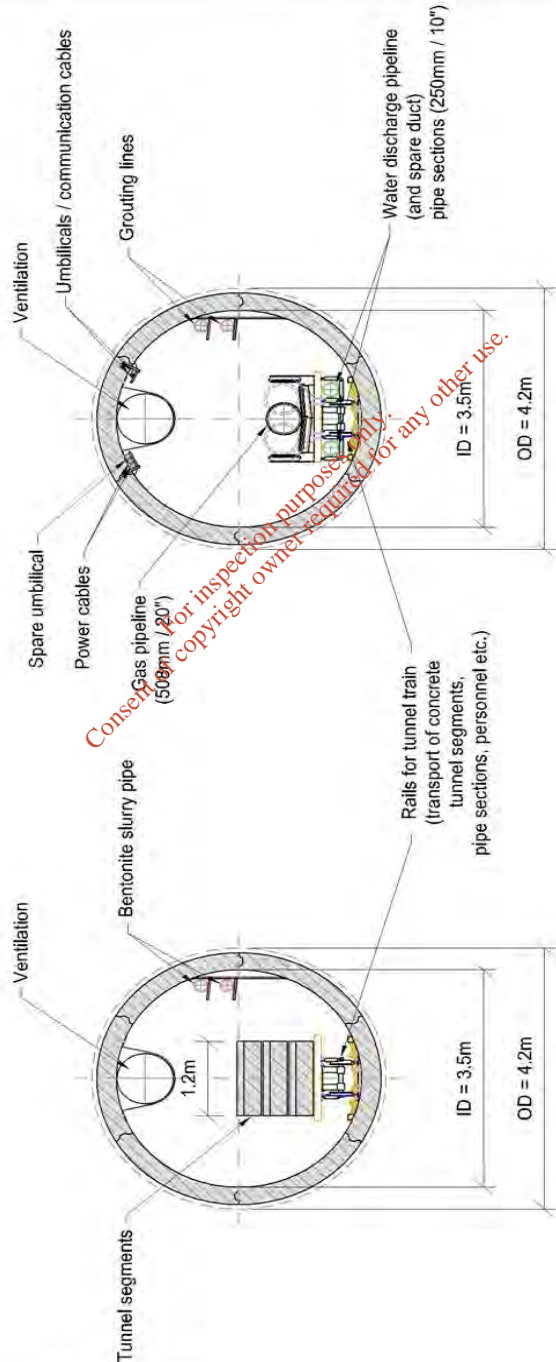
The tunnel is expected to be completed without the need for intervention pits. The pipeline will be strung out at Aghoos and laid into the tunnel. On completion the tunnel will be filled with cement grout. The issues relating to the tunnel and the compound at Aghoos are considered separately in more detail in Chapter 35. Briefly while the control and management of the construction compound at Aghoos are now a critical factor to avoid pollution and contamination of the Bay it is considered that the tunnelling compound is acceptable subject to appropriate conditions to control construction activities at the site.

### 25.3.4 Haul Route

The modification to the route of the pipeline and the proposed tunnel construction which will be bored one way from Aghoos to Glengad means that significant changes result in the Haul Route and in the quantities of materials to be moved. There will now be no requirements for any Haul Route on the roads in Rossport on the northern side of Sruth Fada Conn Bay. In fact, no construction activity is proposed on the northern side of the Sruth Fada Conn Bay. The haulage to and from Glengad on L1202 while it will be significant it is reduced and will be hauled over a

longer construction period. A large part of material and equipment Haulage will now take place on the L1202 from its junction with R314 to the tunnelling compound at Aghoos. The haulage and disposal of peat at Srahmore will be 75000m<sup>3</sup> approx. There will be potentially significant quantities of tunnel arisings material that may have to be disposed 68,000 m<sup>3</sup>, either for re-use in the construction work or where not reusable to a licenced waste disposal facility. The Haul Routes and Traffic Plan are considered separately in Chapter 44. Briefly it is considered subject to conditions that the haul route and traffic plan are acceptable.

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Transport of Tunnel Segments during Tunnel Construction

Installation of Pipeline and Associated Services after tunnel is completed

ID: Inner Diameter  
OD: Outer Diameter

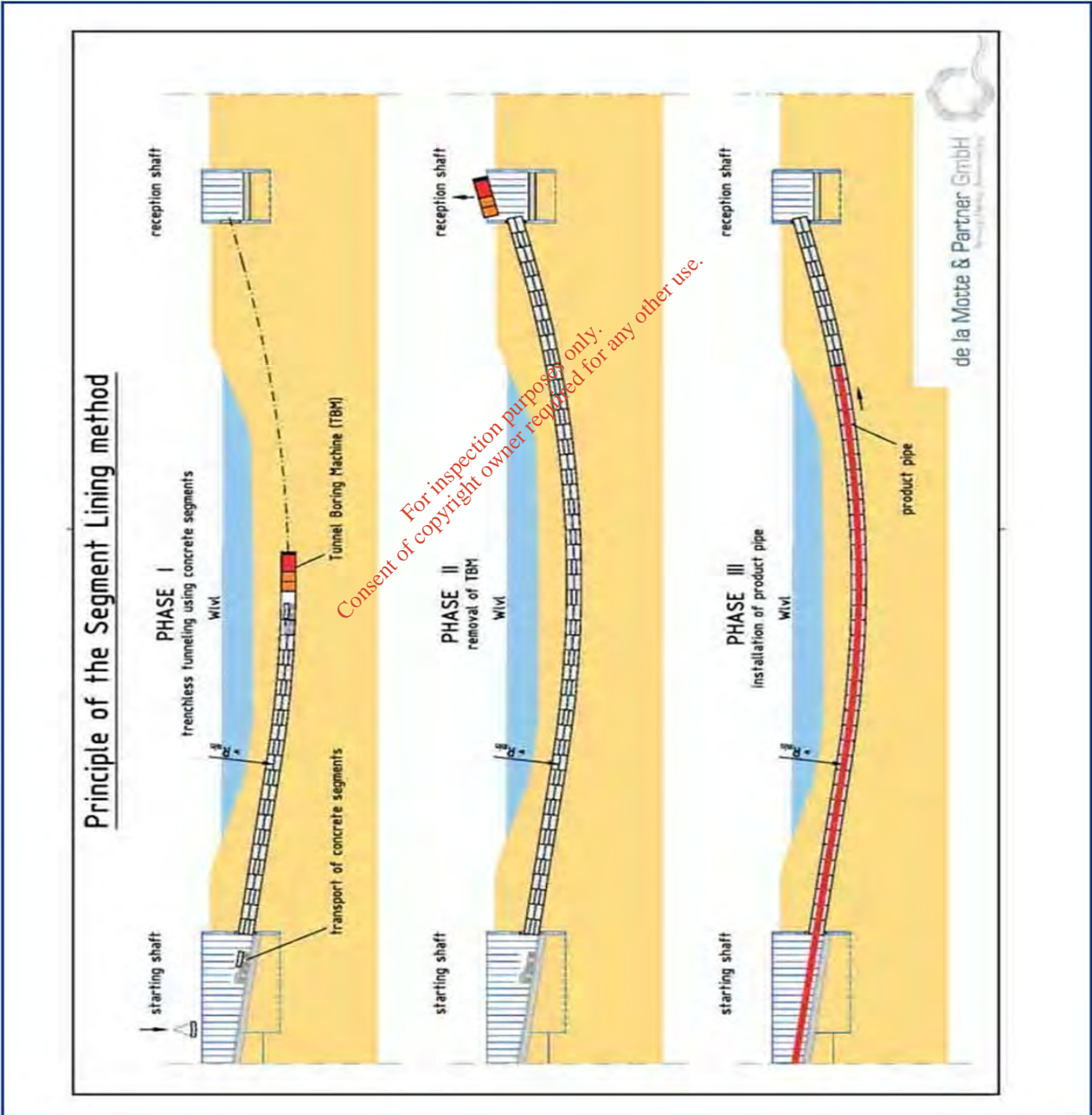
Cross Section of Tunnel showing Installation of Pipe Sections

Figure 5.5

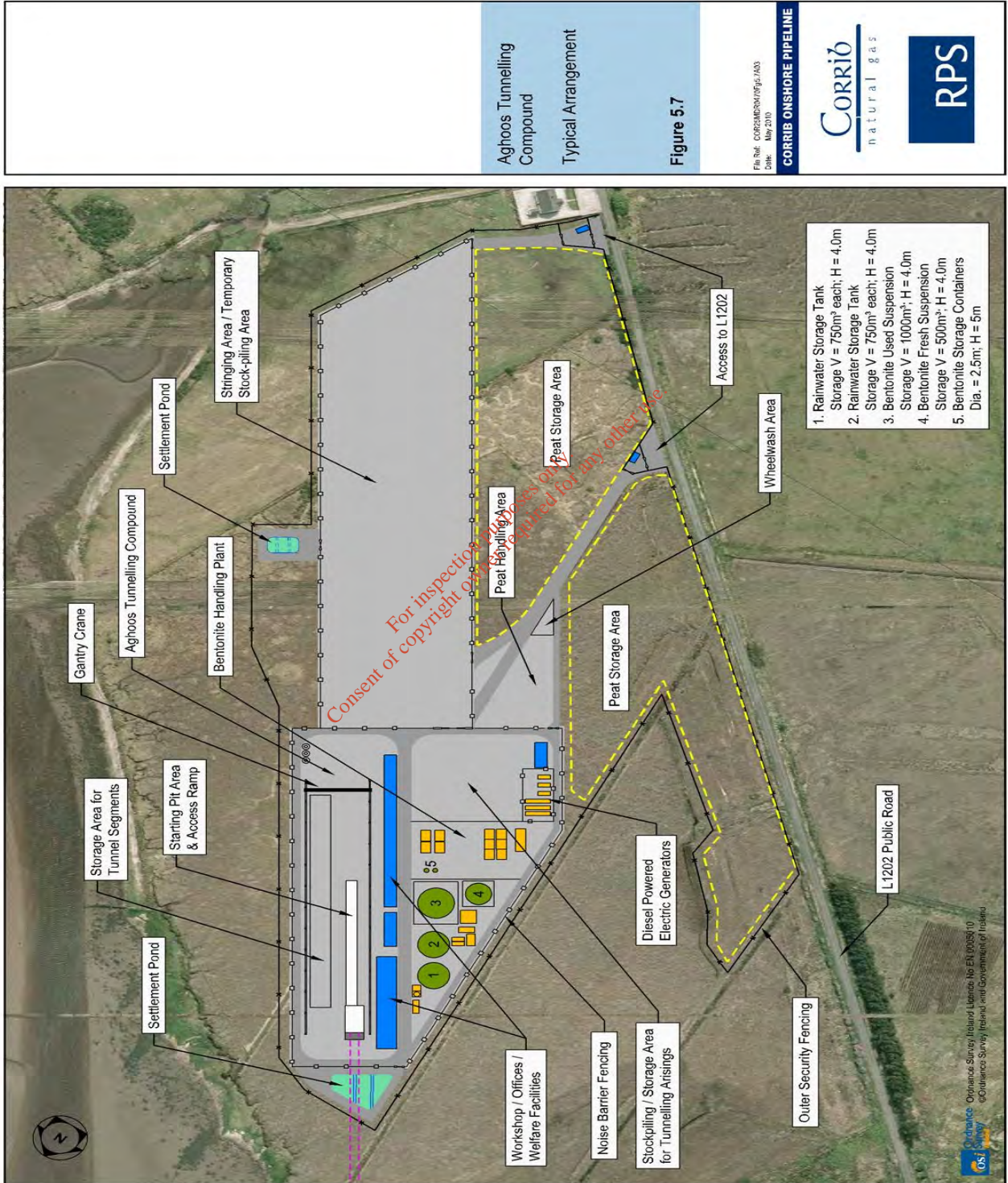
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Date: May 2011

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### 25.3.5 Tunnel Waste Arisings Analysis

Details of wastes arising are set out in Appendix S of the EIS. Approximately 68,000m<sup>3</sup> or 136,000 tonnes of material will be extracted. This will be generated at an average rate of 150m<sup>3</sup> per day. It is estimated that rock cuttings and part of the sand/gravel excavation can be reused during the construction. It is estimated that silts and bentonite residual quantities will have no re-use potential and will have to be disposed at a licensed facility (17,000 tonnes). There is potential for re-use of sands/gravels.

The E.I.S. sets out various potential methods for re-use of materials arising. A number of options are put forward for disposal of the excess material. Re-use on site, re-use offsite, recovery offsite, disposal offsite. The E.I.S. presents a worst case scenario whereby 24,000 tonnes of inert waste generated in total from the construction (tunnel, LVI, and disposal of material from compounds at end of construction works) will have to be disposed of at a licensed facility. The licensed facilities have been identified, one at Naul in Co. Dublin and one at Gormanstown Co. Meath which have the capacity to take this waste. The wastes generated by the proposed development are considered further in Chapter 31 of this report.

Briefly it is considered that subject to conditions the proposed waste management of materials arising from the construction is satisfactory.

### 25.3.6 Inspectors Conclusions Tunnel

1. I believe these revised proposals will reduce the environmental impact and these modifications represent a significant minimisation of impacts on the environment on the Glanaroy Bog Complex cSAC and the Broadhaven Bay pSPA.
2. The narrow bog rampart and residential roads in Rossport which will not now be traversed at all by construction traffic and the lengthened programme means that the Pollathomais and Glengad traffic on the L1202 will be of lower intensity.
3. The longer programme will allow the contractors involved to plan transportation and to include local community everyday events, funerals, etc. more fully within the programme of work.

## 25.4 Section 88+770 to section 91+720 Aghoos to Ballygelly South.

### 25.4.1 Specialised construction

This section will be constructed using the stone road method through peat lands.  
Road Crossing, River Crossings



The pipeline crosses the L1202 at Aghoos. The top of the pipe will be 1.6m minimum below road level and a reinforced concrete slab 150mm thick will be placed over the pipe and across the road crossing 500mm above the top of the pipe.

#### River Crossing (Leenamore River) & Stream Crossings (2No)

It is proposed to intercept the Leenamore River/streams upstream of the crossing, to install flume pipe/pipes temporarily to maintain the river/stream flow across the temporary working area. The gas pipeline and other services will be laid with a minimum cover of 1.6m to the bed level of the stream/river and a reinforced concrete slab 150mm thick will be placed 500mm above the gas pipeline. The river/stream beds will then be replaced and reinstated.

In the case of the Leenamore River Estuary, the crossing will be through salt marshes there. It is proposed to excavate the saltmarsh in turves leaving these to one side in the adjoining estuary and to restore the saltmarsh turves as soon as practicable after laying of the section concrete coated pipe and a spare duct for the umbilicals and water discharge pipeline.

#### 25.4.2 The Stone Road in Peatlands

The stone road method involves removal of turves whole 1mx2mx0.5m in size in the area of intact blanket bog, protection of these turves on bog mats and keeping the turves moist for ultimate reinstatement over the area disturbed. It is proposed to use a layer of peat over the stone road beneath the turves when reinstating this area. The peat to be used is to be from intact blanket bog for use in areas of intact blanket bog and that will be stored separately from peat used to restore the remainder of the stone road and the Aghoos compound.

The stone road itself uses a 9m wide working area in the intact Blanket Bog section and 12m wide working area elsewhere in peat lands and the pipeline will be installed within that stone road. This method was developed and used in the Mayo – Galway pipeline and in the area of intact blanket bog in the Carrowmore Lake Complex cSAC, although the pipeline was laid beside the stone road in that scheme.

In the areas of degraded peat lands and in the forestry peat lands some peat may be sidecast for use in the reinstatement post construction. A decision on sidecasting of peat will be taken after site pre-construction investigations and after working methods have been finalized. Appendix M2 of the modified EIS sets out the information and analysis requested by ABP in paragraphs (l), (m), (n), of the letter of 2/11/2009. Peat Stability is considered in more detail in Chapter 36 of this report and in Mr. O'Donnell's report (2009).

Otherwise surplus excavated peat will be removed, some will be stored in compounds for use in reinstatement and the surplus will be transported to Srahmore for deposition there (75000m<sup>3</sup>)

The stone road is constructed after the excavation of peat and where 0.5m of peat will have been left in situ. The stone will be selected to ensure it is ph balanced and chemically neutral within the bog. Peat plugs will be placed at intervals (as determined during construction) along the road to prevent the road acting as a preferential drainage channel.

Where peat excavation becomes difficult in areas of deep peat a method whereby boulders are pressed down into the peat by the excavator bucket will be used to establish a boulder stone matrix within the peat on which the stone road will be constructed. SEPIL indicated that this method has been used successfully in areas of deep peat.

The stone road will be 12m wide (except as outlined above) and will use normal working temporary way leave which is 40 metres wide. The same temporary working area will apply in the section of intact blanket bog approx. 190metres in length.

1. This section is along the route as proposed in 2009.
2. This section of pipeline is South of Sruth Fada Conn Bay and through eroded peat lands some agricultural improved lands and wet grassland and a section of intact blanket bog and peat lands in forestry.
3. SEPIL own the site on the shore and the temporary working area set out on the drawings for the tunnel construction and shore access South of Sruth Fada Conn Bay is extensive. In the acquisition order SEPIL now propose acquiring deviation rights over a larger area at Aghoos to accommodate the tunnelling compound.
4. Coillte own the next part of the site which has been set in forestry.
5. SEPIL own the remainder of the site up to the terminal itself.
6. An existing stone road has been constructed from chainage 90+350 to chainage 91+520 approximately. A small section between chainage 91+520 and 91+720 [the Terminal tie in point] also has a part stone road construction.
7. The proposed pipeline along this section is the same generally as originally proposed with only a different vertical and horizontal alignment on the tunnel and launch pit approach at Aghoos .
8. The major change in this section is the large tunnelling compound SC3 (Area 24,000m<sup>2</sup>) that will be laid out in two phases – Phase 1 the tunnelling compound itself - Phase 2 the pipeline stringing area.
9. The compound will be constructed by the removal of peat which will be disposed of at Srahmore. The peat will be replaced with stone following the installation of a system of drains and lagoons to filter and attenuate run off for settlement prior to discharge into the Bay. Details of the tunnelling compound are provided in Section 5.5.2 – 5.5.4 of the EIS.
10. The compound proposed will be a major construction site operating 24 hours seven days a week over a 15 month period (construction period of tunnel) and will have significant materials and equipment haulage to and from the site on a continuous basis. The compound will be in place for a further 11 months i.e. a total of 26 months in all.
11. The compound will have continuous lighting at night.

12. An attenuation fence is proposed to reduce the impact of sound and special enclosures will house the generators and separating unit to reduce the impact of sound at Aghoos.
13. SEPIL have restated the condition of the site where an existing stone road has previously been constructed between chainage 90+350 and chainage 91+720 approximately (new chainage) as requested by ABP.
14. In the acquisition order SEPIL now propose acquiring deviation limits over a larger footprint area at Aghoos to accommodate the tunnelling compound. SEPIL are already listed as the owners of that site required for the compound at Aghoos.
15. The peat varies in depth maximum 3m to 4m at the north end of the tunnelling compound.
16. Additional peat probe site investigation of the Aghoos site has been presented.
17. It is now proposed that peat turves and peat stockpiling for reinstatement will be carried out selectively along the pipeline in those areas where analysis has shown lower or medium risk of peat slide. No stockpiling of peat turves is proposed in those areas where analysis has shown higher risk of peat slide.

The detail aspects of the impacts of construction are considered under the chapters Peat Stability, The Stone Road Method, Natural Environment, Peat Deposition Srahmore. Mr. O Donnell and Mr. O Sullivan have both considered this section and the issues involved in their reports. Briefly the overall position for this section is that the proposed development subject to conditions is satisfactory.

### **25.5 Programme**

The revised programme for the proposed development modified as requested by ABP is now 26 months. I am satisfied that this is a realistic programme. I am also satisfied that the focal point for construction of the tunnel is now at Aghoos, this location I consider very suitable as it will be removed from residential areas and while the programme at Aghoos working 24 hours a day, 7 days a week, 365 days a year for over a 15 month I am satisfied that the mitigation and monitoring measures proposed will minimise the impact of the extended programme on the local community. The programme is set out in Figure 5.2 attached.

### **25.6 Observers Submissions**

This chapter has been prepared as an overview of the project along the route. The individual observers concerns and SEPIL's response are considered in detail throughout the remaining chapters of the report.

## **25.7 Inspectors Conclusions on Construction**

1. I am satisfied with the methodology proposed for construction of the modified scheme.
2. I am satisfied following the analysis by Mr. O'Donnell in 2009 that the stone road technique is an acceptable method for providing access and for providing stability for the pipeline through the peat lands.
3. I am satisfied that SEPIL's proposal to tunnel underneath Sruth Fada Conn is a substantial mitigation on the overall impact of the development on the environment and on the local community.
4. I am satisfied that SEPIL's proposed tunnel is a superior method to the alternatives considered for that section of the pipeline.
5. SEPIL have demonstrated that tunnels have been used successfully for this type of pipeline requirement.
6. I am satisfied that the programme is now a practical programme and is achievable.

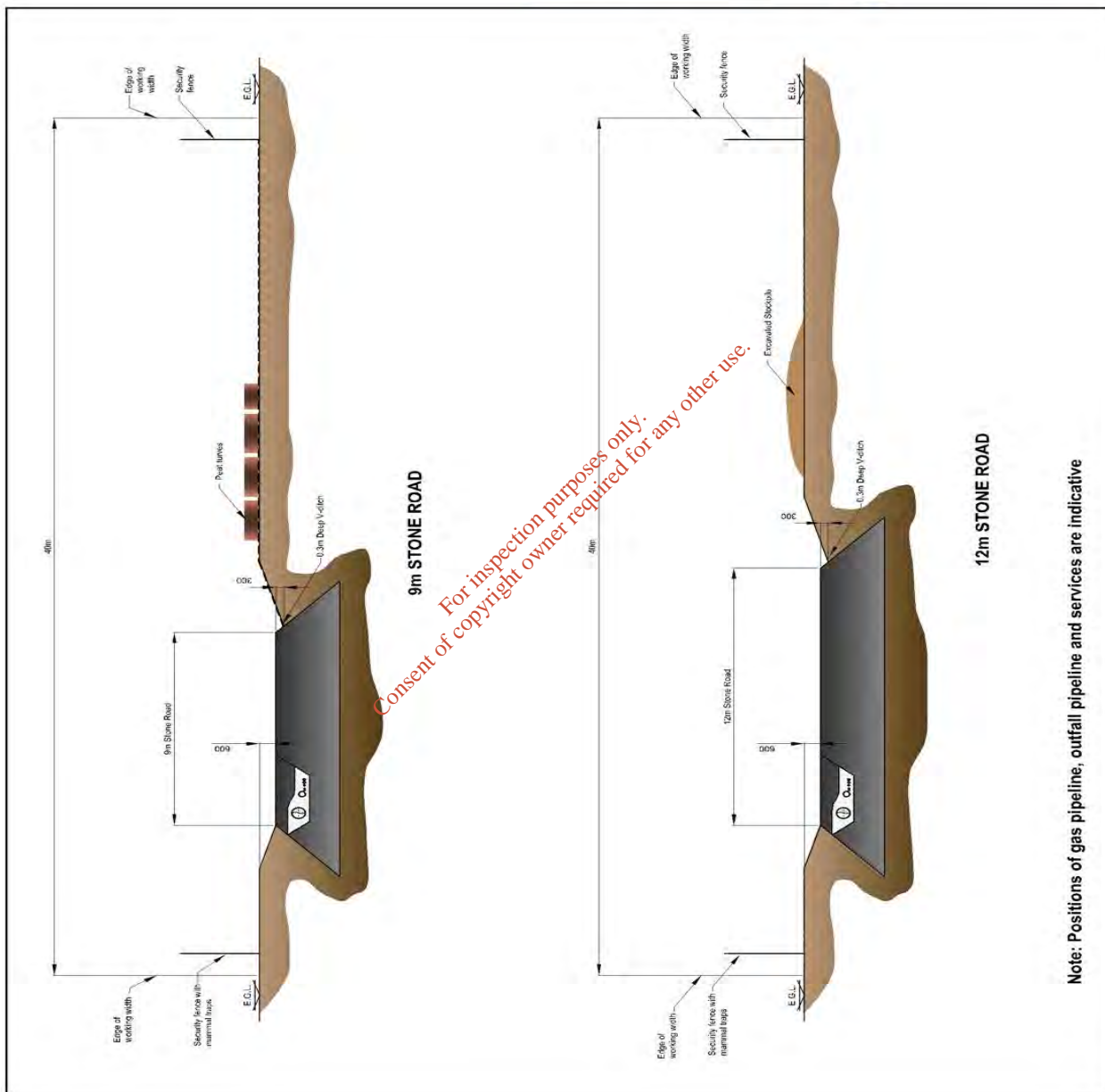
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Typical Layout of Temporary Working Area in Peatlands

Figure 5.4

ENR/01 CORRIÓ/NATURAL GAS/1400  
Date: May 2010

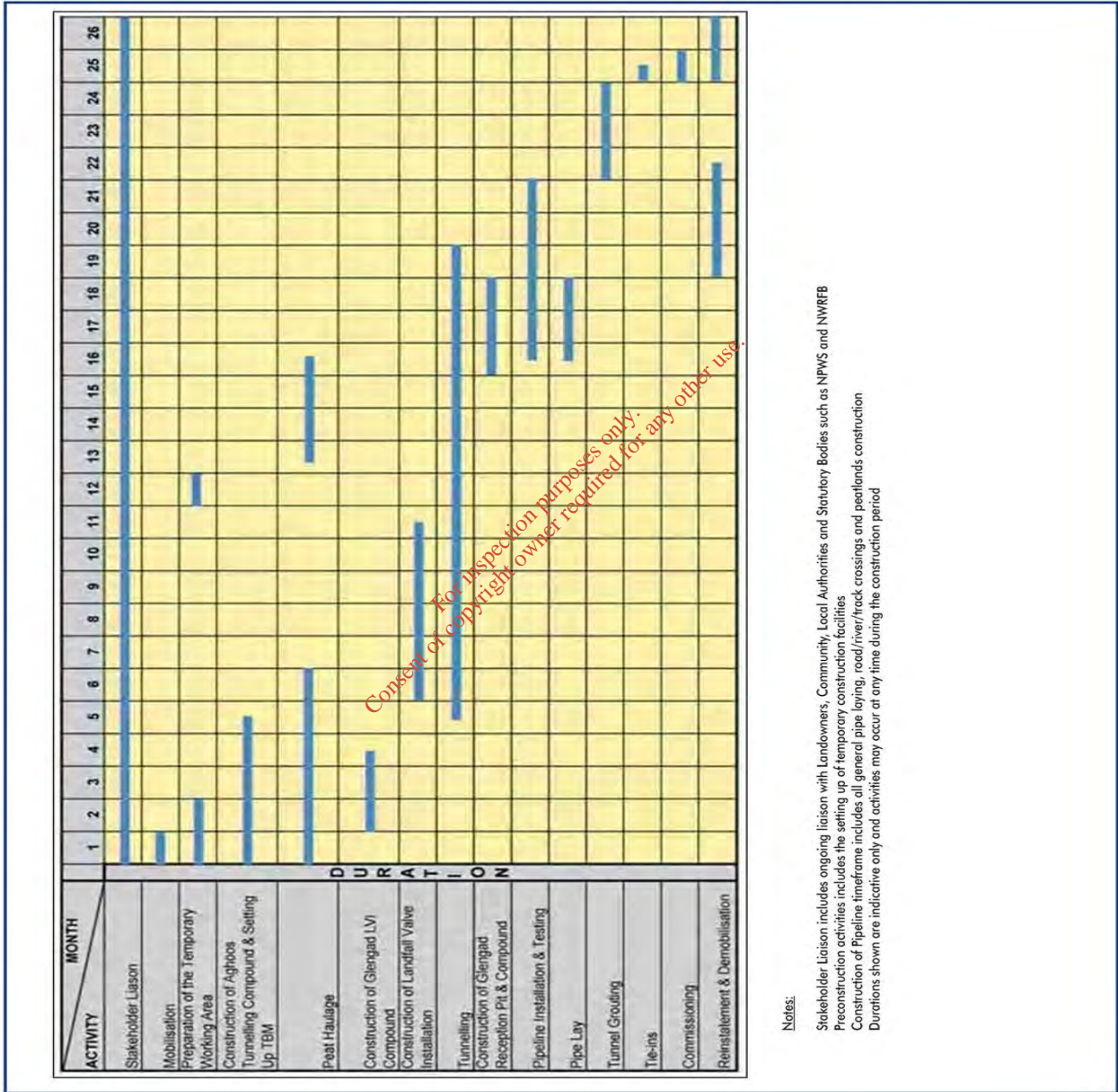
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## Chapter 26 Security

### 26.1 Introduction

The issue of security was considered in the 2009 Inspector's Report. All of that chapter on security and the conclusions and recommendations are relevant and need to be considered as a lead into considerations that arise regarding the 2010 modified proposed development. Consequently, Chapter 26 from the 2009 Inspectors Report is repeated here in full:

#### Impact of Security Operations (2009)

1. This Corrib Gas Field Development Project is the subject of conflict between the developer SEPIL and third parties. The conflict is at times extreme as evidenced below. It is apparent that the conflict is supported by local groups and individuals at different levels, much of it in the form of objections, some conflict is in the form of passive resistance to the project, some conflict is in the form of very active and extreme resistance to the project. The third parties involved in the conflict are both from the locality and from outside the locality.
2. Video evidence of this conflict was presented at the OH [DRN OH43a] which showed extreme conflict between third parties and Gardaí who were policing activities related to construction works on the Corrib Gas Field Development.
3. Evidence was submitted detailing the circumstances that led up to the jailing of 5 local people for their opposition to what was then the proposed onshore pipeline project [2002 consented projected DRN OH53b – The Story of the Rosspoint 5].
4. In the course of site inspections at the landfall valve site at Glengad and at the terminal site at Bellanaboy, there was clear presence of a large force of security personnel and a large force of Garda personnel.
5. Evidence was given at OH of the impact at night of security activity at Glengad and of the impact of security personnel conversations at Glengad which caused some disturbance to locals trying to sleep.
6. Evidence was given of the practice of using video and still camera photography by security personnel, and concern regarding how these images would/could be used, particularly concern was expressed at the photography of children using the beach near Glengad. SEPIL in evidence indicated that the use of this equipment was part of the security system to protect the property and equipment on the site, and for the purpose of safeguarding the personnel and workers on the site. While such matters raised relate to works [the offshore pipeline] and are outside of present 16.GA.0004 application. I feel nevertheless that it is important to set out a clear picture of the likely events that will ensue in the construction of the proposed pipeline should approval be granted.
7. The E.I.S. is not detailed with regard to security operations.
8. It is very clear that construction of the onshore pipeline if approved, will require a very high level of security, and that such security will extend for the full duration of the works along the site and will be required for 24 hours per day for the duration of the construction project.

9. It is clear also that additional night time security will be required from time to time.
10. SEPIL were requested at the OH to submit clarification of security activity on the site and to submit clarification of the need for generators/lighting to support the security activity along the route of the proposed works. SEPIL submitted DRN OH115 in response to this request.

### **Security Proposed (2009)**

1. There are two aspects to security arrangements: (1) the security personnel and equipment deployed by SEPIL (2) the security of an Installation which is part of a National Grid of Infrastructure .

I do not propose to consider the Garda activity. This is an issue that I believe is outside of the matters which An Bord Pleanala has to consider in arriving at its decision on this application. Garda activity operates as provided by law and is not a matter to be regulated by the Planning Acts, or to be considered under the Planning Acts.

2. The E.I.S. in Section 5.4.3 Fencing indicates that 3m high linked palisade fence will be used and that fencing boundaries will be inspected regularly and maintained during the works. In Section 5.9.2. Lighting the E.I.S. indicates that lighting of temporary working areas and site compounds during periods of darkness will be minimised to that necessary for security and safety reasons. Where trenchless construction activities are located, there will be a requirement for 24 hour working and lighting.
3. In the additional information provided by SEPIL to the OH, it is indicated that security staff will be present at the compound areas on a 24 hour basis, and if necessary, site patrols will be conducted on the area of the construction spread on a 24 hour basis.
4. It is further indicated that transport of security staff to and from site will be conducted by mini bus and will drop and collect a shift of workers at the same time. In evidence it was confirmed that shifts will not change during night time hours.
5. It is further indicated that lighting will be normally restricted to compound areas, and that generators will provide power for security lighting. Acoustic enclosures are proposed around plant such as generators working outside of normal hours and that additional enclosures will be applied if further mitigation is required.
6. The type of Lighting has been described and will use down ward lanterns with anti glare fittings EIS 5.9.2 & 11.7.5.

### **Inspectors Assessment: The security deployed by SEPIL (2009)**

The information presented by observers regarding the confrontational situation that exists between SEPIL and those who oppose the development was quite shocking. While such confrontational activity is not taking place all the time, the security to cope with potential conflict and with protection of the site, and to ensure safety on site, is a necessary part the development of the Terminal and the landfall site pipe pull in works at Glengad. It can be assumed that confrontational activity is more likely to occur than not to occur on the construction of the proposed development.

I am satisfied that while the E.I.S contained very little information on security, the additional security activity profile provides information to enable an assessment to be made of the likely scale of the impact of the development on the environment. The impact of a background level of security for the duration of the construction is in my view acceptable. This level of high security presence is reasonable and should be managed during construction, and I believe appropriate conditions can be set to control this aspect of the development.

In circumstances where the confrontational aspects of the opposition to the project have to be handled by security measure, the impact on the local environment will be significant in terms of disruption, traffic delays, noise, night activity, lights at night and the consequent unease and interference such events will have on the local community and on local work and normal daily activities.

One would think that should the proposed development be approved, that a mediation system could or should mitigate the impacts of such opposition, but from what I have heard, and from the evidence presented by observers, and certain responses by SEPIL, it seems clear to me that any such mediation while it should be initiated, and while it should be pursued as the first choice response to dealing with problems; it may well be unsuccessful.

### **Inspectors Conclusion (2009)**

In all those circumstances therefore, I conclude as follows:

1. The proposed development will entail a level of security on the site 24 hours a day, that will, when not engaged in safeguarding the site from confrontational opposition, be acceptable and manageable in a way as to enable mitigation of the impact to an acceptable level.
2. There will likely be confrontational opposition, and at those times the impact of the security measures will be significant. A mediation system needs to be put in place to enable the local community not engaged in confrontational activity to be provided with as much mitigation as is possible to enable activity of the community to continue during such periods of confrontation.

I find that although the impacts of such events will be significant, that they are a necessary part of the proposed development in this case. I find that in a situation where this proposed development is approved in some form such security as is required would be a necessary part of the development.

3. In developing the final construction programme, sufficient time needs to be built in to allow SEPIL and the various contractors to operate as reasonable a regime on the construction activity, so that conflicts with normal local activity are eliminated as far as practicable. My assessment of the contract programme under construction is set out in chapter 25 Construction Methodology and Programme.

### **Inspectors Assessment: Security of National Grid Infrastructure (2009)**

The Commission for Energy Regulations (CER) together with the Utility Regulator Electricity Gas Water in Northern Ireland have jointly published a paper entitled Common Arrangements for Gas (CAG). There is a copy of this paper in Appendix 7. The paper summarises a consultative process with Gas industry and contains an action programme for the Regulatory Authorities (RA). It is intended that an all island charter will be further developed by implementing regulations in both North & South.

Network Security and Network Security standards are aspects of the security of supply that will be dealt with in forthcoming regulation. Mr. Wright in his report has recommended that security of the LVI at Glengad be reviewed and that a higher level of security be adopted than is proposed by SEPIL in the proposed development as now set out in the EIS.

### **Inspectors Recommendation (2009)**

In the event that ABP decide to grant a permission for this proposed development I recommend the following:

SEPIL shall propose a scheme for operation of liaison and mediation between SEPIL and the local community for the agreement of Mayo County Council. That scheme shall provide for a “clearing house” liaison group comprising management representatives of SEPIL and representatives of the local community.

**Reason:** To reduce the impact of the proposed development on the community by providing a framework within which communication, feedback, complaints and response can be reviewed and dealt with on a regular weekly basis.

### **Inspectors Recommendation (2009)**

In light of the CAG and in light of the impending regulation on Network Security and Network Security Standards and in the event that the Board decide to grant a permission for the proposed development I recommend the following condition

SEPIL shall comply with the security of Network Standards as determined by DCENR (or CER as appropriate in respect of the facilities at LVI in Glengad. DCENR will regulate the operation of the proposed development in the first instance (CER will eventually likely take over this regulation)

**Reason:** To ensure that this strategic infrastructure site meets national standards for security of supply.

## **26.2 Additional Considerations 2010**

There are additional considerations that need to be addressed in this 2010 report as follows:



### **26.2.1 Garda Activity Relating to the Corrib Gas Project**

As set out in the 2009 Inspector's Report and above, Garda activity has not been considered. "This is an issue that I believe is outside of the matters which ABP has to consider in arriving at its decision on these applications. Garda activity operates as provided by law and is not a matter to be regulated by the planning acts or to be considered under the planning acts." [Section 26.2.1 2009 Inspectors Report]

A strongly worded argument was made by observers that material consisting of DVD material should be accepted as relevant material for consideration by ABP. The material was deemed not relevant after a review conducted by the Inspector of the contents of the DVDs. Much of the material concerned the civil conflict between the protestors and the applicant and related to protests at works being constructed as part of the offshore pipeline or at the terminal. Much of the material related to particular perspectives shown in and presented in videos, TV documentaries and film made about the Corrib Gas Field Development and showed conflict between protestors, Gardaí and others including security staff working for the applicant, and contractors working for SEPIL.

A further strong argument was also made by observers that a report: "Breakdown in Trust: A Report on the Corrib Gas Dispute" by Frontline relating to what were described as Human Rights issues and alleged activity by Gardaí should be accepted as relevant material for consideration by ABP in the examination of these files. The report was deemed not relevant by the inspector having reviewed the material. For the information of the Board, the conclusions sections of the Frontline report are attached to written submission No. 41 as submitted by Ms. McCarron and Mr. Fahy.

While I bring these matters to the attention of the Board, I am satisfied that the material and evidence that I did not accept at the OH was not relevant to the consideration of these applications.

### **26.2.2 Security Mitigation in 2010 Modified Scheme**

The modified scheme significantly reduces the impact or likely expected impact of security operations on the local area.

- (a) The tunnel construction 4.9km long replaces the 2009 proposed linear route through Rossport and through Rossport Commonage and along that linear settlement at Rossport. All the impacts associated with security involved there have been eliminated from the scheme by the tunnel proposed.
- (b) A much reduced level of construction activity is required at Glengad for the 2010 proposed development, because it had originally been proposed that the lower estuary crossing would be constructed by tunnel (microtunnel) bored from Glengad. This is now obsolete and Glengad will be reached by the tunnel bored from Aghoos.
- (c) The Aghoos tunnel construction compound is accessible directly via a non-residential part of the L1202 from R314 and is some way removed from local residential dwellings. The roads providing access and haul route to the Aghoos



compound have been widened and upgraded and are adequate for the proposed traffic and haul route usage involved.

- (d) The number of landowners whose lands are affected by the acquisition order is now 10. SEPIL own 3 plots and Coillte have consented to their lands being included in the CAO so effectively there are now 6 landowners affected and in the case of 2 of these the proposal is to tunnel underneath their lands.

### **26.2.3 Inspectors Conclusion on Tunnel Proposed in so far as security is concerned**

The proposal to construct a tunnel under Sruth Fada Conn and to base the construction at Aghoos and to tunnel in one direction has a profound impact on a number of factors.

- (a) Security – All activity relating to the tunnel will now be secured on the Aghoos site which is located on L1202 and approached from R314 away from residential dwellings.
- (b) Length of Construction Site in Community – Effectively the length of the overall linear pipeline has been reduced by 0.9km, because the 2010 route is shorter than 2009 route by 0.9km, and by 4.9km because the new modified route will be underground and as such will only impact indirectly on the community as compared to the original proposal where an open cut trench was proposed through the Rossport Linear Residential Area. In overall terms then the impact of construction and securing that construction for 5.8km has been removed in 2010 scheme.

### **26.2.4 Additional Security Possibility for Umbilicals**

This was not included in the E.I.S. for the 2010 modified proposed development. This was not included in the addendum to the E.I.S. provided at the OH (DRN OH 8) This arose in the Brief of Evidence of Mr. Kelly, Construction Manager for the proposed development, where he stated the following (DRN OH 3 Para 4.9):

#### ***“4.9 Potential Modifications to the Onshore Pipeline***

##### ***4.9.1. Additional Protection of Services***

*In June 2010, protestor activity at Glengad Beach had potential to damage the previously laid gas pipeline and services. Protection of the umbilicals by way of the insertion of concrete protective slabs over the umbilicals has already been proposed in the vicinity of road and water course crossings. In light of the above threat to the umbilicals, the Board may consider it appropriate to insert a modification to the proposed development to require the insertion of same for the remaining length of the pipeline outside of the tunnel (amounting to an additional length of approximately 2.3km).*

*Precast concrete slabs, 1.2m wide and 150mm deep, can be placed over the umbilicals and services. The precast concrete slabs would extend from downstream of*

*the LVI to the Terminal site boundary, excluding the tunnelled section between L2 and L1. The precast concrete slabs will be installed a minimum of 900mm below finished ground level.*

*The volume of precast concrete slabs required is 414m<sup>3</sup>. The slabs will replace approximately 343m<sup>3</sup> of stone from the stone road areas.*

*The overall project programme would not be extended should this measure be implemented.”*

Incidental mention of the concrete slabbing proposal was also included in a number of other briefs of evidence including that of Mr. Noonan on Traffic, Ms. Neff on Natural Environmental Impact, Mr. Gill on Hydrology.

SEPIL were requested to provide a statement to OH on security of the proposed development and how Mr. Kelly’s proposal to ABP fitted into SEPIL’s overall position on safety and security of the pipeline. This was provided and includes the following statement and a drawing of typical trench detail showing the additional protection of services [DRN OH 146B]:

***“Public safety and security of the Corrib onshore pipeline system***

*The security review of the Corrib gas pipeline has assessed that the gas pipeline is safe from foreseeable intentional third party damage that could cause loss of containment because of the depth of burial, the presence of the intruder detection and response capability and the 27.1mm wall thickness rendering through wall failure very unlikely.*

*The water discharge pipeline clearly poses no risk to the public and is buried at a depth of 1.4 metres.*

*The onshore umbilical which is buried at a depth of 1.6 metres poses no public safety risk even in the event of successful intentional third party damage (although there would be a risk to the person carrying out the damage) as has been demonstrated in Appendix Q4.5, Section 3.2, which analysed the consequences of failure of the umbilical and identified that the pressure in the gas pipeline system would remain within the MAOP in such an event.*

*In light of an unsuccessful effort to dig down to the pipeline at the beach at Glengad which occurred on the 5<sup>th</sup> of June 2010, an unforeseen security of supply concern has arisen should the umbilical be damaged by intentional third party interference. SEPIL is offering for An Bord Pleanála’s consideration an additional possible modification which would enhance the security of supply of Corrib gas, which is considered a strategic asset. We reiterate that damaging of the umbilical would not result in a release of gas from the pipeline.*

*The possible modification is the extension of pre-cast concrete slabs over the umbilical as shown in the attached drawing, on that portion of the onshore pipeline route east of the LVI and located outside of the tunnel, in addition to those areas already proposed under L1202 road and watercourses.*

*The system to the west of the LVI is secure due to the greater depth of burial and the fact that the umbilical is armoured and enclosed in a conduit.”*

### **26.3 Questions put to SEPIL at OH**

The following information was provided by SEPIL in response to questions on the issue [22/09/2010 15.47 to 16.02 & stenography of that date]. In summary:

1. SEPIL believed that the legislation would not have allowed them to modify the proposed development other than in accordance with ABP's letter of 02/11/2009.
2. Therefore SEPIL stated they were not entitled to do that and are not doing that.
3. This is not an amended proposal by the applicant it is simply a modification that ABP might consider.
4. In light of what happened in June 2010 (5<sup>th</sup> June 2010-an unsuccessful effort to dig down to the pipeline at the beach at Glengad) and in light of the Board's concerns about third party interference and security as expressed in ABP's letter of 02/11/2009 this proposed modification is put forward for ABP to consider to modify the development in order to provide for same.
5. SEPIL have said therefore what would the impacts be in relation to such a modification and SEPIL stated they have assessed that in relation to the subsidiary or potential modification.
6. The assessment of impacts SEPIL indicated has been in Briefs of Evidence and in the form of replies to questioning at the OH.
7. It is still SEPIL's view that the design as proposed is satisfactory from a security point of view in effect the development does not require this modification.
8. SEPIL state that in the context of events in recent times the Board may consider it appropriate if they decide to approve the route to modify it further to include the additional layer of security.
9. SEPIL are not suggesting that it would be necessary for SEPIL to revert again and if ABP did decide to request the modification that ABP should have regard to the fact that the assessment has been carried out of that possible modification and SEPIL stated it has been demonstrated that it would not have any environmental adverse impacts.
10. SEPIL in response to the question of where does the necessity arise for this modification said it is not necessary.
11. SEPIL accept that the modification possibility which they say is open to ABP to decide is an unusual situation.
12. SEPIL are not modifying the proposed development that is before ABP for decision. They are providing the assessment of the modification and of what possible impacts could be associated with the modification.
13. SEPIL agreed that there was no drawing detailing the proposed modification in the E.I.S., the incident took place after submission of the E.I.S. and it was the view of Senior Counsel for SEPIL that it was not open to SEPIL to propose that

specific modification as part of the response to ABP's invitation because the Board have not invited such modification.

## 26.4 Observers Submissions on Security

### Security

- Long term Compound and Security measures are expected to be required at Glengad: site easily overlooked and not secure
- Intrusion of security personnel on the residential amenity of the local community
- LVI does not meet code of practice criteria for same IS 328/14161/PD8010
- It is believed that a full time security presence will be a requirement at Glengad LVI. It is considered that if Corrib becomes part of European Gas Network, international terrorism will become a threat

### Security of Supply:

- Ireland has only 11 days gas storage. The security provisions of the codes of practice were not considered when selecting the LVI

### Third Party Deliberate Interference:

- Concern that because Corrib is now known internationally it can become a target for terrorism
- There were many expressions of concern at the potential for damage to the LVI at Glengad by third parties.
- The potential for a terrorist attack at LVI was raised because observers believe the LVI is vulnerable being overlooked from higher grounds on both sides of the Bay. Any such attack would have the potential to cause rupture of the pipeline at Glengad with consequent safety risks from the local community.
- Observers also expressed a concern that while the proposed development did not envisage the LVI having a permanent manning compliment that the local concern was that the LVI would end up with a manned security present and potentially a military type security presence on site.

All these concerns are a different issue to the issue of slabbing over the umbilicals as put forward by SEPIL for modification by ABP. The LVI is considered in Chapter 29.

## 26.5 Mr. Wright's Report

Mr. Wright in his report has commented that it had been established at the hearing that failure of the umbilical would not threaten the safety of the pipeline. He further stated that any enhanced security involving the umbilical was a commercial issue rather than an issue to be considered in the planning safety review of the overall development. SEPIL should redesign the security fencing at the LVI to include a double high security fence and gates with a

suitable flood lit 'dead zone' between the inner and outer fence. The outer fence should be electrified for additional protection.

## 26.6 Inspector's Discussion

1. The LVI is considered fully in Chapter 29 including the issues relating to security of the LVI itself so I do not propose considering that issue here.
2. I find the manner in which this modification arose (proposed by SEPIL for consideration of the Board) is extraordinary.
3. I can only rationalise SEPIL's statements on this matter on the basis:
  - i. SEPIL are concerned in light of the incident of 05/06/2010 that production from an approved scheme could be disrupted at some point in the future due to third part intentional damage to the services/umbilicals which control the offshore well equipment.
  - ii. SEPIL are concerned that ABP may consider the threat of third party intentional damage as sufficient reason to reject the proposed development and SEPIL believe they cannot themselves incorporate this modification under the present applications without causing major delay to the project.
  - iii. SEPIL are concerned that the incident of 05/06/2010 and the potential for third party intentional damage to the umbilicals that has been demonstrated to exist could cause delay to the Section 40 approval process or to the final certification approval under CER Safety Permit System and consequently delays to the commencement of production and accordingly they see this modification process within ABP's power as being a vehicle to deal with this issue without such delays.

## 26.7 Inspectors Conclusions

1. I am satisfied that the safety of the public from any risk due to third party intentional damage is protected by the design of the scheme.
2. The safety of the public from any risk to the pipeline from intentional third party damage is the central issue here, once that is acceptable then other secondary issues such as potential loss of production and/or potential environmental damage from third part interference can be assessed.
3. The security of the proposed development is a matter for SEPIL. They have indicated that a security review conducted by them after the event of 05/06/2010 has assessed that the gas pipeline is safe from foreseeable intentional third party damage. I am satisfied the issue has been fully considered by SEPIL in the E.I.S.
4. In the event that at any time SEPIL or DCENR or CER consider that there is a potential threat to production or security of supply then SEPIL can at that time take any appropriate course of action required to rectify that situation. Such is not the case here where DCENR has indicated:

*“Physical Security of Energy Installations*

*The Department undertook to clarify its role in relation to a Directive concerning the security of strategic energy infrastructure. Directive 2008/114/EC deals with the identification and designation of European critical infrastructures and the assessment of the need to improve their protection. It relates to energy and transport infrastructure.*

*Within the Directive, 'European critical infrastructure' is defined as critical infrastructure located in Member States the disruption or destruction of which would have a significant impact on at least two Member States. While the Directive requires the identification and notification of European critical infrastructure; it does not lay down specific guidelines or measures to be taken for their protection. Infrastructure relating to the Corrib Gas project has not been designated as European critical infrastructure and is unlikely to be so designated in the future, having regard to the fact that such infrastructure must be critical to two EU Member States.*

*As is the case with respect to downstream security, the onus for the physical protection of the infrastructure is the responsibility of the developer in the first instance and this is underpinned by the State security services."*

5. The CER are only in the process of setting up their safety framework for upstream gas infrastructure under the Petroleum (Safety) Act 2010.

In this set of circumstances I am not prepared to recommend that ABP take any action with regard to the possible modification of the proposed development in this regard. SEPIL in evidence indicated that this was not necessary.

I have concluded that the safety of the public is provided by the design of the 2010 proposed development as submitted by SEPIL. For absolute clarity on this point, in my view the slabbing protection for the umbilicals will not add any further safety control nor will it mitigate or moderate the risks any further. The public are protected by the design of the scheme itself.

## **26.8 Inspector's Recommendation**

My view is that ABP should not request this modification of the proposed development (slabbing to protect umbilicals).

## **26.9 Alternative Consideration**

In the event that ABP decide to approve the proposed development and in the event that ABP wish to take a wider perspective of this issue then in my view ABP will require (a) proper details of the proposal to include engineering details, specification details, location details and construction methods; (b) proper consideration of the likely impacts of the proposed slabbing protection for the umbilicals and service cables. This should include environmental considerations and the assessment of same; (c) justification for the construction of this



slabbing now and the implications for proper planning and development of the area if this slabbing is not constructed now but is required at a later time; (d) analysis of potential settlements of the slabbing and the potential for differential settlements to stress the gas pipeline itself. In such an event ABP may wish to inform SEPIL as follows:

1. The Board is not prepared to request a modification of the proposed development in relation to slabbing protection for the umbilicals under 182C 5(b) as was suggested by SEPIL at OH;
2. The Board is prepared to consider an application made under Section 146B for an alteration to be made to the development should SEPIL decide to request such alteration.

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## Chapter 27 Safety Part 1- Pipeline Design & Codes of Practice

The next four chapters consider different aspects of the safety of the pipeline and pipeline design. This chapter considers the codes and pipeline design. The following are then considered separately - Quantified Risk Assessment (Chapter 28), The Landfall Valve Installation (Chapter 29), Summary and assessment of pipeline Safety Chapter 30.

### 27.1 Pipeline Design Codes of Practice

The design of the pipeline that is proposed to carry gas from the Corrib Well Field to the Terminal is a central issue in considerations of this proposed development. In particular the design of the onshore section of pipeline is relevant to 16.GA.0004. Mr. Nigel Wright – a Chartered Engineer, a Gas Consultant, has been appointed by ABP to assist in the examination and assessment of the technical issues related to the gas pipeline proposed. Mr. Wright has reported [copy in Appendix 2] and has issued his conclusions and recommendations. In what follows I rely substantially on Mr. Wright's expert opinion as set out in his report Section 4 Operation of the Pipeline and Section 5 Onshore Pipeline Hydrotest Pressure.

### 27.2 ABP Request for further information

### 27.3 Pipeline Design

In the letter seeking modification and additional information on 2/11/2009 ABP requested that SEPIL provide “an integrated set of design documentation in the form of a revised Appendix Q”.

This has been provided within the revised EIS submitted on 31/5/2010. In particular Appendix Q considers technical details and brings together information which had been submitted to the initial OH as incidental supplementary information to the original 2009 E.I.S.

- An MAOP has been specified 100 barg onshore, 150 barg offshore (this includes LVI itself) refer section Q2.1, 4.5 and Figure 4.4
- The hydro test pressure for the LVI has been clarified (504 bar) refer section Q4.3.3. Design and Operating parameters for LVI.
- The hydro test pressure has been established for this section of pipe from the installed offshore line pipe to LVI at 504 bar, refer Q4.3.3.
- The code for the LVI and the pipeline onshore but upstream of the LVI to the HWM has been clarified. (DNV-OS-F101 Section Q2.1, Figure 3.1)
- Analysis of potential settlements of the stone road and consequential impact on stress levels in the pipeline have been included (section Q4.1A)
- An analysis of the potential impacts on the stone road of failure of umbilicals or outfall discharge pipeline have been included.

- An analysis of the impact on pipeline pressures of severing the umbilical has been provided (Q 4.5 Section 3.2. Q 6.3 Section 4.4.)
- LVI design justification has been included and alternate configuration of LVI are discussed (Q4.3 an Q 4.4)
- Reliability of overpressure protection systems for offshore and onshore pipelines is considered in Q 4.6 and has been the subject of further clarification at OH. [DRN OH 84]

I have examined Appendix Q of the revised E.I.S. and I am satisfied that SEPIL have submitted the additional information requested by ABP regarding codes and pipeline design (a), (b), (c) of ABP's letter of 02/11/2009.

SEPIL also provided a copy of the letter of confirmation from DCENR that codes and pressure tests as documented by SEPIL were in accordance with TAG 2006 requirements. [DRN OH 78]

## 27.4 Observers Submissions

1. The main concern is one of safety of the pipeline as designed.
  - The complexity of the design and the need to use a number of codes. Concern that one code does not cover all aspects of the design. Concern that one of the codes being used is I.S 328, clearly to be used for transmission pipelines (i.e. downstream) not upstream pipelines.
  - The high technology required to achieve the design standards for the pipeline and also concern at the high technology required in the operation of the pipeline to maintain safety.
  - The proposed development is at the limits of technological innovation with regard to pressure/distance for the tie back proposed to the onshore facilities.

## 27.5 Mr. Wright's Report

Mr. Wright in questions to SEPIL and DCENR clarified a number of points.

1. TAG has no function in relation to this new application.
2. ENTEC have been appointed as adviser to DCENR in respect of the 2010 modified proposed development.
3. Mr. Waite (ENTEC) confirmed the acceptance of codes particularly DNV-OS-F101 supplemented by IS328, BS14161 and PD8010 applied to that section of pipeline onshore upstream of the downstream weld of the LVI.
4. Mr. Hanna, Chief Technical Adviser, DCENR had by letter 13/05/2010 confirmed that codes and pressure tests as documented by SEPIL were in accordance with the requirements set out by TAG in 2006.
5. The technology for construction of pipelines in tunnels is well established and there is a growing trend towards installing pipelines in tunnels because of the ability to construct such a structure without disturbing the surroundings.

6. The accuracy for the tunnel will be +/- 8m horizontally.
7. The final design of the tunnel and pipeline will not be completed until the contractor is appointed for construction. However, stress analysis on the pipeline within the tunnel has been carried out for different conditions hydrotest and operating condition the resulting stress levels are within the code requirements for the pipeline.
8. It was confirmed that the pipeline will be designed to the approved codes within the tunnel.
9. There are no perceived problems in construction of the tunnel in the ground conditions of Sruth Fada Conn Bay.
10. The CP system will operate within the tunnel. In the case of the pipeline laid in the Ems tunnel between Germany and Holland. It has been demonstrated that the CP system was working through the grout in the tunnel.
11. SEPIL have provided the analysis (requested by ABP) of stress in the pipeline itself and in the outfall pipe, fibre optic cable, umbilicals and electrical cable that could arise in the event of settlement of the stone road. This analysis provides satisfactory demonstration that the design of the pipeline itself and the design of the associated other umbilicals, outfall pipe and cables is satisfactory and can withstand the internal pressure induced stresses combined with the maximum bending stress resulting from settlements. Mr. Wright recommends that SEPIL be required to set up the required instrumentation to measure stone road settlements at the locations where maximum settlement is predicted.
12. Mr. Wright discussed the use of deployment of strain gauges to monitor stress levels on the pipeline (including vibrating wire gauges with protective housings). SEPIL were aware of the use of these gauges however they considered that such gauges only gave results where deployed and that operational difficulties with such gauges had been known to have occurred. SEPIL indicated that measurement of settlement of the stone road was proposed. They also indicated that the fibre optic technology proposed for use would provide a continuous set of data for the entire length of pipe which would include movement data. On the balance of the discussion I recommend accepting Mr. Wright's recommendation that SEPIL measure the stone road settlements and settlements within the stone road be monitored.
13. Mr. Wright also examined stress levels in the proposed pipe design and layout at the LVI and concluded that the operational stresses are well below the allowable stresses for the pipeline and for the LVI. The stresses induced by the Hydrotest though higher, are within the allowable stress for the pipeline.
14. Mr. Wright also examined the alternative to the LVI, i.e. the straight pipe configuration. The analysis by SEPIL showed no difference in the individual risk transects between the two alternative arrangements. Mr. Wright considered that potential threats of erosion, complete pigging inspection and no corrosion dead zones had been ignored by SEPIL in the analysis.

This issue when discussed at the OH brought out concerns from SEPIL that the Inspector and Mr. Wright were seeking a further amendment to the design to the ABP request for additional information in effect a pipeline design and system configured without any LVI at Glengad. This was clarified that the Inspector or Mr. Wright were

not seeking such further amendment but rather were probing the details of SEPIL's design and configuration of the pipeline and LVI at Glengad so as to better understand the proposed development.

SEPIL in considering the "straight pipe" alternative had taken a position that a 20" valve would not provide the reliability and allow for pigging of the pipeline and therefore the configuration as proposed i.e. a 16" loop with LVI was considered to be the better solution for providing pressure protection at Glengad.

The issue for ABP is the safety of the actual configuration now proposed. Is that acceptable and the answer as set out in Chapters 28 and 29 is yes, the LVI provides a reliable pressure protection for the onshore pipeline. The risk to the public from the LVI itself is low and is acceptable. Mr. Wright in his report accepted that SEPIL have put forward a robust argument in favour of the LVI configuration and he accepted that argument.

15. Mr. Wright probed the flow regime issues with SEPIL and in those discussions SEPIL indicated that a lot of flow analysis had been carried out to evaluate the operating envelope for the production system and while maintaining the MAOPs set out in the proposed development. SEPIL were confident that the pipeline would operate in annular dispersed flow mode.

SEPIL indicated that transient flow analysis had been carried out for the different requirements of operating the pipeline. SEPIL were satisfied following this analysis that satisfactory operating procedures could be adopted to maintain the gas flow within the production envelope as set out in E.I.S.

## 27.6 Mr. Wright's Recommendations Design/Codes

1. It is recommended that SEPIL set up the required instrumentation to measure ground movements at the areas of concern. These are; at the landfall valve offshore pipe interface, at the transition areas between the grouted pipe in the tunnel and the buried sections, in the stone road at the deep peat sections and at the interface between the existing and newly laid sections of the stone road. Also SEPIL should deploy stable strain gauges (including vibrating wire gauges with protective housings) on the pipeline to verify the maximum predicted stress levels on the pipe and confirm the modelling accuracy. The instrumentation needs to remain insitu until steady state levels are confirmed and a sufficient period of time has elapsed to ensure exposure to a variety of environmental conditions.
2. The DCENR should issue a document clarifying what supplements apply to DNV.OS. F101 when used for onshore sections of an offshore pipeline.
3. It is the view of this report that the Annual Report is the key to ensuring the long-term safety of the pipeline. However it is essential that the information presented in the report is subjected to independent 3<sup>rd</sup> party scrutiny and a summary made available to the public

## 27.7 Inspectors Conclusions

1. The codes that apply to the pipeline have now been clarified. The design of the pipeline meets the requirements of the codes.
2. Mr. Wright in his report indicates that he is satisfied with the clarity provided. Mr. Wright recommends that DCENR should issue a confirmatory document confirming DNV-OS-F101 for use on that section of the offshore pipeline onshore. DCENR should also confirm the supplements form IS 328, PD 8010, IS 14161 that apply to DNV-OS-F101.
3. The 2010 proposed pipeline has the same design pressures [345barg offshore, 144barg onshore] as the 2009 proposed pipeline.
4. The MAOP's have now been declared 150barg offshore and 100barg onshore. These provide additional factor of safety protection because the stress levels in the pipeline at these MAOPs will be considerably below the stress levels at the design pressures.
5. The hydro test requirements for LVI and onshore pipeline will be 504barg.
6. The concerns expressed by observers regarding the safety of the pipeline have been responded to in the 2010 E.I.S. which has a clear and transparent demonstration of the design of the pipeline and how that design protects the safety of the public.
7. In my view the code requirements and the details of the technologies involved in the proposed development have been clarified and explained in a satisfactory manner in the E.I.S. and in the E.I.A. process which included the OHs of 2009 and 2010.
8. I conclude that the concerns of observers have been addressed in the revised design in the E.I.S. and in the revised configuration proposed for the pipeline.
9. Mr. Waite (ENTEC) consultant to DCENR has indicated to ABP at the OH that there are no major concerns sufficient to withhold a permit to construct a pipeline and that he will be advising DCENR accordingly.
10. I am satisfied that a conservative approach has been taken to the design of the pipeline. I am satisfied that a set of robust technologies have been assembled by SEPIL to address the different design conditions that apply along this pipeline route.
11. I have examined the design and details of the proposed development in conjunction with Mr. Wright Gas Consultant and with Mr. O'Donnell Geotechnical Consultant. I am satisfied at the information provided and the analysis provided is satisfactory. On the basis of Mr. Wright's Reports of 2009 and 2010 and on the basis of Mr. O'Donnell's Report of 2009, I conclude that the design of the pipeline is satisfactory.

## 27.8 Inspectors Recommendations

All safety recommendations are set out within Chapter 30.



## Chapter 28 Safety Part 2 - Quantified Risk Assessment Consequences of Failure

### 28.1 Background

- 1. Is a QRA required?** Yes, IS 328 requires a QRA. TAG accepted the Advantica Report which had deemed the QRA the technique used in the analysis of the 2002 scheme as acceptable. Mr. Wright in his report (2009) confirms that a site specific QRA is required. Mr. Hanna Chief Technical Adviser DCENR confirmed that a QRA was required.  
ABP in the letter of 2/11/2009 requested that a new QRA site specific should be submitted. ABP also requested that a qualitative risk assessment be submitted to include those events that cannot be easily defined mathematically.
- 2. Is the QRA provided in the revised E.I.S. satisfactory?** Yes, Appendix Q Section 6.4 Quantified Risk Assessment and Appendix Q Section 6.3 provide detail information as requested by ABP and I am satisfied that an adequate response has been submitted by SEPIL. I am also satisfied that the revised E.I.S. together with all the information submitted by SEPIL provides sufficient information to enable an assessment on the QRA to be made.
- 3. Is there full clarity in the QRA as provided by SEPIL?** Yes, I am satisfied with the level of clarity achieved in the revised E.I.S. and in the other material submitted by SEPIL. Appendix Q (2010) is a comprehensive response to the very detailed request from ABP.  
Quantified Risk Assessment is also reliant on finding failure frequency databases which reflect the conditions of the failure scenario being evaluated or which failure frequency data can itself be modified to reflect the conditions of the failure scenario being evaluated.
- 4. Are the QRA results satisfactory?** Overall, yes the results of the QRA (2010) are acceptable. The site specific threats and conditions have been included in the analysis. Overall, the QRA provides a quite robust set of analysis. The QRA provides the additional sensitivity analysis requested and this adds confidence in the robustness of the results. I am quite satisfied now that the QRA provides analysis of the risks to the public from this proposed development. I am quite satisfied that the QRA provides an acceptable basis for assessment of the proposed development against the standards established by ABP in their letter of 2/11/2009.

### 28.2 Observers Submissions QRA

**Issue 1:** Public Places: Church, graveyard, school, wakes at houses, where many people congregate – account has not been taken of these gatherings of people in the QRA.

**Response:** As I understand it, the risks in the QRA analysis are calculated on the basis of dwellings where people spend long periods of time, events such as happen at public places are ignored in the QRA because the events are

infrequent and of short duration. As I understand it the risks involved for such events are low and that is why such events are not considered as part of the QRA.

In the U.K. the land use planning system used there distinguishes between different types of buildings and establishes a level of sensitivity from 1 – work places, factories, farm buildings, car parks, 2 – housing, hotels, guest houses, 3 – pubs, community centres, outdoor markets, 4 – hospitals, nursing houses, nurseries, crèches, schools, larger developments of these.

In the UK LUP system, developments of the most sensitive category 4 are “advised against” locating within the outer risk zone of  $0.3 \times 10^{-6}$  contour. In the case of the Corrib pipeline in the area where the church, graveyard and public house and school are located the risk levels are shown in Figure 12 Risk Transects. Risk levels at the pipeline itself are  $3 \times 10^{-9}$  and risk levels are the nearest dwelling (234m) are  $1.8 \times 10^{-11}$ . These are low risk levels. These risks are well below the risk level  $1 \times 10^{-6}$  set by ABP as broadly acceptable. The public house, church, graveyard and school are farther away from the pipeline than the nearest dwelling and the risks at those buildings are lower than at the nearest dwelling.

I am satisfied that the QRA has provided sufficient information to conclude that the risks at church, graveyard, school, public house are acceptable and are very low.

**Issue 2:** Analysis of QRA does not meet ABP request of 2/11/2009

**Response:** I am satisfied that the QRA analysis provided by SEPIL together with the qualitative risk analysis and together with the consequence contours provide adequate information to conclude that SEPIL have responded to ABP request in an acceptable level of detail and clarity.

Concerns that failure mechanisms may have been screened out of the QRA.

**Response:** Failure mechanisms have been considered in detail in the modified scheme QRA. I accept that SEPIL have chosen to eliminate certain failure mechanisms from further consideration in their analysis. I accept the basis on which these eliminations have taken place. I am satisfied with the argument put forward by SEPIL on this.

I find that the 2010 QRA has been improved significantly over the 2009 QRA, it now includes considerable analysis and justification for the values included and it includes the site specific considerations as required by ABP.

**Issue 3:** Does not take into account of upset conditions. 40% failures occur in upset conditions

**Response:** This concern is worth considering. My understanding of what is behind this concern is that “things, unplanned, happen”. These upset conditions are important to consider as claimed by the observer, 40% of failures occur in upset conditions. I am not able to bring any information to bear on verifying the 40%, one way or another.

In general, I fully accept that failures in any system rarely occur because one parameter goes out of line. Inevitably it is when two or more parameters go out

of line at the same time that upset conditions occur. Catastrophic conditions occur when multiple parameters go out of line at the same time.

In my view, this has been taken care of in the case of the Corrib Onshore Pipeline. There are significant design features, specialised construction, hydrotesting, independent external verifications built into the proposed development. There are conservative features 0.3 design factor, full scale rupture immediate ignition as worst case scenario, full safety permit regulation system. Then as an ultimate protection ABP has set a consequence distance for routing the pipeline.

In all this, the approach taken has in my view taken fully on board this concern and has provided a conservative approach to the design of the scheme and to the assessment of the safety of public.

**Issue 4:** Scenarios where 90% of time projected for people as being indoors not real situation

**Response:** This concern has been taken into account in one of the sensitivity analysis carried out in the QRA. Table 14 presents the case where as a sensitivity analysis a person spends 60 hours per week outdoors, i.e. 8.5 hours per day. The risk transect for this sensitivity case is shown on Figure 16 and provides a risk level of  $5 \times 10^{-9}$  at the pipeline and  $1 \times 10^{-9}$  at about 80m from the pipeline. These are low risk levels and are acceptable. It is a necessary part of QRA analysis that rule sets are adopted for the calculations. The reality is that the risk to any person is low from this pipeline and is at an acceptable level even in the case of someone who spends all their time outdoors not just 60 hours per week.

**Issue 5:** The number of threats (112) in QRA is scary (Qualitative Risk Assessment)

**Response:** I accept that the Qualitative risk Assessment and the Bow Tie System which shows these threats can be daunting for someone who is unfamiliar with such systems. Most people will be unfamiliar with any such systems.

The point of importance for me in this Qualitative Risk Assessment is that the system identifies the threats and then identifies how these threats are managed. The management of the threats works down to providing the performance specification for safety critical elements of equipment and also works down to determining the skill levels and training levels required for personnel to provide the assurance that the threats are managed properly. I am satisfied that a satisfactory system is what is proposed in the Corrib Onshore Pipeline Development. I am satisfied that the Qualitative Risk Assessment system provides confidence that the safety of the public will not be put at risk in this scheme. I am satisfied that SEPIL have proposed a satisfactory management system for the operating life of the proposed development.

**Issue 6:** At Glengad QRA is based on pressures lower than MAOP

**Response:** The point here is that the critical case (case 2) for the analysis of consequence is based on a pipe rupture where the pipe is operating at 100 barg both ends contributing gas inventory to the intensity of the event.

This is analysed and presented in the QRA at Appendix 6.5, Section 4.2.1 to Section 5.4.

SEPIL in their analysis use the Case 2 because the release of gas in Case 2 has more severe consequences than Case 1.

Case 1 does have a higher MAOP (150 barg) but because only one end of the pipeline would contribute inventory the overall release would be less than Case 2. Case 1 and the 150 barg MAOP apply at Glengad.

ABP in the request for further information of 2/11/2009 asked that sensitivity analysis would be provided. A generic case has been provided for a complete failure of the large valves at the LVI. SEPIL have indicated that such failure is not known within the North Sea industry but that the risk transects from the QRA have been provided because SEPIL recognise that all equipment can fail. Figure 18 provides this risk transect and this shows that risk levels exceed  $1 \times 10^{-5}$  (risk actually is  $4 \times 1 \times 10^{-5}$ ) for a distance of 100m (approx.) radius at the LVI in this case. The risk levels from this case at the distance of the nearest house to the LVI is the same as the base case. The risk level at the nearest dwelling 280m is low and less than  $1 \times 10^{-12}$  and is acceptable.

**Issue 7:** Natural phenomena, Climate Change, rising sea levels, wind changes, inability to work in bad weather – all these not accounted for in QRA.

**Response:** It is not clear to me how it is being suggested these factors affect the QRA analysis. What is important for me is that the threats to the safety of the public have been considered in a thorough manner. SEPIL have, I accept, eliminated certain threats from consideration in QRA, these are set out in Table 6 and the justification for screening out these threats is presented in Section 6.3.2.1 to 6.3.2.17. What is also important for me is that any uncertainties are overcome by the adoption of a conservative approach to this development. The adoption of a high standard proximity distance for routing this pipeline overcomes these uncertainties even in the event of a worst case scenario. In the event of a full bore rupture of the pipe at MAOP then the safety of the public is protected by this routing distance.

**Issue 8:** SEPIL QRA is introverted and concerned at safety of pipeline – the community is not considered sufficiently

**Response:** In this regard, ABP have been very particular in the request for additional information. The Board have sought clarity and transparency in Appendix Q and in the analysis of risk. By requesting a considerable schedule of additional information the Board now has in my view sufficient information to properly assess the safety of the public, the risks involved, the consequences of failure and the methods and analysis that are being used by SEPIL to design and manage this onshore pipeline.

**Issue 9:** QRA system has been discredited since World Financial System Meltdown.

**Response:** This point has been made a number of times by observers and indeed this point was dramatically illustrated by Mr. O Seighin in his submission at OH (DRN OH 56A).

TAG clearly in 2006 identified that a QRA should be provided for the onshore pipeline. IS 328 supports safety evaluation which is what QRA is in effect.

One of the most recent catastrophes in the oil/gas industry has been the Buncefield disaster where petroleum was pumped into an already full tank which then overflowed and caused a major explosion and extended fire over a number of days.

The Buncefield Inquiry in its recommendations identified the QRA technique as one which should be used to evaluate risk at such installations and to provide a system of analysis that could be objective for planning authority and decision makers. It was DNV who provided advice to the Buncefield Inquiry on the use of QRA analysis.

*“Part 2 of our report looks at the risk assessment process that provides the technical underpinning of the system and how it is applied in practice. Ultimately, risk assessment involves judgement but we also advocate the much wider use of a method known as quantified risk assessment if planning is to be more responsive to the risks at major hazard sites. Quantified risk assessment (QRA) is not new and is already used in COMAH assessments and widely used offshore, particularly for comparing the risk impacts of different options. In the context of land use planning around major hazard sites it can be a tool for decision-making that enables the total local population at risk at specific sites to be taken into account, and can help deliver consistent planning advice across industry sectors.” [Buncefield Report]*

I am satisfied that the QRA provides a very good analysis of the risks that arise from the onshore pipeline. I am satisfied that there are other factors that need to be considered in the decision making process – the qualitative risk assessment provides valuable input to understanding the risks involved. I am also satisfied that the consequence analysis is a very useful input into the decision making process. ABP has sought these additional factors so that it can take a fully informed view of the risks posed by the proposed development to the community.

I do not accept that QRA analysis has been discredited by the World Financial System meltdown. In my view decision making requires information from not just one source (QRA) but from a number of sources which then enables a balanced view to be formed by the decision maker. That is what is being done in this case by ABP. Information from Codes of Practice, from consequence analysis, from QRA and from experts with experience in design of pipelines has all been part of the information assessed.

**Issue 10:** QRA calculations are lazy attempt and should have computed for concrete houses (not timber ones)

**Response:** The reference to the timber houses in the QRA is Appendix Q6.4 Section 7.3.2. Effect on Buildings.

I understand that by using two ignition levels defined by experimental tests on American Whitewood that a conservative approach has been taken to the identification of spontaneous ignition distance (180m) and piloted ignition distance (205m).

I accept the approach taken by SEPIL. It is not unreasonable and it is using a standard recognised for timber houses. In using that standard the results are conservative when applied to concrete built houses.

**Issue 11:** SEPIL is relying on 2002 consent at Glengad, hence 345bar should be pressure used in QRA there

**Response:** In regard to this the 2009 scheme was submitted by SEPIL and developed on the basis of 345 barg upstream of the LVI and 144 barg for the onshore pipeline itself. These are still the design pressures for the pipeline.

ABP invited SEPIL to modify the route, to declare MAOP for the pipeline and to provide additional information as requested.

ABP also identified the standards against which it proposed to assess the proposed development.

SEPIL have modified the scheme and this included modification to the route, modification to the MAOPs which have now been declared (no MAOPs were declared for the 2009 scheme) and this includes modifications to the control systems for the offshore well head valves.

The question asked here is should not the Board's proximity distance be interpreted in light of the design pressure for the offshore pipeline 345 barg and not the MAOP 150 barg.

SEPIL have interpreted the safety case requirements in respect of the MAOP for the QRA and for calculation of the consequence based routing distance.

This is a matter that the Board need to consider.

In my view the invitation by the Board to modify the scheme and to submit additional information provided the impetus required for SEPIL to moderate the consequence of an ignited release from the pipeline. This has been done.

Now if the Safety Case is still to be based on the design pressure of the pipeline 345 barg then in effect one is not accepting that a moderation of the consequence has taken place in the scheme as now proposed. In the same way one is not accepting that a moderation has taken place for the onshore pipeline either and because the same wall thickness and steel grade is being used as the offshore pipe is it now a case that the Safety Case for the onshore pipeline should be 144 barg (or perhaps 345 barg)?

The real issue in here is the reliability of overpressure protection systems for the offshore and onshore pipelines. SEPIL have indicated that both of these will have a SIL3 rating (LVI) or equivalent rating (offshore well controls). This in my view provides a satisfactory basis to conclude that the Safety Case for Glengad is 150 barg and for onshore pipeline is 100 barg. It is proposed that the reliability of the overpressure protection systems offshore and onshore will be verified by an independent source and/or by the Regulator, DCENR or CER.



**Issue 12:** The QRA does not include analysis requested by ABP. It is considered had the full analysis been carried out, the LVI would fail.

**Response:** In my view a transparent analysis has been presented in Appendix Q, Section Q6.4 in particular. A detail of the assumptions made by SEPIL has been provided and the rule set adopted to perform the analysis has been given. The sensitivity cases that are considered provide a further degree of confidence in the analysis as presented.

No justification has been put forward for this concern other than to state that it is considered LVI would not somehow meet the standards set out by ABP against which the development is to be assessed.

Having examined in detail the analysis presented and having taken full cognisance of Mr. Wright's report and also noting the submissions of Mr. Waite of ENTEC who made submissions to the OH on behalf of DCENR. I am not prepared to accept this concern. The evidence submitted by SEPIL and observers does not in any way support this concern and I therefore recommend that ABP do not accept this concern.

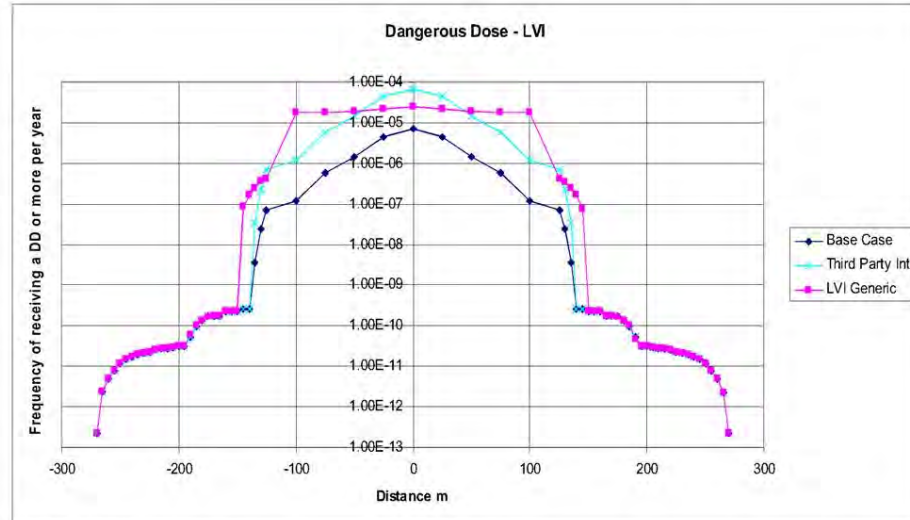
**Issue 13:** There was criticism of the amount of data provided in Table 17, Section 8.1, Appendix Q6.4 and requests were made for additional information to be provided.

**Response:** I was not prepared to request that SEPIL provide additional information (additional contours showing thermal flux levels were requested). In my view the ABP request of 2/11/2009 was a considered request for information based on full analysis of the QRA provided in 2009 together with the additional information that had been obtained at the 2009 OH. I therefore did not request such information. I consider that it is possible to form an opinion on the risk, on the consequences of pipeline failure, on the QRA on the basis of the information provided.

It was argued that the base case risk levels (a person 10% outdoors) were not representative of people's normal everyday outdoor lifestyle and consequently that risk levels were under-estimation of the true levels of risk. SEPIL presented in Figure 16 and Figure 17 risks transects showing the base case and sensitivity cases, one of which included the situation where a person spent 60 hours outdoors per week.

SEPIL also presented risk transects showing further sensitivity cases in Figure 18 and Figure 19. (Refer also to evidence 9<sup>th</sup> September 10-58)

Figure 18: Sensitivities for the LVI (Individual Risk of a Dangerous Dose)



NewPipelinePreds/Summary

I propose to discuss Figure 18. This presents the base case risk transect for the LVI. This base case presents a similar risk transect to that shown in Figure 12 for the LVI. The generic case shown has been included and Mr. Crosswaite in his evidence outlined that this case represents a catastrophic failure of large equipment at LVI. Mr. Crosswaite further stated that no such catastrophic failure of large equipment, large flanges or large valves has been shown from North Sea comprehensive data over 16 years. Nonetheless SEPIL included this risk transect to present a case where all equipment can fail and can fail catastrophically. In this general case the risk exceeds  $1 \times 10^{-5}$  for a radius of approximately 110m of the LVI. In this failure case the risk level at the houses is of the order of  $1 \times 10^{-11}$  (not different from the base case at that distance).

Figure 18 also presents a sensitivity case for third party interference. Mr. Crosswaite explained this case as one which allocated a likelihood of failure of the LVI equipment due to third party intentional damage to be 10 times the likelihood of failure of the other causes added together.

There is no data available for equipment subject to third party intentional damage (only pipelines) however SEPIL wanted to present what they consider this extremely conservative view to demonstrate that the risk levels are low. The risk level for this case (third party interference) is greater than  $1 \times 10^{-5}$  for a radius of approximately 65m from the LVI. The risk at the houses is of the order of  $1 \times 10^{-11}$  as is the base case risk level.

### Societal Risk

In relation to Figure 14 The Societal Risk at Glengad above, the maximum number of fatalities is associated with the maximum number of people in one house (four) and the period they would be present outdoors (since no houses fall within the piloted ignition of buildings distance persons indoors would be safe).

## 28.3 SEPIL's revised QRA for the 2010 modified pipeline

This is presented in Section Q6.4. The report has been prepared by Dr. Philip Crosswaite Chief Specialist DNV.

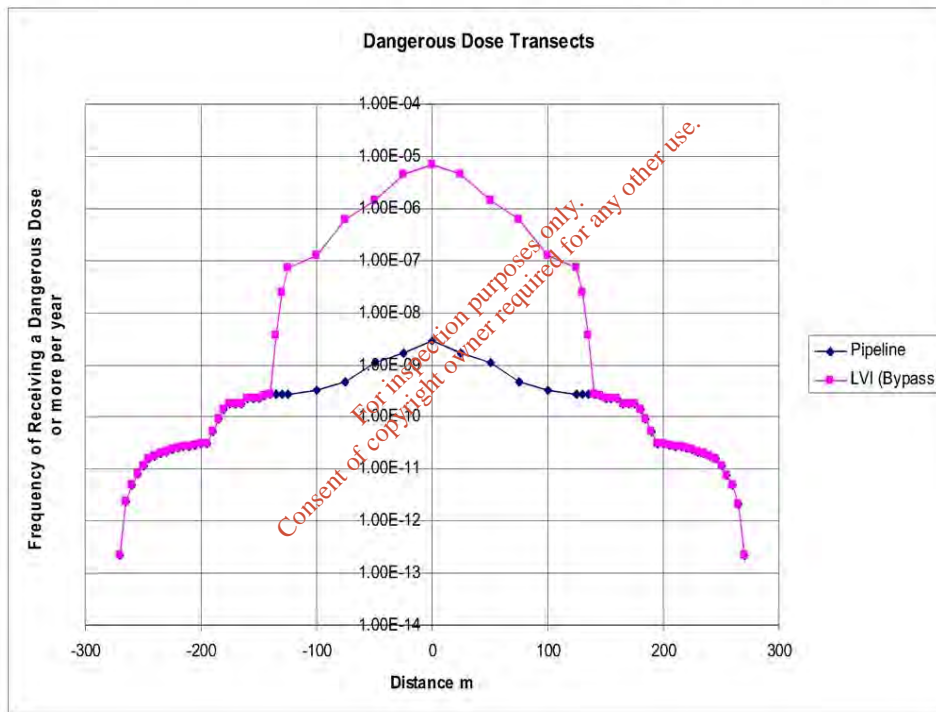
In summary, DNV has provided the following:

**Individual Risk** of receiving a dangerous dose is:

- (i)  $1.8 \times 10^{-11}$  per year at the nearest dwelling to the pipeline.
- (ii)  $1 \times 10^{-6}$  contour risk level is 63m from the LVI. The nearest house is 280m from the LVI.

The following risk transect has been produced:

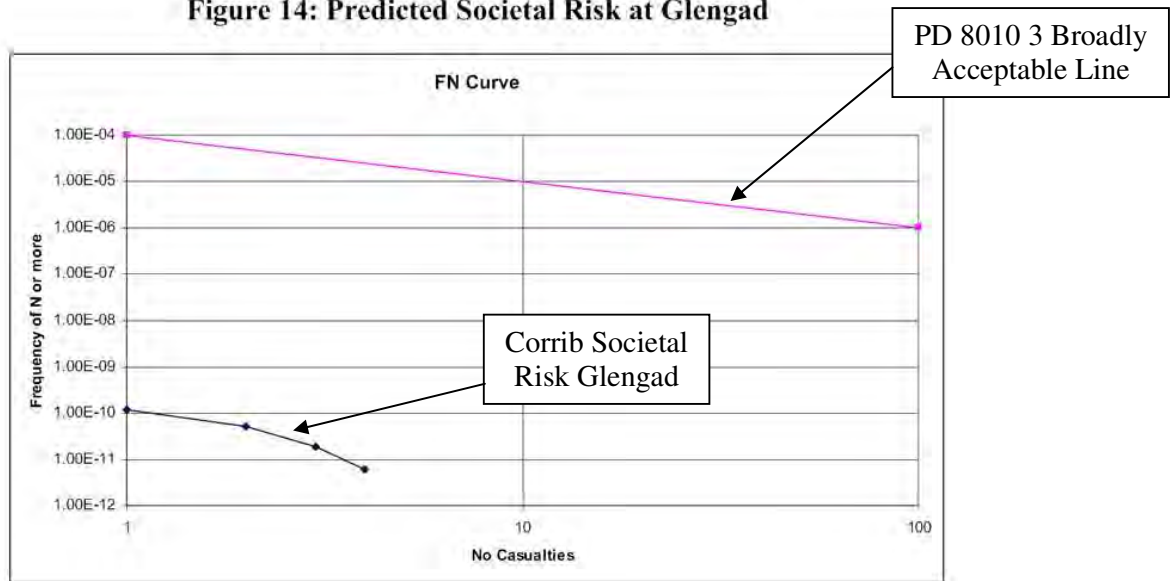
Figure 12: Transects of Individual Risk of a Dangerous Dose or more (LVI and Pipeline)



### Societal Risk

This is 6 orders of magnitude below the criterion line for “broadly acceptable” in PD8010 3(1).

Figure 14: Predicted Societal Risk at Glengad



SEPIL believe the risk reduction levels achieved by the modification requested by ABP were unnecessary.

“...The relocation of the pipeline under Sruwaddacon Bay has reduced pipeline operational phase risk levels, even though the risk levels were already within the broadly acceptable region as demonstrated in the previous DNV QRA [16]. However, it cannot be claimed that the reduction in risk is a step towards achievement of ALARP as the costs associated with re-routing of the tunnel and the safety risks associated with the extended construction period and the more hazardous nature of tunnel construction will outweigh the benefit of the reduction in risk associated with the operation of the pipeline.” [Appendix Q6.4 Section 3 QRA objective, scope, risk criteria].

I do not agree with SEPIL on this point.

**Firstly**, in my view, SEPIL and the gas industry has work to do before they can expect QRA analysis on very high pressure upstream gas pipelines on its own to be the method of approving risk levels. In particular, where very high pressure pipeline are proposed at pressures above those which are covered by codes of practice and standard specifications there is a clear need for the codes to be revised and updated for those very high pressures. In a similar way there is need for failure testing of pipelines at these very high pressures to be carried out so that the theoretical physics can be tested and proven against the real failure scenario.

The Advantica Report recognised these potential uncertainties for very high pressure upstream pipelines.

These are the type of uncertainties that need to be understood and that need to be resolved so that the uncertainty is removed and before QRA can be accepted on its own for upstream

pipelines where database information has not yet been collected by the Gas Industry. In my view it will only be at that stage that society's confidence in QRA risk prediction for an upstream very high pressure pipeline like Corrib will be established. The Industry also needs to look at the database available for upstream pipelines. The Industry clearly wants to move forward with high pressure upstream pipelines tied back to land based refining facilities. A comprehensive database of upstream pipelines and factors for failure frequency for such pipelines needs to be available to provide further confidence in the use of QRA analysis of risk associated with these pipelines.

I fully respect the QRA methodology. I fully respect the outputs the risk transects, risk levels and societal risk levels provided by QRA analysis. I agree however with Mr. Wright's conclusion:

*"It is the view of this report that the margin of safety between the calculated levels of risk and the UK HSE level for 'broadly acceptable' is necessary to cater for any potential uncertainties that may have occurred by adopting a composite database."* [Mr. Wright's Report]

[Note ABP proposed the UK HSE "Broadly Acceptable" standard for use in the assessment of the Corrib Pipeline]

In the case of the Corrib Onshore Pipeline at the proposed modified route and MAOPs as set out in the 2010 EIA, I am quite satisfied that a consequence based routing distance is the conservative approach and the only approach to take. This consequence based routing distance provides the confidence that the local community will be safe should this development be approved.

**Secondly**, I do not agree with SEPIL on this point, (see SEPIL quotation on previous page), because the pipeline route proposed in 2009 was unacceptable on proper planning and sustainable development criteria. It is not sufficient that a gas pipeline can be constructed in a site, it must also be in accordance with the proper planning and sustainable development of the area.

## **28.4 SEPIL's Qualitative Risk Assessment for the 2010 Pipeline**

In the 2009 Inspectors report and in Mr. Wright's report a simplified qualitative analysis was used as a demonstration of how AS 2885.1, The Australian Pipeline Code, system of Qualitative Risk Assessment provided a clear illustration of risk management.

ABP in the letter of 2/11/2009 requested that a qualitative risk analysis be provided. This is provided in Section Q6.3 of the E.I.S.

The Qualitative Risk Assessment has certain advantages over the Quantified Risk Assessment (QRA) as follows:

- There are no mathematical calculations, modelling or complex analytical techniques and physics involved.
- The results of the analysis are easier to understand.
- It is possible to represent the results of the analysis diagrammatically and to provide in that diagram a categorisation of the risk – extreme, high, intermediate, low, negligible.
- While clear and easy to understand, a qualitative risk analysis is not a simple process and requires expertise to assemble.

The codes recognise risk assessment by quantified risk assessment or qualitative risk assessment as being safety evaluations. On the next two pages I have presented an illustration of the Qualitative Risk Analysis and I have also presented illustration examples from SEPIL’s Qualitative Risk Analysis as provided in the E.I.S.

For the purposes of clarity AS 2885.1 Qualitative Risk Assessment summary is presented here again:

**Step 1** Choose a severity class for the consequences of failure from the following table.

### Severity Classes

	Severity class				
	Catastrophic	Major	Severe	Minor	Trivial
Dimension	Measures of severity				
<b>People</b>	Multiple fatalities result	Few fatalities; several people with life-threatening injuries	Injury or illness requiring hospital treatment	Injuries requiring first aid treatment	Minimal impact on health and safety
<b>Supply</b>	Long-term interruption of supply	Prolonged interruption; long-term restriction of supply	Short-term interruption; prolonged restriction of supply	Short-term interruption; restriction of supply but shortfall met from other sources	No impact; no restriction of pipeline supply



<b>Environment (see Note)</b>	Effects widespread; viability of ecosystems or species affected; permanent major changes	Major off-site impact; long-term severe effects; rectification difficult	Localized (<1 ha) and short-term (<2 y) effects, easily rectified	Effect very localized (<0.1 ha) and very short-term (weeks), minimal rectification	No effect; minor on-site effects rectified rapidly with negligible residual effect
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NOTE: Significant environmental consequences may occur in locations that are relatively small and isolated.

**Step 2:** Assign a frequency of occurrence of each failure event from the following table.

### Frequency Classes

Frequency class	Frequency description
<b>Frequent</b>	Expected to occur once per year or more
<b>Occasional</b>	May occur occasionally in the life of the pipeline
<b>Unlikely</b>	Unlikely to occur within the life of the pipeline, but possible
<b>Remote</b>	Not anticipated for this pipeline in this location
<b>Hypothetical</b>	Theoretically possible but has never occurred on a similar pipeline

**Step 3:** Determine the risk rank based on the following risk matrix.

### Risk Matrix

	Catastrophic	Major	Severe	Minor	Trivial
Frequent	Extreme	Extreme	High	Intermediate	Low
Occasional	Extreme	High	Intermediate	Low	Low
Unlikely	High	High	Intermediate	Low	Negligible
Remote	High	Intermediate	Low	Negligible	Negligible
Hypothetical	Intermediate	Low	Negligible	Negligible	Negligible

**Step 4:** Determine the acceptability of risk or select action required to further reduce risk.

### Risk Treatment Actions

Risk Rank	Required Action
<b>Extreme</b>	Modify the threat, the frequency or the consequence so that the risk rank is reduced to 'intermediate' or lower For an in-service pipeline the risk shall be reduced immediately
<b>High</b>	Modify the threat, the frequency or the consequences so that the risk rank is reduced to Intermediate or lower For an in-service pipeline the risk shall be reduced as soon as possible, typically within a timescale of not more than a few weeks

<b>Intermediate</b>	<p>Repeat threat identification and risk evaluation processes to verify and, where possible, quantify the risk estimation; determine the accuracy and uncertainty of the estimation. Where the risk rank is confirmed to be 'intermediate', if possible modify the threat, the frequency or the consequence to reduce the risk rank to 'low' or 'negligible'</p> <p>Where the risk rank cannot be reduced to 'low' or 'negligible', action shall be taken to –</p> <ul style="list-style-type: none"> <li>(b) remove threats, reduce frequencies and/or reduce severity of consequences to the extent practicable; and</li> <li>(c) demonstrate ALARP</li> </ul> <p>For an in-service pipeline, the reduction to 'low' or 'negligible' or demonstration of ALARP shall be completed as soon as possible; typically within a timescale of not more than a few months</p>
<b>Low</b>	Determine the management plan for the threat to prevent occurrence and to monitor changes that could affect the classification
<b>Negligible</b>	Review at the next interval

In the above simplified illustrations which I have prepared Corrib Pipeline risk rank is marked as (High). From the risk treatment actions table it can be seen that high risks require **modification of the threat, the frequency or the consequences so that the risk rank is reduced to intermediate or lower.**

How have SEPIL modified the threat, frequency or the consequence?

### Consequence Moderation

SEPIL have already modified the consequence firstly in response to Advantica when a pressure of 144barg was adopted for the onshore pipeline (this had potentially been 345barg before that modification). Secondly in response to ABP letter of 2/11/2009 SEPIL have modified the consequence in the 2010 proposed developmet in two ways over the 2009 proposed scheme by introducing a consequence based routing distance and by the reduction in MAOP to 100 barg.

### Frequency Moderation

As I understand it, the design parameters of the pipeline are the major factors that influence the frequency of failure here – the design factor 0.3, the thick walled pipe, X 70 carbon steel pipe, the hydrotest to 504barg, the specialised construction methods at road crossings, river crossings, the stone road construction, CP coatings and the CP protection system, etc. SEPIL have argued and continue to argue that the design parameters are such that the frequency of failure of this pipeline is an extremely unlikely event. **SEPIL's argument has been based on the robustness of the design and underpinned by, in particular, the thickwalled pipe. It must be said as I have said in the 2009 Report SEPIL have a strong argument. It is my view based on Mr. Wright's analysis and on my own examination of the details provided that SEPIL have proposed a very robust design for all aspects of this pipeline.** The tunnel proposal under the Bay is in my view and again based on Mr. Wright's consideration a strong and robust design for that section of the pipeline. SEPIL have added a tunnel technology and they have added fibre optic leak and movement detection technology to the robust set of design parameters in the 2010 modified proposed development. In those additional design parameters and in other design aspects of the 2010 proposed development (tunnel) SEPIL have moderated the frequency of failure parameter of the pipeline.

## Threats

The risk register sets out the threats (causes) that give rise to the hazard. As I understand it, the threats are moderated by controls in the management of the pipeline at construction but much more so over the operating life of the pipeline. In the 2010 modified proposed development SEPIL have provided additional controls to moderate threats from the scheme, e.g. the LVI itself is a system of overpressure protection rated to Safety Integrity Level 3. In the 2010 scheme the offshore MAOP is to be maintained using an additional control system which will have a probability of failure on demand to the equivalent standard of SIL 3 rating as the LVI. The control system for the offshore MAOP will operate at the terminal and will in effect close wells should the pressure in the pipeline reach predetermined trigger levels. SEPIL also proposed as part of the 2010 scheme to use fibre optic cable laid along the pipeline as a new technology to check for noise movement (leaks) or third party activity along the pipeline. That technology and system is apparently able to detect activities at locations that can be identified and pinpointed.

SEPIL have indicated that the moderation of threats is a continuous process and is fully incorporated within the PIMS system for managing the operation of the Corrib Gas Field Development.

SEPIL have now provided the Qualitative Risk Assessment as requested by ABP. The following two slides show the information in summary.

The SEPIL system uses a bow-tie analysis which is a company standard used to manage risks. At the OH, Ms. Sheryl Hurst who prepared the Qualitative Risk Assessment provided a summary document which aligned the bow-tie analysis, i.e. the SHELL Qualitative Risk Assessment with AS 2885.1, the Australian format for presenting Qualitative Risk Analysis. [DRN OH 86]

## Slide 6

This is a copy of the table shown above step 3 taken from AS 2335.1 with colour code showing each risk rank. Those that are of interest for Corrib are High (orange) Intermediate (yellow).

### Risk Matrix General

	Catastrophic	Major	Severe	Minor	Trivial
Frequent	Extreme	Extreme	High	Intermediate	Low
Occasional	Extreme	High	Intermediate	Low	Low
Unlikely	High	High	Intermediate	Low	Negligible
Remote	High	Intermediate	Low	Negligible	Negligible

Hypothetical	Intermediate	Low	Negligible	Negligible	Negligible
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**Slide 7**

This is the summary of the risk ranking for threats identified in Corrib risk register shown according to SHELL’s own risk ranking matrix which equates with AS 2885.1 and which has been aligned with AS 2885.1 by SEPIL at the request of Inspector.

**Risk Matrix Corrib**

		5	4	3	2	
		More than 3 fatalities	1 to 3 fatalities	Major injury	Minor injury	Slight injury
<b>E</b>	<b>Frequent</b>					<b>1</b>
<b>D</b>	<b>Occasional</b>		<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>
<b>C</b>	<b>Unlikely</b>	<b>3</b>	<b>9</b>	<b>7</b>	<b>4</b>	
<b>B</b>	<b>Remote</b>	<b>1</b>	<b>5</b>	<b>6</b>	<b>1</b>	
<b>A</b>	<b>Hypothetical</b>	<b>1</b>		<b>1</b>		

**D4 2 No.**  
**C4 9 No.**  
**C5 3 No.**  
**B5 1 No.**

**D3 2 No.**  
**C3 7 No.**  
**B4 5 No.**  
**A5 1 No.**

The boxes show the number of threats at that particular risk rank level (i.e. 2 no. threats at D4) that are contained in the risk register.

The following pages illustrate:

1. This is an extract from the risk register and the risk potential column under P (for people) identifies risk ranking. It is possible to relate these into the Slide 7 Risk Matrix.
2. This is an extract from the Bow-Tie Analysis showing threats on the left.
3. This is another extract from the Bow-Tie analysis showing one threat on the left and controls procedures that have to be implemented to manage that threat.
4. This is another extract from the Bow-Tie Analysis showing equipment requirements that have to be implemented to manage that threat.

**Corrib Pipeline Risk Register**

Haz No	Hazard & Source	Threats (Causes)	Top Event	Consequences	Risk Potential					Controls	Comments	
					P	A	E	R	R			
H-01.03	<ul style="list-style-type: none"> <li>Reservoir hydrocarbons</li> <li>Wells</li> </ul>	<ul style="list-style-type: none"> <li>Wirelining</li> <li>Coiled tubing</li> <li>Well stimulation</li> </ul>	Loss of well control	<ul style="list-style-type: none"> <li>Unignited blowout/spill</li> <li>Ignited blowout</li> </ul>	-	-	-	-	-	-	Exploration and development drilling is performed by contracted MODUS - outside scope of this risk register. Subsea activities are well intervention only. Exploration and development drilling will be done as an addendum to the Operations HSE case.	
	<ul style="list-style-type: none"> <li>Wells</li> <li>Subsea manifold</li> <li>Offshore pipeline</li> <li>Infield flowline system</li> </ul>	<ul style="list-style-type: none"> <li>Impact (from vessel anchors, dropped objects, fishing)</li> <li>Corrosion</li> <li>Erosion</li> <li>Scouring/seabed deformation</li> <li>Material failure</li> <li>Overpressure</li> <li>Hydrate formation</li> <li>Well integrity testing - operated remotely</li> </ul>	Loss of Containment	<ul style="list-style-type: none"> <li>Unignited release</li> <li>Fire</li> </ul>	B4	B4	B2	B4	B4	B4	See Bowtie H-01.03a (Release from Wells, Flexible Lines and Offshore Pipeline)	Potential exists that unignited gas release from subsea pipeline could result in loss of buoyancy for passing vessels.
	<ul style="list-style-type: none"> <li>landfall valve installation (LVI)</li> </ul>	<ul style="list-style-type: none"> <li>Impact (vehicle or dropped object)</li> <li>Corrosion</li> <li>Erosion</li> <li>Material failure</li> <li>Overpressure</li> <li>Third party activities</li> <li>Intentional damage</li> <li>Ground movement / landslip</li> <li>Hydrate formation</li> </ul>		<ul style="list-style-type: none"> <li>Unignited release</li> <li>Fire</li> </ul>	B4	B5	C3	C5	C5	C4	See Bowtie H-01.03b (Release from LVI)	Initially subject to a detailed bowtie analysis in 2007 as part of onshore pipeline study.
	<ul style="list-style-type: none"> <li>onshore pipeline</li> </ul>	<ul style="list-style-type: none"> <li>Impact (excavation)</li> <li>Corrosion</li> <li>Erosion</li> <li>Material failure</li> <li>Overpressure</li> <li>Third party activities</li> <li>Intentional damage</li> <li>Ground movement / landslip</li> <li>Hydrate formation</li> </ul>		<ul style="list-style-type: none"> <li>Unignited release</li> <li>Fire</li> </ul>	C2	C5	C3	C5	C5	C4	See Bowtie H-01.03c (Release from Onshore Pipeline)	Initially subject to a separate detailed bowtie analysis in 2007.

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**Figure B4.1 - H-01.03b Release from LVI  
Overview of Threats and Consequences**

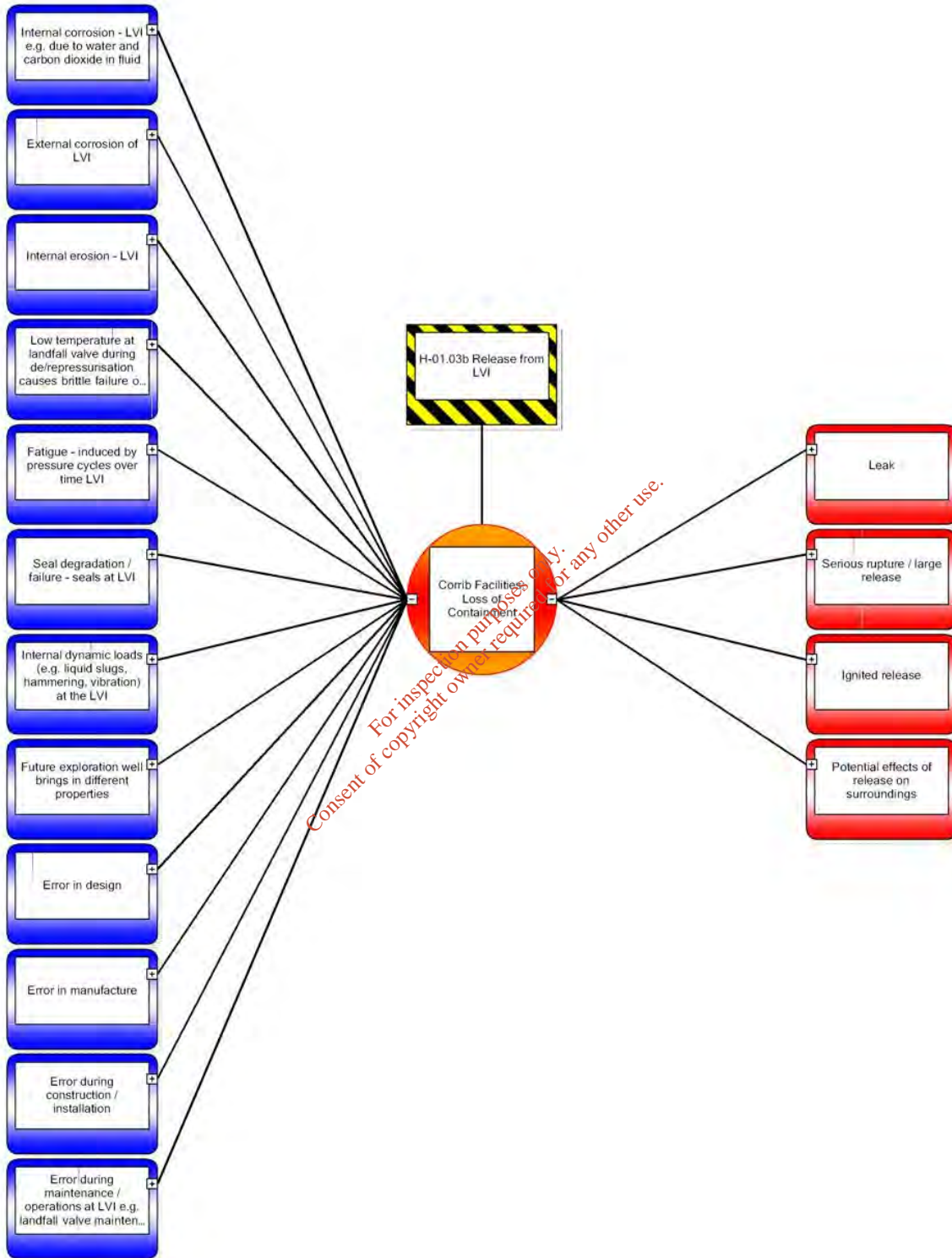




Figure B4.4 - H-01.03b Release from LVI  
Detailed Extract – Dropped Object During Routine Lift (Preventive Controls)

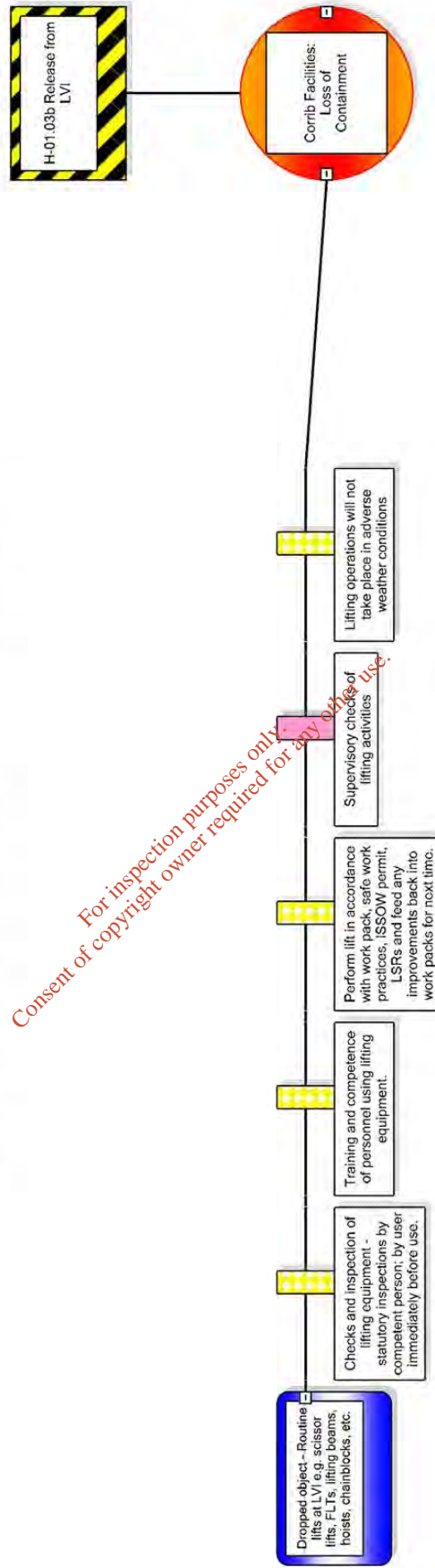
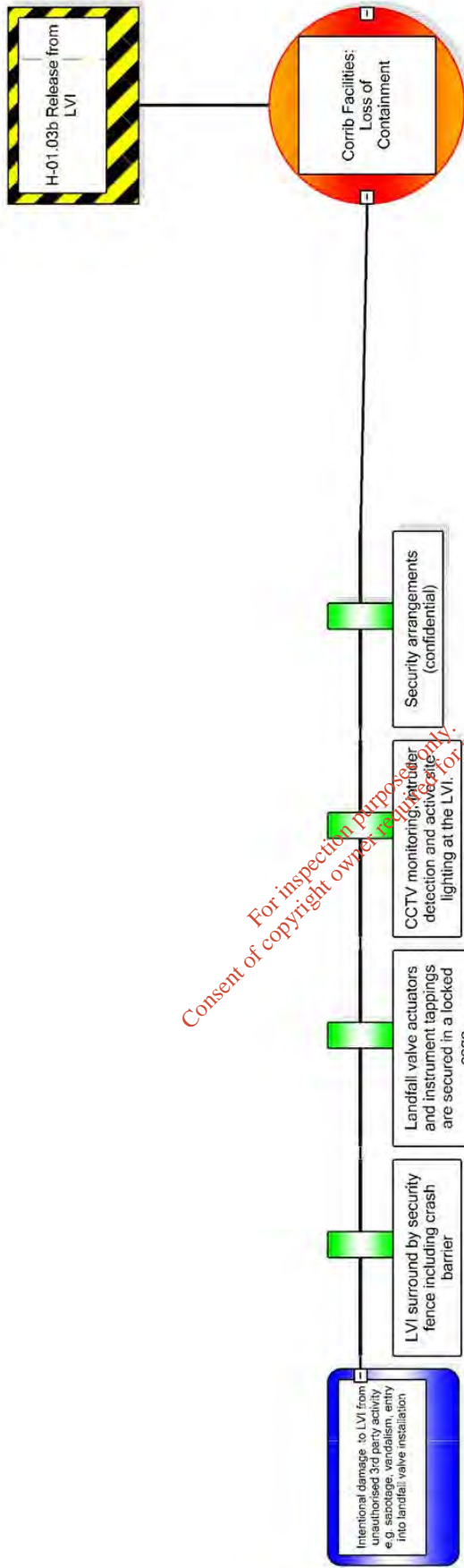


Figure B4.5 - H-01.03b Release from LVI  
 Detailed Extract – Intentional Damage to LVI (Preventive Controls)



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Appendix Q6.3B provides a further part of the SHELL Qualitative risk assessment the bow-tie diagrams. These are presented for the major risk items.

The bow-ties provide in diagrammatic form identification of the threat the hazard top event and the controls that are proposed to manage the risk.

Ms. Hurst is a principal consultant at Risktec Solutions Ltd. She is a specialist in conducting risk assessments and in developing safety cases and bowtie analysis. Ms. Hurst in her brief of evidence outlined how the qualitative risk assessment system is used on the Corrib project. She outlined that in assessment process the categories of risk (extreme, high, intermediate, low, negligible) a series of risk actions are part of SEPIL's proposal.

In summary then SEPIL have provided the Qualitative Risk Assessment as requested by ABP. The Qualitative Risk Assessment submitted provides a clarity regarding the hazards, the threats and the controls and the system being used by SEPIL in managing the risks involved.

Ms. Hurst in her demonstration outlined that in high (and intermediate risk per AS 2885.1) rank, those risks require identification of controls and implementation of controls to reduce the risks involved to ALARP.

The Petroleum (Exploration and Extraction) Safety Act 2010 in Section 3 provides for amendments to the Electricity Regulation Act 1999 and other legislation and which also provides for additional functions to be allocated to CER. The Act provides a general duty on petroleum undertakings.

*13K. – (1) In addition to complying with the requirements of any other provisions of this Part 1 petroleum undertaking shall ensure that –*

- i. any petroleum activity is carried on in such a manner as to reduce any risk to safety to a level that is as low as is reasonably practicable (i.e. ALARP), and*
- ii. any petroleum infrastructure is designed, constructed, installed, maintained, modified, operated and decommissioned in such a manner as to reduce any risk to safety to a level that is as low as is reasonably practicable (i.e. ALARP).*

In outlining the above analysis of the Qualitative Risk Assessment it makes clear that SEPIL has proposed the modified development 2010 and has sought to demonstrate that it meets safety standards.

However, the issue for ABP is the proper planning and sustainable development of the area through which the development will be located. In the analysis shown a transparent demonstration is presented of how SEPIL intend to manage risk levels and carry on the petroleum undertaking in such a manner as to reduce any risk to safety to a level that is as low as is reasonably practicable. Furthermore, it has also been demonstrated that the

proposed development is designed in such a manner as to reduce any risk to safety to a level that is as low as reasonably practical.

## 28.5 Mr. Wright's Report

5. Mr. Wright has examined the QRA submitted by SEPIL. He discusses the threats to the pipeline outlined by SEPIL in the E.I.S. in Section 9 of his report.

*“Overall SEPIL has presented a robust technical solution to corrosion management on the Corrib onshore pipeline. However the safety of the pipeline will depend upon the efficiency and long-term diligence of the PIMS management and maintenance system to ensure sound practices are upheld over the life of the project.”* [Mr. Wright's Report]

6. Mr. Wright's insight into the detail of the QRA has been essential to enable clarity to be obtained on the information provided in the E.I.S. and to provide a clear picture of the results of QRA and what they mean.
7. Mr. Wright considers in his report the databases used by SEPIL and the modelling work carried out to build up the QRA. In the 2010 QRA SEPIL have considered third party intentional damage, wet gas in the pipeline, CO<sub>2</sub> in the pipeline and the potential for methane hydrates as requested by ABP.
8. The QRA has been prepared by DNV and contains a supplementary analysis prepared by PIE on third party interference. Dr. Crosswaite, Chief Specialist DNV, presented the QRA and answered questions at OH. He was supported by Dr. Jane Haswell the co-author of the PIE analysis. Dr. Haswell has also been involved in drafting codes IGEM/TD/1 PD 8010 and IGEM/TD/2 (joint author) and PD 8010 Part 3 (joint author).
9. The QRA provides the site specific analysis requested by ABP.
10. Mr. Wright summarises the pipeline QRA as follows:

*“At both dwelling locations the resultant risks were many orders of magnitude below the UK HSE threshold ‘Broadly Acceptable’ level of 1.0E-06 and therefore pose little threat to the public. It is the view of this report that the margin of safety between the calculated levels of risk and the UK HSE level for ‘broadly acceptable’ is necessary to cater for any potential uncertainties that may have occurred by adopting a composite database.”*

11. Mr. Wright summarises the QRA at LVI as follows:

*“SEPIL also used the UK HSE risk levels to evaluate the contours of risk expressed as distance from the LVI. The Risk distances to the upper limit of ‘broadly acceptable’ 3E-07 are 91m for the base case and increase to 129m for the 3rd Party intentional damage. No dwellings are within these contours with the nearest dwelling being 280m away from the LVI.”*

12. Mr. Wright has also considered the sensitivity analysis provided by SEPIL as part of the QRA and in response to ABP request for additional information.

Mr. Wright states that the sensitivity analysis demonstrates that adoption of site specific risks to the Corrib pipeline clarifies the risks (which increased due to the

site specific considerations) of receiving a dangerous dose for the population especially at Glengad. This demonstrates the key requirement to match the threats in the database with the pipeline being reviewed.

13. Mr. Wright considers the societal risk provided by SEPIL at Glengad LVI as requested by ABP. SEPIL predicted the maximum number of casualties as associated with the maximum number of people in a house (4 people) and the time spent outdoors because the buildings are able to provide safe shelter.
14. The societal risk predicted is shown on Figure 32 Appendix Q6.4 and shows the risk almost 6 orders magnitude below the PD 8010, 3 criterion line.

## **28.6** Inspector's Conclusions QRA

1. The QRA is an acceptable method for evaluating risks near pipelines.
2. The QRA provided in the 2010 E.I.S. is substantially in compliance with the request of ABP of 2/11/2009.
3. QRA analysis is one factor in the decision making process – codes and standards, the Qualitative Risk Analysis, the Consequence Analysis, expertise and experience of designers and experience across the industry has also to be considered in the assessment of the proposed development.
4. While SEPIL's costs have not been considered in this assessment there is very clearly a significant increase in costs in the modified 2010 scheme over the 2009 scheme because of the tunnel proposed.
5. I accept and agree with Mr. Wright's conclusion that the margin of safety between the risk levels calculated ( $2.9 \times 10^{-9}$  per year at pipeline,  $1.8 \times 10^{-11}$  per year at nearest house) and the level set by ABP as broadly acceptable ( $1 \times 10^{-6}$  per year) is necessary to cater for any potential uncertainties that may have occurred by adopting a composite database.
6. The Advantica Report recognised that there were uncertainties in the risk analysis and that there were societal concerns. Advantica as a result recommended 144barg for the onshore pipeline.
7. In my view, the uncertainties have now been addressed by the modified 2010 scheme MAOPs, offshore well overpressure protection system, LVI overpressure protection system, the reliability standards adopted for the overpressure protection system and particularly by the ABP routing distance standard.
8. The Qualitative Risk Analysis provided by SEPIL demonstrates that SEPIL have a comprehensive system that will manage the operational phase of the proposed development – the PIMS.

## **28.7** Inspector's Recommendations

All safety recommendations are set out in Chapter 30.

## Chapter 29 Safety Part 3 Landfall Valve Installation Adequacy of Proposed Installation

### 29.1 Background

The 2009 Inspectors Report outlined the design, the issues of concern to observers and Mr. Wright's recommendations regarding the LVI.

ABP issued a request for further information on 2/11/2009 and that request included information concerning the LVI.

The LVI proposal contained in the 2010 modified scheme is laid out largely the same as originally proposed in the 2009 scheme. The significant change is that an MAOP has now been defined for the offshore pipeline 150 barg and an MAOP has now been defined for the onshore pipeline 100 barg. In effect then the LVI will automatically isolate the onshore pipeline from the well head pressure and offshore pipeline when the pressure in the pipeline approaches 100 barg at the LVI.

The offshore MAOP is to be maintained by an additional control function that is now proposed at the terminal and which will control the valves at the well head and in effect operate as a pressure protection system on these valves to limit pressure in the offshore pipeline to 150 barg.

### 29.2 The Further Information Requested

1. *Clarification of codes and test pressures at LVI and upstream of LVI onshore.*

This has been provided in the revised E.I.S. Appendix Q2.1.

The LVI is designed to offshore code DNV-OS-F101 (refer Figure 3.1 in Appendix Q2.1). The section of pipeline onshore from HWM to the LVI has been designed to offshore code DNV-OS-F101.

The design pressure for that pipeline and LVI is 345 barg.

The LVI itself and a section of the pipeline upstream between the LVI and the HWM but not extending as far as the HWM will be pressure tested at 504 barg with the completed onshore pipeline. In effect the complete onshore pipeline for which this application has been submitted will be tested to 504 barg.

A short section of the pipeline from HWM towards the LVI already laid and pulled in as part of the offshore pipeline has already been pressure tested to 360 barg (Appendix Q2.1 Section 9.4.1).

2. *MAOP maximum allowable operating pressure.*

The MAOP has been specified for offshore pipeline including the LVI at 150 bar.

The MAOP has been specified for the onshore pipeline excluding the LVI at 100 bar.



3. *Third party intentional damage at Glengad.*

Third party intentional damage has been considered in the E.I.S. and in preparation of QRA and SEPIL have concluded that in order to puncture the pipe an excavator in excess of 65 tonnes weight would be required. Estimations are provided that an excavator of 150 tonnes would be required to produce the energy required to puncture the 27.1mm thick pipeline. (Appendix Q2.1 Section 8.4)

4. *The potential for the pressure in the offshore pipeline to increase to wellhead pressure.*

This issue is considered in Q 4.5 of the E.I.S. Section 4.

SEPIL provide details of the reliability of the offshore wells isolation system. That wells isolation system is the overpressure protection system for the offshore pipeline. SEPIL have calculated the probability for “failure to isolate one or more wells is  $4.5 \times 10^{-4}$  (.00045)” [DRN OH 84]. SEPIL also provide details of the reliability of the onshore overpressure protection system. DCENR confirmed that as part of the procedures for assessing the acceptability of SEPIL proposed development, the reliability of the pressure protection systems is being examined and will be confirmed (P. Waite Entec).

5. *Reliability of onshore pipeline overpressure protection system.*

SEPIL summarise the reliability assessment of both offshore and onshore pipeline overpressure systems as follows “Both the onshore and offshore pipeline over pressurisation protection systems have (PFD) probability of failure on demand which is better than 1 in 1000 occurrences.

SEPIL indicate that the realistic PFD that is attainable for a safety system is a PFD of between .0001 and .001 which represents a probability of a safety system failing to perform on demand of better than 1 in 1000 occurrences [DRN OH 84]. Accordingly the LVI has a Safety Integrity Level 3 Rating.

6. *The concept of a vent at Glengad to protect against pressure at the wellhead side of the pipeline at landfall rising above the maximum operating pressure should be examined.*

SEPIL considered this concept and concluded “that the provision of a cold vent at LVI is not a viable option and if release of gas is required then this should be performed at the terminal where provisions have already been made for safe and controlled release of gas under upset conditions”, Appendix Q4.5 Section 7.

7. *Provide details of the examination of the potential increase in safety for the population at Glengad by the use of a straight pipe at the landfall.*

In Section Q 4.4 SEPIL consider an alternative layout for the LVI which would bring the overpressure protection system directly onto the 20 inch pipeline. Having considered the issue SEPIL conclude that the LVI as proposed is preferable because

there would be negligible increase in safety at Glengad, there is a lack of availability of field proven and piggable 20 inch high integrity shut down valves and that a requirement for pigging the 20 inch line is an integral part of the verification of integrity of the 20 inch pipeline.

#### 8. *Societal risk at Glengad*

This is shown in Appendix Q6.4 Section 8.5 Figure 14 where the risk is slightly above  $1 \times 10^{-10}$  or less of there being one casualty (fatality). The maximum number of casualties predicted is four. The risk of four casualties is less than  $1 \times 10^{-10}$ .

#### 9. *Individual Risk at LVI*

The main analysis and output from the QRA is presented in Appendix Q6.4. On Figure 12 the risk transect for the LVI at Glengad is shown and on Figure 13 contours at the LVI site are presented for risk levels  $1 \times 10^{-6}$  and  $1 \times 10^{-7}$ .

These figures show that at the LVI outside a radius of 63m the risk level of receiving a dangerous dose is less than  $1 \times 10^{-6}$  i.e. in the range that is broadly acceptable in accordance with the standard identified by ABP in the letter of 2/11/2009.

The nearest house to the LVI is 280m.

### **29.3 Mr. Wrights Conclusions**

Mr. Wright has considered the overpressure protection systems at LVI which protects the onshore pipeline and the system operating the well head valve controls which protects the offshore pipeline in his report Section 7.4.

1. Mr. Wright has confirmed that the probability of failure (PFD) on demand of the LVI is  $7.4 \times 10^{-4}$  which equates to safety integrity level (SIL)3 rating.
2. The calculated probability of 'failure to isolate one or more wells' was determined to be  $4.5 \times 10^{-4}$  for the offshore overpressure protection system. SEPIL have submitted analysis to DCENR to show that the offshore reliability is similar to that of the LVI.
3. The Norwegian Codes 'Norwegian Petroleum Directorate Guidance Number 70 Application 1EC61508 and 1E61511' have been used to confirm the reliability of the overpressure system (offshore).  
Mr. Peter Waite ENTEC who are advising DCENR on the pipeline design confirmed that the reliability of the pressure protection systems had been received, that it was being examined and that DCENR would assess the information fully before approving or otherwise the acceptance of the overpressure protection system.
4. SEPIL also used the UK HSE risk levels to evaluate the contours of risk expressed as distance from the LVI. The Risk distances to the upper limit of 'broadly acceptable'  $3 \times 10^{-7}$  are 91m for the base case and increase to 129m for the 3rd Party intentional damage. No dwellings are within these contours with the nearest dwelling being 280m away from the LVI.

5. The resultant Societal Risk Curve is one million times lower than the PD8010 – Part 3 acceptable threshold. Again there is a wide margin of safety between the Corrib results and the minimum acceptable values in the standard
6. SEPIL should redesign the security fencing at the LVI to included a double high security fence and gates with a suitable flood lit ‘dead zone’ between the inner and outer fence. The outer fence should be electrified for additional protection.
7. The Inspector’s team accept the robust technical arguments put forward by SEPIL and no changes are proposed to the design of the LVI at Glengad apart from the increased security arrangements of the perimeter fence.

## Observers Submissions

### LVI

- Does not meet risk criteria set by ABP
- LVI is not located in a remote location
- The location chosen for LVI is not in accordance with code requirements
- The location is not an appropriate location for such an installation
- LVI could fail the  $10^{-5}$  risk level set by ABP above which level risk is unacceptable
- Concern that HIPPS system will be used when it was deemed unsatisfactory in 2002 scheme

### Technology: Suspicion of the high technology involved in the pipeline

- Materials used to withstand the proposed pressures and corrosion (experimental valve)
- The safe and competent construction and maintenance of this pipeline (bends, slugging)
- The safe operation of the pipeline at such **high pressures**, flares and venting
- Fail safe devices do fail, as in Gulf of Mexico
- Lack of transparency in the E.I.S.
- Lack of trust – will someone at SEPIL change settings on LVI.

## 29.4 Discussion

In the course of the OH an issue arose in the course of questions by Mr. Wright to SEPIL. The issue concerned the interpretation of ABP’s letter of 2/11/2009 and whether or not the intent of that letter was that SEPIL should eliminate altogether an overpressure protection system at Glengad.

SEPIL’s position was that while the codes did not require a HIPPS system of overpressure protection it was their view that the LVI as proposed provided a reliable system for protection of the onshore pipeline against overpressure from offshore. TAG had requested that such a system be installed. SEPIL’s position was that the proposal that had been put before ABP

(and a similar proposal is now before DCENR for their approval) was based on ABP requirements as set out in the letter of 2/11/2009.

The issue therefore questioned by SEPIL was: did Mr. Wright's line of questioning seek revision of the design that was before ABP for decision and one which would remove the overpressure protection provided by the LVI?

The Inspector clarified the issue that Mr. Wright's line of questioning was not seeking a revised design. The questions were aimed at establishing and understanding the basis of design for the LVI and the basis on which SEPIL had put forward the 2010 modified design for the pipeline. (Refer Stenography 8<sup>th</sup> September 2010, pages 191-207). The design proposed is a matter for SEPIL to put forward. It is then up to ABP to fully assess the development as proposed by SEPIL.

## **29.5 Inspectors Conclusions**

The following conclusions are based on the assessment that has been conducted of the LVI as presented in the 2010 E.I.S. and on details provided by SEPIL at both 2009 and 2010 OHs. My conclusions are informed by Mr. Wright's analysis and by his Reports in 2009 and 2010.

1. I am satisfied with the clarity and transparency and completeness of the information provided.
2. The part of the site nearest LVI where ALARP risk levels apply (between  $10^{-5}$  to  $10^{-6}$ ) is within a 63m radius of the LVI.
3. The pipeline and LVI are located at a satisfactory distance from existing dwellings at LVI and in Glengad. Compare 216m consequence hazard distance to 246m (distance to pipeline) existing house proximity and 280m nearest house to LVI.
4. I am satisfied that SEPIL have provided satisfactory justification for their proposed configuration of the system which includes LVI and MAOP offshore and onshore.
5. I am satisfied that SEPIL have considered the alternative configurations of venting at Glengad and/or locating the LVI directly on the 20inch gas pipeline itself rather than on a loop. SEPIL consider that these alternatives are not materially superior to the proposed configuration. In the end of the day SEPIL must configure the scheme and ABP must then assess the configuration as proposed by them. I am satisfied with the configuration as now proposed.
6. I am satisfied that concerns of observers have been included in considerations and design of the scheme as now presented in the revised E.I.S. The LVI as presented in this application is a high integrity overpressure protection device for the onshore pipeline.
7. I am satisfied that the onshore pipeline and the LVI as set out in the revised E.I.S. does not pose an unacceptable risk to the public.
8. I am satisfied and I have a degree of confidence that the onshore pipeline and LVI does not pose an unacceptable risk to the existing normally occupied dwellings (this effectively means all dwellings except the one SEPIL own at Aghoos).

9. I am satisfied that SEPIL have provided sufficient information to enable me to conclude that an adequate overpressure protection system has been proposed for the LVI. The reliability of the LVI has been independently verified and will be approved or otherwise by DCENR.
10. I am satisfied that SEPIL have provided sufficient information to enable me to conclude that an adequate overpressure protection system has been proposed for the offshore pipeline. The reliability of the offshore overpressure protection system is being examined by specialists for DCENR and will be approved by DCENR.
11. Mr. Wright's Report confirms that the analysis of the LVI carried out by SEPIL provides robust technical justification for the proposed LVI configuration.
12. The impact on the development potential of lands in the immediate vicinity of LVI is not significant. This is because the pipeline and LVI are at a distance from L1202 where such development may take place in the future.

## **29.6 Inspector's Recommendations**

All recommendations on safety are contained in Chapter 30.

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## Chapter 30 Safety Part 4: Summation of Pipeline Safety Assessment

### 30.1 Background

ABP needs to examine the safety of the public as a central issue in the assessment of the proper planning and sustainable development of the area in which the proposed development is located.

It is my view necessary that the precautionary principle should apply that it is necessary to be cautious in the approach taken to assess the information presented by the applicant regarding the QRA and that it is necessary to take a conservative approach in determining the risks involved. It is necessary to take a conservative approach in determining the criteria against which the acceptability of the risks posed by the proposed development to the public is assessed.

In this regard in my view ABP has taken a conservative approach to date in the assessment and determination of the safety of the public in the following ways:

1. In the absence of advice from HSA, Mr. Nigel Wright Gas Consultant was appointed to advise the Board. Mr. Wright has provided expertise and insight into the many technical issues involved in the assessment of the safety of the public. Mr. Wright in his questioning of SEPIL's experts in 2009 established the facts related to the 2009 scheme and obtained significant additional material from SEPIL at that OH. Mr. Wright at the 2010 OH in his questioning of SEPIL's experts and in his questioning of DCENR further clarified the issues involved and obtained some further material on the technical details of the development as now proposed.
2. ABP in its letter of 2/11/2009 sought a revised and updated E.I.S. which demonstrated in a transparent way the detail technical issues related to the scheme. The revised and modified scheme and the 2010 EIS, in particular Appendix Q, has included a consolidated and co-ordinated set of material which provides a much clearer and more transparent understanding of the detail technical design and the factors contributing to the 2010 QRA as provided in that E.I.S.
3. ABP has set out in the letter of 2/11/2009 that it proposed to adopt UK HSE standards for acceptability of risk.
4. ABP in its letter of 2/11/2009 set a conservative standard for the proximity distance to existing dwellings.

In my view this was necessary because of uncertainties regarding the 2009 QRA. These uncertainties concerned the very high pressures involved [345/144] and concerned the untreated nature of the gas being transported in the pipeline and because a generic rather than a site specific QRA had been proposed by SEPIL in the 2009 E.I.S. and because third party intentional damage had not been included in the QRA.

5. ABP in its letter of 29/01/2010 responding to the request by SEPIL for clarification set the more conservative value of risk of receiving a dangerous dose rather than risk



of fatality to define the method of calculation for the proximity distance to existing dwellings.

It is in this context that I now proceed to assess the safety of the public issue below.

## 30.2 DCENR Submissions

### 30.2.1 DCENR Peter Waites Submissions

The DCENR have made important submissions to ABP in both of the 2009 and 2010 assessment process.

ENTEC UK Ltd are consultants in the oil and gas industry. Mr. Waite leads the risk and safety team. ENTEC have been appointed by DCENR to advise the Minister in relation to the Section 40 application.

DCENR statement regarding statutory assessment of pipeline design by Mr. Peter Waite, ENTEC Ltd.

1. ENTEC, Mr. Waite and his team are undertaking a review of the application to construct a pipeline, E.I.S. Volumes 1 and 2, Appendices M and Q against industry practice, codes standards and other regulators criteria.
2. The issues being examined are grouped under four headings; Pipeline Integrity Management System, QRA, LVI Design Overview, Corrib Pipeline Design basis.
3. Pipeline Integrity Management System
  - SEPIL have a scheme which has a specification and design that provides an onshore pipeline of greater strength and resilience than required by codes and standards by means of pipe wall thickness, materials of construction and a pressure control system to ensure the increased factor of safety.
  - The scheme has systems to protect against external corrosion and damage.
  - The scheme has a process of monitoring the pipeline and route to avoid or detect any damage before it gives rise to leaks which meets the industry standard.

#### 4. QRA

The submission includes a QRA that has been carried out in more detail than is normal for pipeline risk assessments. In particular it incorporates site specific hazards. The QRA demonstrates that the safety risks from the pipeline are extremely low and well within the “broadly acceptable” region of published criteria even in the open near the pipeline.

The separation between the pipeline and dwellings fulfils the criteria set by ABP.

The sensitivity analysis demonstrates that these are robust conclusions.

#### 5. LVI

The pressure control system of the LVI has been designed as a very high reliability system and SEPIL state that this reliability has been independently verified by an accredited body (DCENR through ENTEC have not yet completed their assessment of this).

The LVI does increase risk (over and above pipeline risk) in its immediate vicinity because of the presence of additional equipment (pipework valves instrument connections).

There is therefore a trade-off between the risk close to the LVI and the reduction in risk downstream along the remainder of the pipeline.

However the QRA has shown that the area of risk above the broadly acceptable level is limited to less than 100 metres and even under worst case sensitivity analysis the outer zone for land use planning restrictions would extend only to 132 metres from the LVI.

The LVI equipment is provided with additional protection beyond that normally provided at gas pipeline Above Ground Installations (AGIs).

#### 6. Corrib Pipeline Design Basis

The pipeline design is based on the requirements of Irish and International standards, The pipeline design parameters (wall thickness and material of construction) are such that it would meet the requirements of the codes and standards at a design pressure bar of 345barg (maximum well head shut in pressure).

The proposed MAOP and the high reliability pressure control systems introduce a further “factor of safety” and reduction in hazard distances.

#### 7. Details not provided:

- Third party verification of the reliability of the pressure control system.
- Safety management systems procedures for control of modifications which will be in place before operations.
- Specific procedures for testing of isolation valves and emergency shut down valves.
- Response to any defects detected in the pipeline within the tunnel after installation.
- Detail design of the slab protection at the minor water crossings and support for those slabs.

#### 8. Other issues

- The ground conditions had not been determined in detail at the time of submission of the E.I.S.
- Concern regarding Dooncarton Mountain and the possibility that vibrations from tunnelling could trigger further land slips.

#### 9. Mr. Waite’s conclusions to date:

- The pipeline design and its route are acceptable on the basis of ABP proposed risk criteria and all other similar criteria used internationally. The QRA on which these conclusions are based is acceptable and includes a sensitivity analysis to show that the conclusions are robust.
- The PIMS covers the elements for construction but needs further development for the operation and decommissioning phases.
- LVI is capable of providing a high reliability means of pressure control and emergency shutdown. The QRA of the LVI is conservative and demonstrates

that it imposes a low level of risk to the surrounding area and a worst case accident hazard no greater than the pipeline.

- The pressure control system for both offshore and onshore pipeline is enhanced by the link from the terminal pressure sensors to the offshore manifold and well shut down systems.
- The proposal to place the pipeline in a tunnel satisfies distance criteria but raises some questions of feasibility and possible unwanted impacts if problems arise during tunnelling.

10. Outstanding matters include:

- Details of verification of pressure protection system reliability
- Identification of TBM suppliers and contractors who have successfully completed tunnels in similar ground conditions.
- Demonstration that surface intervention during tunnelling is a low probability event based on more certain knowledge of the ground conditions. The likelihood of surface intervention being required decreases as the number of boreholes and other investigations increase the density of information available.
- Details of assurance scheme for construction of concrete slab protection at water course and potential debris channel crossings.
- Clear demonstration that continuous vibration from tunnelling will not induce instability on the face of Dooncarton Mountain.

### 30.2.2 SEPIL Response to DCENR Request for Further Information

The SEPIL response to the issues raised by DCENR's Mr. Waite are contained in [DRN OH 80]. These need to be considered in detail and are summarised here.

The document contains:

- Information regarding the TBM, reference tunnels, and identifies the obstacles that would likely result in intervention pit as:
  - (1) Soft peat layers of significant thickness;
  - (2) Large man made steel obstacle or large tree logs that could not be handled from inside the TBM;
- Information on geology anticipated and on vibrations that may affect Dooncarton Mountain.
- Corrosion protection in the tunnel and balancing the offshore onshore CP systems.
- Pipeline repair options in the tunnel; (1) Intervention Pit, (2) Insert smaller pipe through the 20" pipe.
- Isolation valves maximum allowable leakage rates.
- QRA information is provided on the hydraulic connections galvanic corrosion properties, and on the hole size justification for use of 58mm diameter hole size in QRA and on temperature sensors location.
- Pipeline safety management discussion of ABP criteria and risk levels set out in ABP's letter of 02/11/2009.
- LVI discussion on the double expanding gate valves proposed.

- Pipeline integrity management discussion of hydrate plug removal.
- Consequence distance as required by ABP which has been provided in Appendix Q by SEPIL as 216m.
- Potential damage to pipe from denting, gouging and coating damage is discussed.
- Safety case issues relating to land use planning in the vicinity of the pipeline and relating to the safety management system that will be part of the safety case to be submitted for approval under the Petroleum (Exploration and Extraction) Act 2010.
- QRA
  - (1) discussion of the proportionate increase in the cost and risk of potential accidents in construction of the tunnel which SEPIL state has increased to an extent that may be seen as disproportionate to the decrease in operations phase risks to the public;
  - (2) also discussion of risk levels of tolerability for workers and members of the public  $1 \times 10^{-3}$  workers;  $1 \times 10^{-4}$  public UK HSE; and  $1 \times 10^{-5}$  as a limit at the site boundary for a fixed plant (Australia);
  - (3) other items are discussed;
  - (4) discussion of slugging and control during normal operations and during operations outside normal operating envelope.
- The document contains a series of attachments related to:
  - (1) TBM suppliers/contractors
  - (2) Demonstration that intervention pit is a low probability event
  - (3) Details of the assurance scheme for concrete slab protection
  - (4) Groundborne vibration and impact on ground stability
  - (5) Predicted groundborne vibration from piling
  - (6) Measurement of baseline underwater noise and vibration in Sruth Fada Conn Bay
  - (7) Vibration measurements on truck movements

### **30.2.3 Closing remarks by Mr. Peter Waite, ENTEC, consultant to DCENR.**

Mr. Waite's submission is almost completely reproduced here, but in numbered points. This submission is an important consideration for ABP in its assessment of these applications.

1. The pipeline is capable of withstanding well head shut in pressure for its entire length from well head to the terminal.
2. The entire onshore section to be constructed from the current termination of the offshore pipeline will be tested to 504barg prior to commissioning.
3. It is intended to install pressure protection systems offshore and at the LVI to contain MAOP at 150barg upstream and 100barg downstream of LVI.
4. The reliability of these systems has been specified to be equivalent to or better than systems elsewhere which protect pipework which might not withstand the maximum pressure in the well.
5. The Corrib onshore pipeline is not unique:
  - The Miller Gas St. Fergus to Peterhead pipeline 18km is a sour gas line designed to handle H<sub>2</sub>S up to 1000ppm CO<sub>2</sub> up to 25% and free water

116/mmscf, 174barg offshore, 34barg onshore, 26 inch pipe, 11.13mm wall thickness.

- CATs pipeline on Teeside runs onshore from Redcar about 8km to a treatment terminal at Seal Sands including a crossing beneath Tees Estuary. 36 inch diameter onshore wall thickness, 33.9mm MAOP 125barg (offshore 179.3barg thickness 28.4mm). This pipeline conveys rich gas mix – natural gas, heavier hydrocarbons and has to be kept at high pressure to ensure that there is no phase separation.
6. The Corrib gas has a specification very close to that of Sales Gas.
  7. Gas processing offshore is very basic. Offshore processing to Sales Gas specification is rare.
  8. Therefore the assessment of safety can be carried out on the basis of criteria applied to the safety of other pipelines with the experience of the team.
  9. The current route meets the test for safety distance as requested by ABP. This is not the normal method of judging whether a pipeline has been routed and designed correctly.
  10. The normal approach both by regulators and within standards PD 8010 and IGEMTD/1 and IGEMTD/2 is to use a risk based approach.
  11. The SEPIL risk analysis presented by DNV as an independent third party assessment shows that the likelihood of any pipeline leaks is very low.
  12. The analysis shows that even immediately above the pipeline, the risk from an ignited leak is less than  $3 \times 10^{-9}$  per year risk of experiencing a dangerous dose (as described by the UK HSE for someone in the open 100% of the time).
  13. At the road crossing the pipeline is provided with a concrete slab over protection. Therefore people in the open or in road vehicles at the pipeline road crossing are at such low levels of risk that would normally be described as “safe”.
  14. The Quantitative and the Qualitative Risk Analysis have been carried out in accordance with best international practice. It is considered that widely accepted consequence models have been used and appropriate frequencies derived from industry databases.
  15. Failures in pipes with wall thickness greater than 15mm have been identified.
    - 1993 Moffat Pipeline Rupture 19mm where differential movement of the pipeline by 100mm to 300mm caused high longitudinal stresses which exceeded the minimum yield stress of the pipe.
    - 1884 Edison New Jersey Rupture was caused by a crack which formed from a gouge to the pipe subjected to metal fatigue (36 inch pipe, 69.1barg operating pressure, 17.1mm pipe thickness).
  16. There is no record of third part interference leading to rupture for wall thickness greater than 17mm.
  17. The PIMS needs to be completed in respect of SEPIL’s corporate safety management system that requires modification of plant to be assessed and approved.

18. Should SEPIL wish to connect a new field to Corrib then a change in POD (Plan of Development) or a new POD would be required to be fully assessed and a new permit would be required before the introduction of new fluids would be allowed.
19. Should damage to the pipeline pose a threat to the integrity of the pipeline in the tunnel, SEPIL have a contingency plan to insert a smaller diameter pipe inside the main pipeline. It is not considered necessary to assess the impacts of this contingency plan as it is of such low probability.
20. A search of worldwide standards for thresholds of vibrations to cause damage has been undertaken. Levels of 0.5mm/s PPV (warning level), 2.5mm/s PPV (immediate mitigation), 12.5mm/s PPV (absolute upper limit) for continuous vibration at monitoring points representing dwellings are recommended to avoid significant damage. Such levels at the road would also indicate that the levels at the steep slopes on Dooncarton Mountain would be much lower due to further attenuation (less than 0.2mm/sec expected from attenuation results presented).
21. The systems for limiting the pressure in the pipeline are automatic and have fixed set pressures which can be verified by inspection.
22. SEPIL has its own system of verification which is tracking the pipeline from metal sheet production at the mill through to installation and commissioning. Mr. Gerard Keane has described the DCENR process for review and verification and independent checks and observations of the work as well as formal reports.
23. The tunnel as designed allows for the peat layers and sediments identified. While calculations have been carried out these will need to be confirmed upon completion of the survey (in the Bay) and final selection of the TBM and contractor for the tunnel.
24. The MAOP flow rate and the wells feeding the Corrib pipeline are described in the Plan of Development and will be part of the conditions of operation of the pipeline. If these are not adhered to by SEPIL then it will be in breach of the consents and permits issued.
25. The responses [DRN OH 80] by SEPIL to the issues raised by Peter Waite indicate that there are no major concerns sufficient to withhold a permit to construct subject to technical expert review and further confirmation of TBM design.
26. Three matters need to be addressed prior to an operating consent are:
  - Safety management procedures for the control of modifications
  - Details of testing procedures for emergency shutdown valves and their controls and instrumentations.
  - Completion of emergency response plan and incorporating the necessary measures for the pipeline and LVI into the Terminal Plan.
27. Minor matter which need to be confirmed as satisfactory and in place:
  - Monitoring and control of TBM fluids, principally Bentonite slurry and grout.
  - Confirmation of pipeline stress analysis when contractor details method statement including allowance for differential settlement of tunnel/trench or stone road interface.
28. Mr. Waites's conclusions:



- The assessment carried out by ENTEC leads to conclusion that there are no significant reasons on grounds of public safety reasons for refusing to grant a consent to construct the Corrib pipeline. This is on the basis of both the absolute separation from dwellings and the extremely low level of risk presented by the pipeline.
- DNV's QRA and the verification of the high reliability of the pressure limitation system provide assurance that the pipeline will be operated within the design specified.
- Conditions will be recommended that the analysis and assumptions used in the assessment remain valid and in compliance with the codes quoted by SEPIL and specified by TAG.
- Some further details are required before issuing a permit to operate can be recommended but these are matters which would be expected to be developed during engineering and construction, but prior to commissioning.

### 30.3 Mr. Wright's Report

Mr. Wright has examined the 2010 proposed scheme and has reported on his analysis of the proposed development.

A copy of Mr. Wright's Report is contained in Appendix 2 attached to this Report. The following points have been taken from Mr. Wright's comments:

1. These design and operational changes in the 2010 proposed development when combined with the use of a thick wall pipe represents a significant contribution to the safety of the pipeline and allows SEPIL to meet the safety criteria from both the frequency of failure and hazard distance requirements.
2. It is the view of Mr. Wright's report that the margin of safety between the calculated levels of risk and the UK HSE level of broadly acceptable risk is necessary to cater for any uncertainties that arise as a result of the adoption of a composite database for the Corrib onshore pipeline.
3. The risk at the LVI is  $6.91 \times 10^{-6}$ /year for the base case QRA analysis.
4. Societal risk is shown as a curve and is nearly six orders of magnitude below the PD8010 – Part 3 Criterion Line for Societal Risk at Glengad.
5. 216m is the distance requested by ABP as the minimum distance to the pipeline from dwellings. All dwellings are outside this 216m contour except one house owned by SEPIL at Aghoos which will not be used as a residence.
6. The Qualitative Risk Analysis has been provided by SEPIL. The role of the Qualitative Risk Analysis is to alert the operator to the potential hazards when operating the pipeline. SEPIL claim they are aware of the hazards and have control barriers in place to prevent an incident under PIMS and the Inspector's Team accepts this.
7. The design, manufacture, construction and commissioning of the pipeline to the prescribed codes and standards should ensure the initial integrity of the onshore pipeline. In the longer term the PIMS and an overpressure safeguarding strategy should ensure the ongoing integrity of the pipeline.

8. One of the key outputs of the PIMS is the publication of the Pipeline Annual Report. SEPIL intend to issue this Annual Report to the Irish Statutory Authorities. It is the view of Mr. Wright's Report that **the Annual Pipeline Report is the key to ensuring the long term safety of the pipeline. It is essential that the operation of the pipeline and information presented in the report is subject to third party independent scrutiny and inspection and that a summary is made available to the public.**
9. **One of the key elements of the pipeline design for the Corrib scheme is that the onshore pipeline will be tested to 504barg.** Therefore the design of the pipeline should prevent a rupture even if the pipeline is subjected to full downhole tubing pressure of 345barg.
10. The analysis of severing of the umbilicals indicates that in such event alarms will sound in the control room and the valves will close if the pressure rises above the trip set points. Therefore SEPIL claim that overall there is no credible scenario, which would allow the gas pressure to exceed the MAOP by severance of the umbilical. The Inspector's Team accepts this analysis.
11. The Inspector's Team was satisfied that the design of the tunnel over such a long distance was feasible and did not involve unproven technology. Should the pipeline fail in the tunnel, SEPIL were confident that an intervention pit could be used to repair the pipe or a new smaller diameter pipe could be inserted up the bore.
12. **It is recommended that SEPIL set up the required instrumentation to measure ground movements at the areas of concern. These are; at the landfall valve offshore pipe interface, at the transition areas between the grouted pipe in the tunnel and the buried sections, in the stone road at the deep peat sections and at the interface between the existing and newly laid sections of the stone road. Also SEPIL should deploy stable strain gauges (including vibrating wire gauges with protective housings) on the pipeline to verify the maximum predicted stress levels on the pipe and confirm the modelling accuracy. The instrumentation needs to remain insitu until steady state levels are confirmed and a sufficient period of time has elapsed to ensure exposure to a variety of environmental conditions.**
13. Regarding alternative layouts at the LVI, the Inspector's Team accepts the robust technical arguments put forward by SEPIL and no changes are proposed to the design of the LVI at Glengad apart from the increased security arrangements at the LVI.
14. **The reliability of the overpressure protection systems on the offshore and onshore pipeline shall be verified by an independent source or by the Regulator, DCENR or CER.**
15. **An Annual Pipeline Report shall be made, submitted to the independent Regulator for the pipeline, DCENR or CER as appropriate and a summary of this report shall be submitted to Mayo County Council and made available to the public.**
16. The Inspector's Team has satisfied itself that the DCENR has examined the use of the offshore specification DNV.OS.F101 with the supplements from IS 328 and PD 8010

for the offshore pipeline onshore upstream of the LVI and that the DCENR has found this specification acceptable for the design, construction and operation of the onshore pipeline.

- 17. It is recommended that DCENR together with NSAI should issue a document clarifying what supplements apply to DNV.OS.F101 when used for the onshore section of the offshore pipeline.**
18. The Inspector's Team accept SEPIL's view that they expect the condition of the mixed phase gas flow to be benign. However, it is also noted that the nature of the gas and associated volumes of water and solids play a key role in the design and operation of the pipeline. It therefore reinforces the need for the PIMS and the associated integrity operations to be deployed in a consistent manner over many years to ensure the safety of the pipeline. The Irish Regulating Authorities will in turn rely on the Annual Pipeline Report to confirm this.

### 30.4 Observers Submissions

**Issue 1:** **ALARP** is not a safety concept. It is a cost concern. Neither BAT – Not even BATNEEC – are being provided

**Response:** Safety is determined by the risk level. ALARP comes into the considerations when the potential individual risk to the public is greater than  $1 \times 10^{-6}$ . ALARP arises in the case of the LVI and for a radius of 63m around the LVI. In my view ALARP is an important control on the risk associated with a gas pipeline. Ultimately it is the risk level itself that is important. ALARP focuses on the measures adopted to reduce levels of risk once they go above  $1 \times 10^{-6}$  (ABP set this level on 2/11/2009). The documentation of ALARP allows an examination of the measures taken by an operator to reduce risks to take place. In my view BAT and BATNEEC are not appropriate terms for use in the case of the onshore pipeline development. These terms are more appropriate for facilities where processes are carried out. In the case of the LVI significant considerations have gone into the safety integrity level required and into the requirement for pigging the pipeline to ensure integrity of pipeline. These considerations are in the same context as BAT.

**Issue 2:** **Extraordinary Event Uncontrollable** reference Gulf disaster, Gulf disaster has shown how out of control events can have devastating results on locality

**Response:** This is a statement of concern. In my view the pipeline as designed poses a low risk to the public and that risk is acceptable. That assessment of risk includes the assessment of the LVI. The circumstances at the LVI are well understood and not in any way comparable with the equipment used in the Gulf of Mexico where a failure involving valve/pipeline connection allowed high pressure gas to release up into an oil rig over head.

**Issue 3:** **Vulnerable People:** How are these accommodated in any incident

**Response:** The assessment of safety includes all members of the public including vulnerable people. The risk to the public is low, the standards adopted by ABP against which this proposed development has been assessed

are conservative standards and are high standards. The individual risk for vulnerable people is low. The safety of the public is provided by the conservative approach in the design and by the conservative standards (proximity distance) set by ABP.

**Issue 4:** **Distances:** Concern that distances from pipeline are incorrectly measured, also from offshore pipeline.

**Response:** [DRN OH 74] provides the distances requested for the houses on the Inver side of Glengad to the offshore pipeline there. SEPIL have indicated the distances provided are correct. No reason has been provided why these distances may not be correct. I accept that the distances provided are correct.

**Issue 5:** **Forest Fires:** What impact will these have on the pipeline, Also Bog Fires

**Response:** The pipeline will be laid within the stone road throughout the peatlands. This includes the forestry area between Aghoos and the terminal at Bellagelly South. The stone road is proposed through a wide clearing in the forestry. SEPIL have said in the E.I.S. 6.3.2.6 "...even if the pipeline was directly in the peat the estimated maximum temperature reached within a peat fire is 600° the strength of steel at this temperature is well in excess of that required to maintain containment". SEPIL have screened out this threat to the pipeline from the QRA. I accept this.

**Issue 6:** **Fear:**

- a. Psychological influence of fear of the hazards
- b. Residents on Inver side of Glengad are fearful of offshore pipeline and risks associated with that

**Response:** One of the factors which has led to a distrust of the proposed development and a fear of the consequences of a failure of the pipeline has been a lack of clear information on standards, on design, on the detail methods used by SEPIL to safeguard the public. These matters have now been resolved in my view by the request from ABP for clarity and transparency and by the response from SEPIL contained in the 2010 modified proposed development. In my view the passing of legislation in 2010, The Petroleum (Exploration and Extraction) Safety Act 2010 and the allocation of responsibility for the safety of the pipeline to the CER (pending) has added to the clarity required by the local community on how the development will be maintained safely during its lifetime. I accept the analysis provided that houses at Glengad and Barnacuille which are closest to the pipeline are safe shelter and I accept that the risk to the public at these houses and in the open are low and are acceptable. The offshore pipeline is not within my remit to assess and report in my assessment. Nevertheless I will provide my view here that the houses at Inver are at a lower risk from the offshore pipeline than the houses at Glengad. I again repeat that the risk to the public at the houses in Glengad is low and is acceptable. SEPIL have presented the analysis in Appendix 6.5 Section 4 of the consequences of a rupture upstream of the LVI (Case 1) at 150barg with the LVI closed. This has been done in respect of Houses A at Glengad. These

houses all 246m from the pipeline, 280m from LVI. The risk to the public at the houses on the Inver side of Glengad are lower than the Houses A as analysed. The houses Inver are a minimum of 336m (GL05) from the offshore pipeline.

**Issue 7: Gas: Gas Constituents**

- a. Concern at SEPIL's delayed acceptance that wet gas is present
- b. Concern that H<sub>2</sub>S may be developed later on in the life of the gas field with consequent corrosion risks

**Response:** Mr. Wright in his report has identified that the ongoing management through the PIMS is the key to ensuring the long term safety of the pipeline. ABP has no remit to control the ongoing management of the pipeline that is a matter for CER. H<sub>2</sub>S (not detected in Corrib) and wet gas corrosion risks are proposed to be managed by SEPIL through the PIMS. I accept that SEPIL have put forward a comprehensive system for PIMS and that the safety permit system being put in place by CER will control SEPIL to ensure the operation of the pipeline in a safe manner.

**Issue 8: Gas Leak**

How long before gas leak could be stopped at Glengad?

**Response:** The length of time to reduce the pressure in the pipeline has been stated by SEPIL to be 4-4½ hours for the onshore pipeline.

**Issue 9: Hydrates**

- a. Will a hydrate plug induce corrosion?
- b. Concern that hydrate plugs may travel at speed in the pipeline causing potential loss of containment/rupture

**Response:** SEPIL stated that hydrates do not pose a risk to containment but they do pose a risk to production. A specialist team will be brought in to address any hydrate blockage should it occur. The management of hydrates was considered at some length in both OH 2009 and 2010. Corrosion is proposed to be managed within the PIMS. Methanol and corrosion inhibitor are proposed by SEPIL to control the formation of hydrates and to reduce corrosion respectively. Mr. Wright has considered the PIMS in his report and he has concluded that credibility has to be given to the PIMS system to control the threats. I am satisfied with the information provided by SEPIL on management of corrosion and of the expertise of SEPIL in understanding and managing hydrates in the pipeline.

**Issue 10: Pollathomas N.S.**

- a. Board of Management of school are concerned about safety of school, environment, playground and all who use the school
- b. Guarantee of safety sought if permission is to be approved
- c. 47 pupils and football field 70m from shoreline - concern for safety
- d. Risk of explosion – school door faces Bay

**Response:** Mr. Gerry Costelloe on behalf of SEPIL provided a guarantee of the safety of the public in his statement to the OH. The nearest dwelling at

Pollathomais is (PU 08) at 460m from the pipeline. The school is at a greater distance again from the pipeline than this. The risk to the public at the pipeline out in the bay opposite the school is  $2.9 \times 10^{-9}$  per year which is a low risk and is an acceptable risk. The risk at the school and at the playing fields is lower again and is acceptable. The QRA has assessed the risk of a full bore rupture of the pipeline with immediate ignition. In effect that event has been used to define the routing distance for the pipeline. The routing distance as requested by ABP provides an additional layer of protection over and above the safety provided by the design of the pipe itself and all the other design features that are provided. The codes and standards to which the pipeline is to be constructed provide for a safe pipeline. The hydrotest at 504barg of the pipeline provides a significant level of assurance that the pipeline construction is satisfactory bearing in mind that the MAOP on the section of pipeline in the Bay will be 100 barg. The concern of the Board of Management of Pollathomas N.S. is understandable. In recommending to ABP that the pipeline does not pose an unacceptable risk to the public, I am very conscious of the safety of all members of the public, including the parents, staff and children of Pollathomas N.S. I am satisfied that from my examination of these applications that Pollathomas N.S. will be safe from this proposed development. I am satisfied that expert advice and analysis has been made available to me by ABP for this assessment. Mr. Wright has concluded that the risk to the public from this pipeline is low and is acceptable. [Refer Appendix Q6.4 Section 7.2.2.1]

The risk of explosion and the potential for a vapour cloud to form that could cause explosion has been considered in the E.I.S. SEPIL have indicated that for a delayed ignition of a gas release in the open air to create overpressure some or all of the flammable cloud has to be in the region of congestion. The forest is the only place SEPIL consider that congestion could take place and that the effects of overpressure there would not be sufficient to present a threat to people over and above the effect of the jet fire that would follow.

**Issue 11:** **Pressure:** 100barg is still very high – why are transmission gas pipes not allowed operate at such high pressures

**Response:** I point to my response above, 10. The design of the pipeline is satisfactory. I have no remit to examine transmission lines. The regulation of transmission lines was not discussed and queries were not raised with CER or DCENR in questions at OH in either 2009 or 2010.

**Issue 12:** **Safety of Community and Future generations**

a. Offshore pipe potential to move in currents and pose additional risk to LVI

**Response:** Mr. Costelloe responded to this issue at the OH. He stated that the offshore pipeline had been successfully laid and tested and that it was filled with water at the present time (of the OH). He stated that the pipeline offshore was buried 2m deep and that SEPIL had observed



underwater the backfilled trench and were satisfied with the work completed. He indicated that SEPIL would continue to monitor the offshore pipeline.

b. Straight pipe at Glengad may be safer. SEPIL have not accepted this

**Response:** SEPIL have presented their consideration of this in Appendix Q, Appendix Q4.3 and Q4.4 Section 4. SEPIL have stated the reliability of the LVI configuration now proposed is superior to a straight pipe configuration and in their analysis a straight pipe with an in line HIPPS system would provide no increase in safety for the public at Glengad. Mr. Wright has considered this argument. He states that SEPIL have included the same number of pieces of equipment valves and connections in the straight pipe analysis and as a result there is no increase in safety but they have not taken any reduction in risk for the removal of the bends, the lack of pigging in the loop and erosion. However, Mr. Wright has accepted the technical arguments of SEPIL the principal argument being that the LVI configuration is required in the design to be piggable through from manifold at the well head to the terminal. Pigging through an inline 20" over pressure protection valve would not provide the reliability that SEPIL required for isolation of the onshore pipeline from any potential overpressure in the offshore pipe. This issue is a design decision and SEPIL are best placed to make such design decisions. Overpressure protection of the onshore pipeline is in my view an essential part of the overall configuration for the pipeline. Accordingly, I accept Mr. Wright's advice on this matter and I recommend that ABP accept the LVI as proposed.

c. Why is 150barg possible now for offshore

**Response:** This was answered at OH by Mr. Costelloe. He indicated that it has only been possible since the 2009 request by ABP and following extensive analysis by SEPIL to verify that the system could operate with an MAOP of 150barg offshore. SEPIL were not previously in a position to declare that MAOP [presumably because the extensive analysis had not been done prior to the ABP letter of 2/11/2009].

d. Concern that Transocean installed the offshore equipment that will limit pressures to 150barg Transocean worked on Gulf of Mexico well catastrophe

**Response:** I have no remit to examine aspects of the offshore contract whereby Transocean did work on the wells. No information regarding this matter was considered at OH. Mr. Keane KOIL, who are advising DCENR, did outline that supervision and acceptance of the offshore installations was part of their brief.

e. Potential of damage from overpressure and explosion are not considered. Concern regarding explosion, safety distances and overall risks

**Response:** This was raised in both 2009 and 2010 OH. SEPIL in 2009 QRA used the methodology of PD 8010-3 which specifically excludes consideration of explosion and overpressure from QRA analysis requirements. In 2010 E.I.S. SEPIL have in Section Q6.6 Section 7.2.2.1 considered this issue. SEPIL have considered that in circumstances of a full bore rupture modelling has shown that the gas/air cloud is well above any trees and so could not give rise to overpressure in the event of a delayed ignition of gas following the rupture. In the case of a release from a hole directed horizontally, SEPIL have stated that overpressure could be generated by delayed ignition of such a release. SEPIL stated that the degree of overpressure generated would not be sufficient to present a threat to the public in the vicinity over and above the effect of the jet fire that would follow. In other words, the threat arising from the generation of a vapour cloud which could explode if ignition were delayed has been considered. I accept the analysis presented. I accept SEPIL's argument that the site of the onshore pipeline does not readily provide the opportunity for a vapour cloud to be contained.

- f. SEPIL's concern for safety is for the pipeline, not for the people and local community

**Response:** I am satisfied that the analysis sought by ABP – a revised Appendix Q – has been provided. I am satisfied that this is clear and transparent and that the analysis provides a full integrated set of documentation of the design. Central in the design of the pipeline are the code requirements. Central to the code requirements are issues that protect and safeguard the safety of the public. I am satisfied that SEPIL have followed the code requirements.

- g. Security Risk from sabotage

**Response:** Security has been considered in Chapter 26. Mr. Wright has in 2009 and 2010 Reports considered this issue. SEPIL were asked to include consideration of third party deliberate interference in analysis of QRA. This has been provided. DCENR have indicated that the responsibility for security at LVI is the responsibility of SEPIL in the first instance supported by security services of the State as may be required. There were questions raised about how secure the LVI was should it be subject to attack by weapons (rocket launchers were mentioned). I was not disposed to allowing this type of questioning. I was particularly not disposed to allow such questions that I considered to create fear and tension and which sought to confuse the issues being considered and questions that heightened the fears and concerns of the public in a manner that was not in any way constructive. SEPIL in statements indicated that while there were strong protests against the development proposed they had not seen any evidence that the protest

activity would at any stage threaten the safety of the local community. SEPIL had indicated in considerations at the 2009 OH that the LVI had design features to resist damage from attack. Such security design features were confidential.

In summary, this issue has been examined. The security of the LVI is a matter for SEPIL. The security of the LVI is also a matter to be considered in the context of guaranteeing the security of gas supply into the National Gas Grid. SEPIL are proposing the LVI to ABP as set out in the E.I.S.

I find that I am satisfied with the arrangements as proposed whereby there is clear responsibility for security.

In my view the potential actions of third parties which actions are illegal and which actions constitute any danger to the public are not matters that are relevant considerations in assessing the planning issues involved in these applications. In my view to seek to require ABP to consider the potential for illegal and dangerous acts by third parties and to give any precedence to such considerations over and above considerations of perfectly legitimate issues and planning criteria related to the proposed development put forward in a manner that is now transparent and which considers all the factors that are required to be considered in such proposed development would be unfair, would be to act not in accordance with the Planning and Development Acts. The Planning and Development Acts do not at any point require illegal and dangerous acts by third parties to be taken into account as considerations in assessing the merits or otherwise of proposed development.

That being said, there is a responsibility on ABP to assess the proposed development and in the context of the proper planning and sustainable development of the area, the consideration of safety of the public is an important consideration.

In my view, ABP has taken a cautious approach to the identification of risks to the safety of the public from the proposed development. The QRA requested by ABP has very specific additional considerations in respect of:

- Sensitivity analysis of different assumptions
- Site specific data considerations
- Standards for assessment of individual risk levels have been set at UK HSE levels
- Third party deliberate interference with the pipeline has been assessed and a sensitivity analysis case has been considered to include third party deliberate interference.

As an additional layer of safety protection for the public, ABP has set a routing distance standard based on the consequence distance of a worst

case scenario, a full bore rupture of the pipe followed by immediate ignition.

Mr. Wright in his report has considered the LVI and security of the fencing. He has recommended that SEPIL should redesign the security fencing at the LVI to include a double high security fence and gate with a suitable flood lit “dead zone” between the inner and outer fence. The outer fence should be electrified for additional protection.

In my view the cautious approach and the measures outlined above provide confidence that approval to the proposed development will pose a low risk to the safety of the public and such risk is acceptable.

- h. No indication of how H<sub>2</sub>S will be detected if leaking

**Response:** The first thing that will arise will be the detection of H<sub>2</sub>S in the gas stream from the wells. At present there is not a detectable level of H<sub>2</sub>S present. H<sub>2</sub>S cannot be ruled out in the lifetime of the wells. Corrosion control and the integrity management of the pipeline are primary responsibilities in the operating phase of the proposed development. SEPIL have demonstrated the expertise and experience of SHELL in operating upstream pipelines successfully. I am satisfied that H<sub>2</sub>S should it be detected at some time in the life of the scheme that SEPIL has the ability and back-up expertise to manage that condition.

As regards leaks, the 2010 scheme incorporates the use of fibre optic technology as a leak detection system. SEPIL have also indicated that the primary leak detection in the system will use mass balancing to identify if gas leaks from the pipeline.

- i. Sruth Fada Conn high risk of pipe rupture due to strong current

**Response:** I do not accept this argument because the pipeline is within the tunnel. The tunnel is set down a minimum below bed level of 5.5m. No evidence of such channel gouging threat by the currents has been presented. SEPIL on the other hand has presented both the historic changes in the Bay (from the original O.S. mapping) and a model of the hydrodynamics of the Bay. Mr. Wilson gave evidence in 2009 of scour potential around an intervention pit and the mitigation measures that were possible to ensure bed levels were not changed by use of the intervention pit. In order to begin to impact on the tunnel itself scour would need to exceed 8m below bed level. This does not seem credible to me.

- j. In rural area people will be outdoors, they need to be safe outdoors as well

**Response:** I understand how people have concerns about being out of doors. This was raised regarding farmers and fishermen and regarding all these casual events such as walking the shore, use of the beach, walking along the roads, etc. The concern is primarily one regarding

the safety of people out of doors. The concern also arises because of the rule set used by QRA analysis whereby two analyses are presented in the E.I.S., one where people spend 10% of their time outdoors, the other where people spend 60 hours a week outdoors. People have expressed the view that they do not wish to be confined to the safe shelter of their houses. The reality of the assessment of the safety of the public out of doors is as follows:

(1) Pipeline: The risk to a person standing beside the pipeline is  $2.9 \times 10^{-9}$  per year standing there. This is a low risk and this risk is acceptable.  $1 \times 10^{-6}$  is the broadly acceptable risk set by ABP.

(2) LVI: The risk to a person standing at LVI itself per year is  $6.91 \times 10^{-6}$ . The risk to a person standing 63m from LVI is  $1 \times 10^{-6}$  (ALARP area is 63m circle).

In the sensitivity case where the risk is calculated for a large failure of valves at the LVI a person standing 132m (approx.) from the LVI is at a risk of  $1 \times 10^{-6}$  [Refer Figure 18].

It can be seen from these figures that apart the area of immediate LVI the risk levels for any person out of doors are in the broadly acceptable level of risk as set by ABP.

As a note of comparison for the above risk levels in the Advantica Report the following comparison levels were given:

The risk of death from all causes for women aged 35-44 in the UK based on data from 1999 was approximately  $1 \times 10^{-3}$  (1 in a thousand) per year. The risk of death from all causes for men was  $1.5 \times 10^{-3}$ .

k. Shelter not available to everyone in area

**Response:** See previous response.

**Firstly**, SEPIL have argued that the pipeline is designed to be safe and that the risk to the public is low and that as a result a much reduced proximity distance should be used as the criteria for routing this pipeline. I have not accepted that argument. ABP has not accepted that argument. A consequence based routing distance has been set by ABP to ensure that in a worst case scenario the dwellings where people live will provide safe shelter. That is a high standard and that is now provided on the 2010 scheme.

**Secondly**, the design parameters of the pipeline as now proposed in 2010 are quite conservative. The pipethickness 27.1mm itself, X70 carbon steel, is suitable for a design pressure of 345barg. The MAOP is now 100barg for the onshore pipeline. As a result of these and the whole set of design parameters the risk level predicted at the pipeline itself is  $2.9 \times 10^{-9}$  per year.

This risk level is more than 2 orders of magnitude below the acceptable risk level of  $1 \times 10^{-6}$  per year. In my view in this case of an upstream gas pipeline at very high pressure this extra factor of safety is required to

provide confidence to ABP that the pipeline does not pose an unacceptable risk to the public.

In my view these conservative requirements are the measures that ensure the safety of the public in the open and in the vicinity of the pipeline.

**Issue 13: Standards:**

- a. Argument that the thermal heat flux considered in E.I.S. does not take casualty other than fatality into account

**Response:** I accept this point. In the event of a rupture of the pipeline, the QRA and calculations of consequence have considered the situation where a dangerous dose of thermal radiation is received.

Analysis of other casualties who received less than the dangerous dose has not been carried out. The value of providing the analysis of the dangerous dose (1000 TDUS) is that a standard methodology is defined so that the QRA analysis can be modelled using this standard. There is no lack of clarity of the potential consequences of a full bore rupture. The analysis provided is in my view sufficient to enable an assessment to be carried out of the risks to the safety of the public.

- b. Concern that exposure rates (1000 TDU) are too high and that lower rates should have been used

**Response:** It is true that it would have been possible to set a lower thermal dose. However, as I have said in the report, ABP has set this 1000TDU level. The level is an acceptable and standard level that is understood and used within the industry and one that is used by regulators and in the planning process. The important issue is the outcome from the analysis. The outcome identifies consequence distance used to route the pipeline. This consequence distance is an additional layer of protection of the safety of the public over and above the provision of a conservative design of the pipeline.

I do not accept that the analysis is incomplete. ABP set out a considered position in the letter of 2/11/2010. The requirements of that letter were extensive and the resulting information submitted is in my view satisfactory to enable the assessment to be completed.

**Issue 14: Technology: Suspicion of the high technology involved in the pipeline**

- a. Materials used to withstand the proposed pressures and corrosion (experimental valve)

**Response:** I do not accept that the LVI is an experimental valve. The safety integrity level specified for this valve is a high integrity standard and not in my view experimental.

- b. The safe and competent construction and maintenance of this pipeline (bends, slugging)



**Response:** The pipeline design is satisfactory as has been outlined in the report. I believe that the testing and commissioning of the pipeline together with the other controls as set out in the conditions recommended in this report will ensure satisfactory construction of the proposed development.

c. The safe operation of the pipeline at such **high pressures**, flares and venting

**Response:** The important issue here is that the pipeline is designed to take the pressures under which it will operate. In the case of Corrib, the test pressure for the pipeline will be 504barg, the design pressure is 144 barg and the MAOP is 100barg. Flares and venting are concerns regarding the operation of the terminal and are not within my remit for assessment.

d. Fail safe devices do fail, as in Gulf of Mexico

**Response:** SEPIL in the sensitivity case (generic case) have included a failure of the valves at LVI. This, SEPIL has indicated, is a recognition that all components can fail. The risks to the public outside of radius of about 132m from the LVI from this failure scenario are in the broadly acceptable risk level set by ABP.

e. Lack of transparency in the E.I.S.

**Response:** I do not accept that the E.I.S. has a lack of transparency. There is no such thing as a perfect document, however while it may take time to go through it, in my view Appendix Q in the revised E.I.S. provides clarity and transparency of the proposed development.

f. Lack of trust – will someone at SEPIL change settings on LVI?

**Response:** It has been stated at the OH that the permits and consents for the proposed development will be based on the documented conditions which include the MAOPs. These settings will be subject to inspection by the regulators (DCENR in case of S.40 Licence, CER in case of the safety permit). It is possible for such settings to be reset by SEPIL in such an event the regulators would be in a position to control SEPIL's actions and as outlined by CER, a safety permit to operate the onshore pipeline could be withdrawn.

### **30.5 Inspectors Conclusions – Overall Safety of the Public**

1. I accept Mr. Wright's Report. I propose to ABP that ABP accept that report.
2. The details of Mr. Wright's Report have been considered under Chapter 27 – Pipeline Design and Codes of Practice, Chapter 28 – QRA/Consequences of failure, Chapter 29 – LVI Adequacy of Proposed Installation. Mr. Wright's Report (2010) provides the basis for my conclusions. Mr. Wright's Report (2009) has also made a substantial contribution to the analysis and overall assessment of the issue of safety of the public from this proposed development.

3. The onshore pipeline proposed has been examined in detail. I find the design of the scheme is acceptable.
4. I am satisfied that the pipeline routing is now acceptable.
5. The proximity distance between the pipeline and the nearest occupied dwelling calculated as the appropriate distance as set out by ABP provides a margin of safety in the event of a worst case scenario full bore rupture of the pipeline.
6. The ABP standard for proximity to houses is not a recognised standard however it is based on Advantica's suggested best practice approach for routing the pipeline in remote low density population areas.
7. The ABP standard is a high standard. I believe this is correct and necessary in this case.
8. The QRA for the proposed pipeline has been examined in detail. I find the QRA as submitted to ABP is acceptable.
9. The risk to the public from the pipeline and from the LVI have been calculated. These risks are low and are acceptable.
10. The consequence of a full bore rupture in the pipeline has been evaluated. All residential dwellings are outside the consequence distance and provide safe shelter as required to comply with the standard set out by ABP in their letter of 2/11/2009.
11. The scheme has been reconfigured with MAOP's being declared and incorporating revised overpressure protection systems. The revised configuration is acceptable.
12. The design of the LVI has been re-examined. I find that the risk to the public from the LVI is low and is acceptable. The configuration of the LVI proposed is considered acceptable.
13. Mr. Wright has concluded that the proposed development does not pose an unacceptable risk to the public. Mr. Wright has concluded that the risk to the public from the LVI and from the pipeline is low and is acceptable.
14. In my view, ABP can now decide to approve the pipeline with confidence that it does not pose a threat to the safety of the public nor a threat to the safety of the local community.

### **30.6 Inspector's Recommendations**

These are based on Mr. Wright's Report and are in effect his recommendation on safety.

1. The complete onshore pipeline shall be hydrotested to 504barg pressure.
2. SEPIL shall obtain from DCENR a document confirming the code supplements that apply to DNV.OS.F101 when used for the onshore sections of the offshore pipeline. Note this was confirmed at the OH but needs to be formally documented.
3. The security of the LVI compound at Glengad should be modelled on a standard that reflects its national importance to the energy supplies of Ireland and the public profile of the Corrib Gas Pipeline.  
SEPIL should redesign the security fencing at the LVI to include a double high security fence and gates with a suitable flood lit zone between the inner and outer fence. The outer fence should be electrified for additional protection.

Note: I believe this can be accommodated within the area of the LVI set down and I believe this additional fence can be laid out so as not to be visually intrusive in the landscape.

4. SEPIL should set up the required instrumentation to measure ground movements at the areas of concern. These are at the landfall valve offshore pipe interface, at the transition areas between the grouted pipe in the tunnel and the buried sections, in the stone road at the deep peat sections and at the interface between the newly laid sections of the stone road. Also SEPIL should deploy stable strain gauges (including vibrating wire gauges with protective housings) on the pipeline to verify the maximum predicted stress levels on the pipe and confirm the modeling accuracy. The instrumentation needs to remain insitu until steady state levels are confirmed and a sufficient period of time has elapsed to ensure exposure to a variety of environmental conditions.
5. The reliability rating of the offshore pipeline overpressure protection system shall be verified by the external independent source or the Regulator, DCENR or CER as the case may be.
6. The reliability of the onshore pipeline overpressure protection system shall be verified by the independent source or by the Regulator, DCENR or CER as the case may be.
7. An Annual Pipeline Report shall be made, submitted to the independent Regulator for the pipeline, DCENR or CER as appropriate and a summary of this report shall be submitted to Mayo County Council and made available to the public.

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## Chapter 31 Waste Generated

### 31.1 SEPIL Proposals for Waste Management

The E.I.S. contains information about wastes generated during construction of the proposed development. A description of the waste management proposed for the development is given in different parts of the E.I.S. as per the following table:

#### Location of Information on Waste Arisings

E.I.S.	SECTION	INFORMATION
Chapter 5 Construction	5.5.1.1.	Tunnel Arisings
	5.5.1.7.	Drilling Fluid
	5.5.2.	Aghoos Compound Details
Chapter 11 Material Assets	11.6	Natural and Other Resources
Appendix E	5.0	Local Material Flows
	Appendix 3	Schedule of Materials to be handled – Truck Movements
Appendix R	Tables	Materials Balance
Appendix S	4	Quantities of Materials Arising
Brief of Evidence C. Butler	6 [DRN OH 2]	Management of Tunnel Arisings
Evidence		Clarification of Quantities and Reduction in Quantities Achievable

A licensed waste haulage company will be engaged and all wastes will be disposed of to an appropriately licensed facility. A project specific Waste Management Plan will form part of the Environmental Management Plan (EMP) for the construction of the proposed development. The following waste streams will arise from construction:

### 31.1.1 Non-hazardous solid wastes

Non-hazardous solid waste streams include surplus quantities of excavated peat (Volume 3 Book 1 Peat Deposition at Srahmore Site), quantities of used stone and geo-textiles, green waste (from shrub clearance etc.), used welding rod ends, used grinder discs, waste packaging, pipe ends (short pieces remaining after tie-ns) and also 'food and domestic waste' from construction personnel. These wastes can be managed with minimum difficulty and potential for environmental impact. Paper/packaging from the x-ray films generated from radiographic examinations of pipe welds will be managed similarly to other non-hazardous solid wastes. Appendix R indicates there will be 53151 m<sup>3</sup> of peat for disposal and 38028 m<sup>3</sup> of stone for disposal, 37585m<sup>3</sup> tunnel arisings for disposal.

### 31.1.2 Non-hazardous liquid wastes

Non-hazardous liquid wastes include sanitary waste (from portable lavatories/welfare facilities), water from washing/cleaning facilities, water run-off from the construction site, and water used during hydrostatic testing. Sanitary wastes are managed using contracted services to take this material away for disposal at a licensed facility. The quantities of sanitary wastes arising from the construction compounds will be directly related to the number of people on site. Waste water from Bentonite recovery process will also be disposed at a licenced facility (25000m<sup>3</sup>).

Water run-off from the construction spread will be managed using basic settlement and filtration in drains and lagoons before discharge. Surface water management details were given at the Oral Hearing [DRN OH 2009 116]. This water will be collected in a V-ditch system and taken through attenuation/silt trap measures and silt control mechanism before final discharge. It was outlined that these swales and ditches are designed to be extendable onsite for larger storms should this need arise.

Hydrostatic test water will be treated if necessary and disposed at a location to be agreed with the relevant authorities. The procedures for hydrostatic testing will be described in a method statement prior to it being undertaken. Hydrostatic tests on the pipeline will be carried out in one single test for the onshore pipeline involving approximately 2500 m<sup>3</sup> of water sourced from the terminal. On completion of the test it is expected subject to agreement with the relevant agencies that the test water will be discharged through the outfall pipe 12.7 km offshore [Evidence at the 2009 OH 16/6 ,11.49].

### 31.1.3 Hazardous wastes.

Hazardous waste streams include possible spillages of diesel (or other oil) and any associated contaminated ground. Wastes such as used absorbent granules, which will be carried with all construction plant, may only occur in the event of a spillage. This would typically involve the absorption of diesel or hydraulic fluids used in construction vehicles. There will be permanent and mobile bunded facilities for storage of materials such as diesel. Spent radio



isotopes generated from radiographic examinations of pipe welds will be retained by the specialist contractor and disposed of in accordance with the terms of their license from the Radiological Protection Institute.

### **Bentonite**

4000m<sup>3</sup> of Bentonite will be used. Approximately 67000m<sup>3</sup> Bentonite mix will be used in the course of tunnelling [150m<sup>3</sup> per day 1m<sup>3</sup> per 1m<sup>3</sup> of excavation in tunnel].

At conclusion there will be 200m<sup>3</sup> unused Bentonite in the system [Appendix S Table 4.1 indicates this will be approximately 15m<sup>3</sup> solid for disposal]. SEPIL indicated that Bentonite losses occur at face and side of the TBM and that Bentonite slurry is used up in transport of the excavated materials and into the tunnel arisings.

It is proposed to separate and recover Bentonite from the waste arisings. It is also proposed that the Bentonite which is replaced in the system each day will be taken through a filter press and the cake and liquid each disposed separately at a licenced facility. Inland Fisheries have expressed the view that care should be taken in choosing the licenced facility for the liquid waste arising so that sufficient capacity is available within that facility.

SEPIL have indicated that Bentonite (montmorillonite) is a natural material that trace quantities are not considered as a contaminant – SEPIL state this view is confirmed by EPA.

This is a different classification to that used by SEPIL in the 2009 E.I.S. Chapter 11 where it was then proposed by SEPIL to treat Bentonite as a hazardous material and to store and dispose of it accordingly.

I am satisfied that Bentonite is a natural material that can be suitably used in rock/soil/Bentonite mix as fill material. Bentonite as well as being used as a lubricant in tunnelling is widely used as a clay seal material and for preventing leachate spread from landfills and ingress into boreholes, etc. Bentonite has the property of swelling when in contact with moisture and forming a sealing layer. I am satisfied at the 2010 classification identified in the E.I.S.

## **31.2 Mayo County Councils Recommendations on Waste**

Mayo County Council in their written submission to ABP recommended the following conditions in respect of waste generated. In the event that ABP decide to approve the proposed development then I recommend that these conditions be incorporated in the permission. I have consolidated these conditions into my final recommendation.

***Condition No. 19** - All tank and drum storage areas on the sites shall, as a minimum, be bunded to a volume not less than the greater of the following –*

- (b) 110% of the capacity of the largest tank or drum within the bunded area,  
or
- (c) 25% of the total volume of substance which could be stored within the bunded area.

*Reason: To prevent surface and ground water pollution.*

**Condition No. 20** - All fuel storage areas and cleaning areas, particularly for trucks, shall be rendered impervious to the stored or cleaned materials and shall be constructed to ensure no discharges from the areas.

*Reason: To prevent surface and ground water pollution.*

**Condition No. 21** - The developer shall maintain on the sites for the duration of the construction period, oil abatement kits comprising of booms and absorbent materials. The precise nature and extent of the kits shall be agreed in writing with the planning authority prior to commencement of development.

*Reason: To prevent water pollution.*

#### **Waste Disposal**

**Condition No. 24** - No waste material, other than material being transferred to a licenced waste facility, generated on the sites during the construction phase shall be removed off the sites without the prior agreement of the planning authority.

*Reason: To provide for the appropriate management of waste and in the interest of protecting the environment.*

**Condition No. 25** - Prior to commencement of development, the developer shall submit, and obtain the agreement of the planning authority to a plan containing details for the management of waste (and, in particular, recyclable materials) within the development, including the provision of facilities for the storage, separation and collection of waste and, in particular, recyclable materials, and for the ongoing operation of these facilities

*Reason: To provide for the appropriate management of waste and, in particular, recyclable materials, in the interest of protecting the environment.*

**Condition No. 26** - Sanitary facilities shall be installed on the sites for the duration of the peat haulage and pipeline construction periods. All wastes generated from such facilities shall be disposed of off the sites. The facilities and method of disposal shall be to the requirements of the planning authority.

*Reason: In the interest of public health.*

**Condition No. 31** - Before development commences on the sites, the developer shall obtain the agreement of the planning authority for a monitoring plan in relation to surface water, groundwater, dust and continuous noise. Such monitoring shall be carried out by the developer throughout the construction of the pipeline and LVI

(to the date of commissioning of the pipeline and LVI). The monitoring plan shall, as a minimum, include-

- (a) A list of all monitoring locations,
- (b) Description and specification of equipment to be used,
- (c) The identity and qualifications of persons responsible for monitoring,
- (d) Parameters to be used,
- (e) Monitoring intervals,
- (f) Averaging times,
- (g) Proposal for the presentation of data,
- (h) Codes of practice to be used, and
- (i) Details of right of access to Mayo County Council appointed staff to carry out environmental monitoring checks as required, or as requested by the Project Monitoring Committee. Costs incurred by the planning authority in carrying out any necessary monitoring, monitoring checks, inspections and environmental audits, shall be reimbursed by the developer.

*Reason: In the interest of clarity, and the protection of the environment during the earth works and construction phase.*

Mayo County Council in their written submission to ABP [DRN WS1 2009] recommended the following conditions in respect of surface water discharges:

**Condition No. 17** - All surface water discharges from the disturbed area of sites shall be channeled through settlement ponds. Prior to commencement of development, the developer shall agree with the planning authority precise details of a monitoring programme for the settlement ponds and their discharge, and a maintenance programme for the ponds. Parameters to be monitored shall include –

- (b) Temperature,
- (c) Turbidity,
- (d) Dissolved oxygen,
- (e) Electrical conductivity,
- (f) Orthophosphate,
- (g) Total phosphorus,
- (h) Nitrate
- (i) Ammonia (as N),
- (j) Suspended solids

And any other parameter required by the planning authority. The frequency and methods of monitoring shall be agreed in advance of the operation of the settlement ponds with the planning authority. Any alterations to the agreed monitoring regime or maintenance programme shall be subject to agreement with the planning authority, following consultation with the Project Monitoring Committee.

*Reason: In the interest of environmental protection and the proper planning and sustainable development of the area.*

**Condition No. 18** - Results shall be submitted to the planning authority on a fortnightly basis or at other such intervals specified by the planning authority (following consultation with the Project Monitoring Committee). All results shall be made available for public inspection within seven days of receipt.

*Reason: To prevent water pollution.*

### 31.3 Observers Submissions

1. The possibility of contamination of drinking water (refer to Chapter 24 where this has been considered in detail).
2. Intrusion into salmon and trout areas and potential impacts to salmon and trout.
3. Aluminum pollution deriving from peat excavation.
4. Previous record regarding contamination of drinking water and diesel spillage from works at Terminal.
5. Risk to Sruth Fada Conn from Bentonite spillage/break out from tunnelling/intervention pit.
6. Oil spillage potential to decimate shell fish industry.

### 31.4 Discussion

An important factor in considering the likely impacts on the environment of the proposed development is that the significant volumes are inert materials tunnel arisings 68000m<sup>3</sup>, rock/stone from LVI 7000m<sup>3</sup>, peat to Strahmore 75000m<sup>3</sup> (later reduced to 53151m<sup>3</sup>), surplus tarmac and stone from compounds 45000m<sup>3</sup>.

Appendix S4 sets out the materials management plan for handling the tunnels arisings. Table 4.1 sets out the estimated quantities involved in (1) the materials arisings on site, (2) materials required on site and (3) materials for off site management. Appendix R sets out the information on materials balance.

A number of options are considered for the use of excess materials that have to be managed. The hierarchy of waste management options as adopted by DEHLG from the EU is outlined. Re-use on site, re-use off site, recovery off site, disposal off site are each discussed. It is considered that 35% of the tunnelling materials can be re-used on site.

A number of potential option for disposal of the surplus tunnel arisings and tarmac and stone are outlined and a number of fall-back positions – use of inert materials for land remediation or reprocessing or ultimately the disposal of materials at licensed landfill facilities are considered.

Observers Submissions

- No waste disposal proposed for tunnel arisings

It was submitted that a detail plan for waste management has not been provided and consequently that ABP cannot fully assess the E.I.S.

It was contended that some of the waste facilities considered in Appendix S4 may not be open or in continuing service if and when the materials have to be disposed of to properly authorised facilities.

1. The central issue of difference from the 2009 scheme as far as waste is concerned is that in the 2010 proposal a large tunnel is proposed with significant arisings of waste materials and significant waste materials also from the removal of the compounds at the conclusion of the tunnel construction.
2. SEPIL have indicated that an allowance for HGV traffic movements associated with haulage of waste arisings has been included in the traffic management plan for the proposed 2010 development to cover option being considered for the disposal of the materials.
3. The important issue is that from a sustainability point of view materials which will consist largely of sands, gravels, rocks, stone and macadam materials and which would meet a specification an engineering material as class 1 typical material that such materials should not be disposed of to land reclamation or licensed landfill. Such materials should be re-used or reprocessed for re-use.
4. The quantity involved is large SEPIL reduced these figures during the course of further considerations of the initial design. Appendix R indicates 53,151m<sup>3</sup> peat for disposal, 38,025m<sup>3</sup> for disposal and 37,525m<sup>3</sup> tunnel arisings for disposal.
5. The E.I.S. is clear in intent that only where planning permission is in place or where licenses are in place will sites be considered for re-use/disposal of materials.
6. Planning permission for some of the uses identified as options for re-use of the material will need to be obtained. This may take time and indeed this may not materialise in some cases.
7. The E.I.S. has provided a reasonable level of data on the waste materials arising.
8. A series of options which can be used have been presented for the disposal of waste.
9. A strategy for the disposal of wastes arising which have re-use value and which strategy is in line with Connaught Regional Waste Management Plan requirements has been put forward in the E.I.S.
10. Has the quantity, the nature of wastes, the implications of managing these wastes been adequately set out in the E.I.S.? Yes, the table which I have prepared above sets out where this information is contained in E.I.S. I accept the observers point that the information is contained in a number of difference places within the E.I.S. It would have been preferable had all the waste data and methods of disposal been set out in one section of the E.I.S. Nevertheless, I have found the information and in my view it informs the E.I.A. process adequately.

11. Is it acceptable that options for disposal are identified which observers maintain are not certain enough to assess the implications of the disposal that will be required? Yes I believe it is acceptable. The options are not notional, they are real options with an ultimate option of disposal of surplus materials in large quantity to specific licenced landfills being made clear. I think it is acceptable that where re-use, re-processing, recycling of the materials is possible then that is the option that will provide the best environmental solution and the sustainable solution for managing the surplus waste. I do not think it unreasonable because the quantities are large that SEPIL should pursue a number of options:

- i. Re-use of the material in connection with other major development in the area – Bord na Móna and Coillte are identified as potential developers and subject to developments Bord na Móna and Coillte are involved in taking place.
- ii. Recovery as land remediation activity. Fallagh Inert Landfill close to Belmullet Quarries in the vicinity where recovery and reprocessing of materials is possible or at Derrinnumera landfill site.
- iii. Disposal 12000 tonnes of silt material are specifically expected to require disposal. Derrinnumera is identified as the location for disposal.

The contingency plan set out in Appendix S 5.3 identifies Gormanstown and Naul as the licenced facilities that have annual capacity intake and spare void space capacity should they be required ultimately for disposal of material from the proposed development.

In questions under traffic and haul routes, Mr. Noonan confirmed that traffic volumes associated with waste disposal were considered and that this had included an assessment of the potential impact of HCV traffic through Belmullet.

Mr. Keane in his closing remarks restated that 34000m<sup>3</sup> of tunnel arisings was the figure that was likely to arise. This apparently has resulted from further analysis carried out by SEPIL on the likely quantities of waste arising.

Is the use of the Environment Management Plan a satisfactory method for detailing how waste management issues will be handled in detail during construction?

Observers were critical that such plan should be part of the E.I.S. SEPIL provided in 2009 at OH copy of typical EMP and which detailed waste management control of the construction contractor and set out the various responsibilities [DRN OH(2009) 91] and the various control standards that applied to waste disposal as they applied on the offshore pipeline pull in works at Glengad 2009.

It seems to me that the purpose of this objection about the EMP is not to inform the EIA process (because it brings no information or input) but to confuse the EIA process with the normal process of implementation of a major project.



It also seems to me that EMP is an essential part of the implementation of a major project. The EMP example provided by SEPIL in 2009 demonstrated clearly to me how it is intended to proceed should a permission be approved by ABP. I accept that an EMP cannot be fully put in place until permission consents and contractual specifications and pre-construction surveys and agreements have taken place. Yes, I am satisfied at the procedures proposed and the use of the EMP. DCENR have used the Section 40 conditions in the past to require an implementation plan be approved post consent.

### **Bundling of Storage Tanks**

SEPIL clarified the extent of bunding proposed at the Aghoos compound [DRN OH 136]. Bunding is proposed to cater for 110% capacity of each tank and the volume from a 48 hour 1/100 year storm. Stringing area, tunnel arisings area and tunnel starting pit are also bunded areas. I am satisfied that adequate plans have been included in E.I.S. to manage any tank collapse or tank spillage at Aghoos.

### **Biocide**

SEPIL clarified that biocide will not be used in hydrotest or in commissioning of the onshore pipeline or LVI.

A biocide DBNPA will be used in the umbilical tubes used to discharge treated produced water from the terminal through the onshore pipeline umbilical to discharge in accordance with the EPA revised licence at the well field. SEPIL indicated that this is biodegradable and degradable by hydrolysis with water.

## **31.5 Inspectors Conclusions**

1. I believe it should be a requirement of any permission being considered for the project that the E.M.P. contain a method statement whereby the waste for disposal be minimized as part of the Waste Management Plan.
2. I also believe that stone for disposal should be the subject of a separate agreement with Mayo County Council and rather than be disposed, the stone should be reprocessed for re-use as part of that agreement, the location and function of re-use to be part of that agreement also.
3. For the absence of any doubt on this, I do not agree that stone be left in place at the request of the landowner (as had been proposed in 2009). This would have the affect of patchwork reinstatement and would have a significant and long term impact on the visual environment. I therefore recommend that reinstatement of lands be fully carried out as part of the proposed works in accordance with details contained in the E.I.S. 2010.
4. I am satisfied with the proposals as outlined in the E.I.S. for management of waste generated during the construction project.
5. I am satisfied that the proposal to use the Environment Management Plan to detail the ongoing management of wastes is the appropriate way for this to be achieved.

## 31.6 Inspector's Recommendations

In the event that the Board decide to grant a permission for the proposed development I recommend the following conditions:

1. The surface water system for the construction site shall be redesigned to cater for a storm event of 1/100 year return frequency.

**Reason:** To prevent flooding the excavation works and to protect the water quality in Sruwaddacon Bay.

2. Conditions as proposed by the Mayo County Council submission:

*Prior to the commencement of development, the developer shall obtain the agreement of the planning authority for an Environmental Management Plan (EMP), specific to the construction of the pipeline, tunnelling and LVI sites. The EMP shall include as a minimum the following –*

- i. Management and Reporting Structure.*
- ii. Schedule of Environmental Objectives and Targets, including objectives for the minimization of suspended solids movement to surface water systems, and effective management of all silt and settlement pond flow discharges during periods of high precipitation.*
- iii. An Environmental Management Programme.*
- iv. Corrective Action Procedures.*
- v. Awareness and Training Programme.*
- vi. Communications Programme.*
- vii. Details of surface water management during construction to prevent runoff from the site onto the public roads, unnatural flooding and/or the occurrence of any deleterious matter in existing watercourses in accordance with CIRIA "Technical Guide: Control of Water Pollution from Liner Construction Projects" (C648, 2006). The developer shall implement the agreed EMP for the duration of the earthworks and construction phase of the development. On written request by the planning authority, the developer shall submit a report on any specific environmental matter or an environmental audit.*

**Reason:** *In the interest of environmental protection and the proper planning and sustainable development of the area.*

*The EMP shall be the subject of an annual review by the planning authority, following consultation with the Project Monitoring Committee. The developer shall modify the EMP in accordance with any reasonable requirement of the planning authority, at any stage.*

**Reason:** *In the interest of environmental protection and the proper planning and sustainable development of the area.*

*The EMP shall provide for monitoring of surface water, dust and noise. The monitoring shall be undertaken in accordance with the requirements of Mayo County Council and, in respect of surface water, shall be in accordance with CIRIA “Technical Guidance: Control of Water Pollution from Linear Construction Projects” (C648, 2006).*

*Any alterations to the agreed monitoring regime shall be subject to agreement with the planning authority, following consultation with the PMC. Such monitoring shall be carried out by the developer throughout the construction of the pipeline, tunnelling and LVI (to the date of commissioning of the pipeline and LVI).*

*The monitoring plan contained in the EMP shall provide details of right of access to MCC appointed staff to carry out environmental monitoring checks as required, or as requested by the PMC. Costs incurred by the planning authority in carrying out any necessary monitoring, monitoring checks, inspections and environmental audits, shall be reimbursed by the developer.*

**Reason:** *In the interest of proper environmental control during the earthworks and construction phase.*

*Results shall be submitted to the planning authority on a fortnightly basis or at other such intervals specified by the planning authority (following consultation with the Project Monitoring Committee). All results shall be made available for public inspection within seven days of receipt.*

**Reason:** *To prevent water pollution.*

3. All surface waters to be discharged from the site shall be monitored for suspended solids and any other parameter at the required frequency as determined by Mayo County Council the planning authority before discharge from the site.
4. Monitoring results shall be submitted on a weekly basis to the planning authority initially and this may be varied by agreement with the planning authority. The results shall be placed on public display by SEPIL within seven days of receipt of the results.
5. Prior to discharge all surface waters shall receive appropriate sedimentation and filtration. The details of sedimentation, filtration and attenuation proposals shall be agreed with the planning authority prior to commencement of the excavation. These details shall include maintenance routines for the sedimentation and filtration facilities.
6. The surface water from the construction site that lies within the Carrowmore Lake catchment shall be collected, attenuated and taken through silt settlement ponds before being discharged into the Leenamore River Catchment.
7. The detailed arrangements for management and monitoring the surface water referred to in Condition 6 shall be documented separately and agreed to in writing with Mayo County Council.
8. The existing surface water system that serves the applicant’s site and that discharges into the Carrowmore Lake Catchment shall be monitored initially on a daily basis and then at a frequency to be agreed with Mayo County Council for a full range of parameters to be agreed with Mayo County Council before commencement of

construction works and continuing during the construction works. The results of the monitoring to be dealt with as at Condition 4 above

**Reason:** it is necessary to put in place a full monitoring programme and control system for the surface water discharge to prevent water pollution and to protect the drinking water supply source at Carrowmore Lake.

### **Liquid Wastes**

*All tank and drum storage areas on the sites shall, as a minimum, be bunded to a volume not less than the greater of the following –*

*(b) 110% of the capacity of the largest tank or drum within the bunded area,*

*or*

*(c) 25% of the total volume of substance which could be stored within the bunded area.*

**Reason:** To prevent surface and ground water pollution.

*All fuel storage areas and cleaning areas, particularly for trucks, shall be rendered impervious to the stored or cleaned materials and shall be constructed to ensure no discharges will cause pollution to ground waters.*

**Reason:** To prevent surface and ground water pollution.

*The developer shall maintain on the sites for the duration of the construction period, oil abatement kits comprising of boom and absorbent materials. The precise nature and extent of the kits shall be agreed in writing with the planning authority prior to commencement of development.*

**Reason:** To prevent water pollution.

### **Waste Disposal**

- 1) The Applicant shall include a waste minimisation plan in the EMP for the solid waste emanating from the construction works site.
- 2) The Applicant shall enter into an agreement with Mayo County Council regarding the disposal of the estimated 62,200m<sup>3</sup> of stone from the site. The agreement shall provide for the storage and/or reprocessing if necessary of the stone for appropriate reuse.

**Reason:** To minimise waste arising from the proposed development.

*No waste material, other than material being transferred to a licenced waste facility, generated on the sites during the construction phase shall be removed off the sites without the prior agreement of the planning authority.*

*Reason:* To provide for the appropriate management of waste and in the interest of protecting the environment.

*Prior to commencement of development, the developer shall submit, and obtain the agreement of the planning authority to a plan containing details for the management of waste (and, in particular, recyclable materials) within the development, including*

*the provision of facilities for the storage, separation and collection of waste and, in particular, recyclable materials, and for the ongoing operation of these facilities*

*Reason: To provide for the appropriate management of waste and, in particular, recyclable materials, in the interest of protecting the environment.*

### **Sanitary Waste Facilities and Management**

- 1) Sanitary facilities shall be installed in the compounds and on the site of the construction works and on the site of the peat disposition area for the duration of the construction project. All waste generated from such facilities shall be disposed of by a licenced waste contractor to an appropriate approved treatment works. The facilities provided, the transportation of the sanitary waste and the disposal, shall be agreed with the planning authority, Mayo County Council.

**Reason:** In the interest of public health.

- 2) All sanitary facilities on site shall be managed effectively to ensure that no nuisance and no discharge or pollution arises from the use, operation transport and movement of these facilities to and from the site and what in operation on the site.

**Reason:** In the interest of public health

### **Tunnel Arisings**

Prior to disposal of materials from site that have derived from tunnel arisings testing shall be carried out on the materials to confirm appropriate waste disposal options.

**Reason:** To protect the environment.

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## Chapter 32 Outfall Pipe

### 32.1 ABP Request of 2/11/2009

ABP Requested that SEPIL assess the risks associated with failure of the umbilicals or services and the impacts of settlement of the stone road on the umbilicals or services.

The assessment of the ground stability risk on the surrounding ground assuming there is a rupture of the water carrying services (outfall pipe and umbilical cores which carry treated process water) within the stone road is presented in Appendix M<sub>2</sub> Section 9.

The summary conclusion is that a rupture of the outfall pipe is not considered to represent a risk of larger scale movement of the stone road or peat mass. The assessment of the impact of settlements in the stone road on the outfall pipe is presented in section Q4.1A and SEPIL (JP Kenny) conclude that the pipeline satisfies the elastic stress-based assessment criteria.

### 32.2 Inspectors Conclusions

1. The outfall pipe was considered fully in the 2009 Inspectors Report.
2. The consideration of this outfall discharge pipeline in 2009 was complete and the recommendations from that previous report are repeated below.
3. The additional analysis requested by ABP has been included in the modified E.I.S.
4. I am satisfied that no further issues arise in respect of the outfall discharge pipeline.

### 32.3 Inspector's Recommendations

In the event that the Board decide to grant permission for the proposed development I recommend the following condition

#### Outfall discharge

1. Any discharges through the outfall pipe shall be in accordance with the IPPC licence (P0738-01) (P0738-02) granted by the EPA or any revision that may be granted to such licence.

**Reason:** To ensure that an adequate system of control will apply to any such discharges.

2. The surface water discharge pipe at the LVI shall not be used for any other purpose than the discharge of surface water from the LVI site.

**Reason:** To Protect the environment and to prevent any contamination from being discharged.



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## Chapter 33 Umbilical

### 33.1 Background

The 2009 Inspectors Report is reasonably complete in so far as consideration of issues arising from assessment of the umbilicals have been dealt with in that report.

### 33.2 Response to ABP Request of 2/11/2009

Mr. O'Donnell had recommended that analysis should be carried out to verify the ability of the umbilicals to withstand settlement in the stone road. This has been done and is presented in:

- (i) Appendix M<sub>2</sub> Section 8 which analyses the worst case settlement predictions for the stone road.
- (ii) Appendix Q4.1A

The summary results of this analysis on the umbilicals, the fibre optic cables and the signal cable is stated at Q4.1A Section 6 as follows:

“The effect of settlement on the services such as outfall pipeline, umbilicals, FOC and signal cable was evaluated. These services were assessed on allowable stress, curvature, axial strain, and axial load criteria provided by vendors. The results showed that the design settlement values will not cause failure”.

I was satisfied in 2009 that failure of the umbilical and the potential resultant fire should the methanol leak and catch fire, would disrupt production but would not compromise the safety of the public or the safety of the pipeline. The above analysis was requested as part of the additional information requested by ABP. I am satisfied with the proposed umbilicals and outfall pipe, fibre optic and electrical cables as outlined in the 2010 E.I.S.

### 33.3 Other Issues Arising with the Umbilicals in the 2010 Scheme

#### 33.3.1 Spare Umbilical Outfall-Pipe and Cables in Tunnel

A 250mm / 10" 'spare duct' made from high density Polyethylene (HDPE) will be installed in the tunnel. A spare umbilical, spare electrical signal cable and a spare fibre optic cable will also be installed. These spare elements can be used as spare control elements of the pipeline system (electrical, fibre optic or umbilical lines) and water discharge pipeline in the tunnel should this ever be required. [Refer Section 4.3.1.1. E.I.S.]

A spare set of umbilicals outfall pipe and service cables is proposed to be laid within the tunnel. This is an additional specification added in the 2010 scheme. I have no issues with this. These spare services will only be laid within the tunnel and SEPIL confirmed that it is proposed to terminate these spare services at the launch pit area and reception pit area. This proposal for spare duct umbilicals and service cables seems prudent as it will provide duplication of these facilities through the tunnel. In effect this will further reduce the likelihood of an intervention pit becoming necessary in the event of failure of the services (umbilicals, cables and outfall pipe) in the tunnel area.

I am surprised however that SEPIL do not propose to complete these spare connections back to the terminal at this time. In my view this should be done for the following reasons:

1. I consider that it would be prudent to lay these spare umbilicals and services back to the terminal at this time. This would avoid any further requirement to re-establish the stone road and the requirement in the future to trench and lay such services and umbilicals to connect to the spare services and umbilicals now proposed within the tunnel.
2. Coillte have already consented to the use of their lands for the construction of the Corrib Gas Pipeline.
3. On the basis that ABP invite SEPIL to modify in accordance with 182C 5(b) the proposed onshore pipeline (2010 E.I.S.) to include the extending of these spare umbilicals and services to the terminal when such modified scheme becomes the Corrib Gas Pipeline and in my view the Coillte consent extends to the use of their lands accordingly for laying the modified pipeline as I now propose.

In the case therefore of the length of route from the launch pit of the tunnel at Aghoos back to the terminal I consider that an appropriate modification of the development and variation of the acquisition order should be carried out by ABP.

This is obviously a legal question that the Boards will need to consider.

4. At the Glengad side, the situation is different. SEPIL own the area where the reception pit is located and where as I understand it the spare umbilicals outfall pipe and cables will terminate as now proposed having been laid through the tunnel. There are three landowners between that reception pit site and the landfall site at Glengad:

Plot WL(3)002 Mrs. Kathleen Noone

Plot WL(3)003 Mr. Sean Coyle and Mrs. Teresa Coyle

Plot WL(3)004 Mrs. Edel Doherty

5. In my view, it would be prudent to lay the spare umbilicals, outfall pipe and cables through this section as far as the landfall at Glengad. This would avoid any future construction to lay such umbilicals outfall pipe or cables in this area.
6. It is necessary to consider Section 8 of the Second Schedule of Gas Act 1976:

*“8. (1) Subject to paragraph (2) of this Article, where the Minister, having complied with such of the following requirements as are appropriate, namely, the requirements of section 32 (5) (b) of this Act and the requirements of Article 7 of this Schedule, and having considered any report made to him under the said Article*

7, or in case no such report is made, any representations made or objections not withdrawn, is of the opinion that an application by the Board for an acquisition order should be granted either in whole or in part, he shall, subject to any variations or amendments to the application as he thinks proper to make, make an acquisition order as regards the right over land or any other estate or interest in land specified in the application, or in the application as so varied or amended by the Minister, and except in so far as it applies to a public right of way the acquisition order shall be made subject to —

( a ) such restrictions (if any) as the Minister thinks proper and specifies in the order, and

( b ) such other terms and conditions (if any) as the Minister thinks proper and so specifies.

(2) This Article shall not apply to any land within the deviation limits or to any right over such land.”

7. I recommend that in approving the acquisition order ABP decide to modify the order as follows:

Add the following into Paragraph 3 (2)(a) of the order:

*“The construction works shall include the construction of a spare duct, spare umbilical, spare electrical signal cable and spare fibre optic cable.”*

Add the following at the end of Paragraph 4 of the specification:

*“The construction works shall include the construction of a spare duct, spare umbilical, spare electrical signal cable and spare fibre optic cable.”*

8. In my view it will be possible to construct and install spare set of umbilicals outfall pipe and service cables within the relevant lands, i.e. 14m wide at Glengad in plots WL(3)002, WL(3)003 and WL(3)004 and 20m wide WL(3)008 (SEPIL own this) in Aghoos WL (3)009 (Coillte own this) and WL(3)010 (SEPIL own this) in Bellagelly South.

In my view there are no negative impacts involved regarding these additions to the proposed development with the exception of the use of the materials themselves. On the other side there are considerable advantages and positive impacts that will arise because these spare umbilicals and services can be brought into service in the future without further intrusive construction work.

On the basis that SEPIL have indicated a necessity and prudent provision of such spare services in the tunnel it is my view that the proper planning and sustainable

development of the area requires that the spare services be completed from terminal to landfall valve site.

### **33.4 Inspectors Recommendations**

1. ABP should decide in accordance with 185c 5(b) to invite SEPIL to modify the proposed development by including in the construction for the spare duct, spare umbilical, spare electrical signal cable, spare fibre optic cable from the terminal to the landfall valve site.
2. ABP should in deciding to approve the acquisition order vary and amend the application by insertion in para 3(2)(a) of the draft order:

*“The construction works shall include the construction of a spare duct, spare umbilical, spare electrical signal cable and spare fibre optic cable.”*

Add the following at the end of Paragraph 4 of the specification:

*“The construction works shall include the construction of a spare duct, spare umbilical, spare electrical signal cable and spare fibre optic cable.”*

**Reason:** In the interests of proper planning and sustainable development of the area.

### **33.5 ABP Request of 2/11/2009**

- (f) *Submit an analysis of the condition where the umbilical becomes severed and the control of the valves at the wellhead and subsea manifold is lost. The analysis needs to identify what conditions apply to the onshore pipeline and the risks involved in that circumstance.*

This analysis has been submitted in Appendix Q4.5 Section 3.2. SEPIL outline the impact of severance of each of the electrical power cables, communication cables, the HP and LP hydraulic fluid lines, methanol corrosion inhibitor. In their conclusion SEPIL state:

*“If the offshore umbilical or all of the onshore umbilicals are severed, the field will shut down on loss of power and hydraulics. If only one onshore umbilical is severed, a number of the wells may automatically shut down due to loss of hydraulics. The remaining wells will continue to produce at steady state within the operating envelope. Therefore it can be concluded that whether some or all of the umbilicals are severed, the pressures within the onshore and offshore pipelines will remain within their MAOPs.”*

- (h) *Submit the assessment of the potential impact of the estimated stone road settlements on the umbilical pipeline and service ducts that will also be constructed within the stone road, including an assessment of the failure due to rupture of these umbilicals or services.*

This analysis has been carried out and is included in:

- Appendix M<sub>2</sub> Section 8 ground stability risks associated with settlement of the pipeline and associated services in peat areas.
- Appendix Q4.1A sets out the analysis of the stress curvature, axial strain and axial load criteria for potential worst case scenario settlements of the stone road.
- Appendix Q4.5 Section 3 as detailed above presents impact of severing of the umbilicals.

### **33.6 Inspectors Conclusions**

1. I am satisfied that SEPIL have provided the analysis requested by ABP and that the robustness of the umbilicals, service cables and ducts have been demonstrated satisfactorily in that analysis.

### **33.7 Additional Protection by Modification of the Development Slabbing over Umbilicals**

This matter has been fully considered in Chapter 26 Security.

I am not prepared to recommend that ABP take any action with regard to the possible modification of the proposed development in this regard. SEPIL in evidence indicated that this was not necessary.

In my view, the issue is one where SEPIL may themselves be concerned at any threat to production.

This matter has also been considered under the Safety of the Pipeline in Chapter 30. In Chapter 30 it is not considered that such modification is required for the safety of the pipeline in operation. It is considered that the modification is being put forward to ABP for consideration as an issue related to potential interruption to production.

In Chapter 30 it is concluded that the safety of the public is provided by the 2010 proposed development as submitted by SEPIL. For absolute clarity on this point, in my view the slabbing protection for the umbilicals will not add any further safety control nor will it mitigate or moderate the risks to the safety of the public. Those risks have been assessed and they are acceptable.

### **33.8 Inspector's Recommendation**

My view is that ABP should not request this modification of the proposed development (slabbing to protect umbilicals).

#### **Alternative Consideration**



In the event that ABP decide to approve the proposed development and in the event that ABP wish to take a wider perspective of this issue then in my view ABP will require (a) proper details of the proposal to include engineering details, specification details, location details and construction methods; (b) proper consideration of the likely impacts of the proposed slabbing protection for the umbilicals and service cables. This should include environmental considerations and the assessment of same; (c) justification for the construction of this slabbing now and the implications for proper planning and development of the area if this slabbing is not constructed now but is required at a later time; (d) analysis of potential settlements of the slabbing and the potential for differential settlements to stress the gas pipeline itself. In such an event ABP may wish to inform SEPIL as follows:

1. The Board is not prepared to request a modification of the proposed development in relation to slabbing protection for the umbilicals under 182C 5(b) as was suggested by SEPIL at OH;
2. The Board is prepared to consider an application made under Section 146B for an alteration to be made to the development should SEPIL decide to request such alteration.

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## Chapter 34 Landslides at Dooncarton

### 34.1 Background

In my Report 2009 the issue of landslides at Dooncarton was assessed in some detail.

In his Report Mr. Conor O Donnell geotechnical consultant to the Board has examined the issues involved.

- (1) Potential damage to LVI and pipeline from landslide, Mr. O Donnell's conclusions " that the LVI and the section of pipeline at Glengad is in a low risk zone with regard to the potential impact of further landslides on Dooncarton Mountain."
- (2) Potential impact of rock excavation works on the stability of slopes on Dooncarton.

Mr. O Donnell's conclusion that vibrations from rock excavation and tunnelling are unlikely to have any significant effect on the destabilised material on the upper slopes of Dooncarton Mountain.

Both my Report 2009 and Mr. O Donnell's Report 2009 will not be repeated here but are very relevant to the assessment of the 2010 scheme and should be considered in relation to Dooncarton and the potential for landslides at Dooncarton.

### 34.2 SEPIL's Assessment on Ground Stability Dooncarton

1. SEPIL in Appendix M2 Section 7 have presented information on the assessment carried out by AGEC on the Ground Stability Risk associated with landslides originating from Dooncarton Mountain.
2. The pipeline and LVI at Glengad is largely the same in the 2010 scheme as in the 2009 scheme.

There are differences as follows

- (a) At chainage 83+835 approx the pipeline depth (minimum cover of 1.2m above pipeline at that point) begins to increase so that at chainage 83+886 (tunnel end pit location) the pipe is a minimum 5m below ground level.  
In this area the pipe passes under the watercourse channel 2 where it is proposed that concrete slabs will be placed over the pipe for added protection in this case against possible interference/damage by excavator on this watercourse or as protection against deep scour from excessive flooding down through this watercourse.
  - (b) At chainage 83+886 the pipeline enters the tunnel and the depth of cover increases substantially with a minimum depth 5.5m (1.3 times the machine OD) over the tunnel itself and the pipeline is proposed to be laid along the bottom of the tunnel.
3. The tunnel is considered separately in Chapter 35

### **34.3 Tobin's Report Dooncarton Landslides 2003**

I have again reviewed the Tobin Report 2003 prepared for Mayo County Council on the landslides at Dooncarton where it states as follows:

*“The primary cause of the event at Pollathomais was therefore exceptional rainfall, of such intensity as to overwhelm natural drainage systems in the peat and weathered rock, thereby mobilizing sections of overburden through buoyancy and gravitational forces.”*

*“Some of the residents of the area have expressed concern that previous movement of spoil laden vehicles or rockbreaking associated with civil engineering works in the area may have been a contributory factor in the event. It has been our experience of many years of measurement of the vibrational effects of heavy traffic, and rockbreaking, that the peak particle velocities (ppv's) in rock or overburden, associated with such work, fall away rapidly in time, and also with distance from the source of vibration. At distances of the order of 50m from heavily laden vehicles traveling at speed, or from a rock breaker, ppvs will have dropped to barely measureable levels, well below levels accepted for minor vibrational damage to structures. Given that the landslides commenced at distances of the order of 300m-400m from the LP1202, we can assure the Council that vibrational effects from past construction activities or related traffic were not a factor in this event. We can also be absolutely certain that bedrock geological structure played no part in this event, and the stability of bedrock following this event is not in question.”*

### **34.4 Cause of the Landslides – GSI Report on Pollatomish Landslide**

*“The underlying geology can be ruled out as the primary causal factor in triggering the landslides.*

*While geological faults occur in the area the underlying bedrock is tectonically stable. Also there are no drift deposits in which lines of weakness could have developed.*

*It is also the view of the GSI that the construction of the Radar Station on Dooncarton, the operations of Enterprise Energy Ireland, or overgrazing were not contributory factors in the occurrence of the landslides.*

*It is believed that an exceptionally heavy rainfall event combined with the condition of the peat bog and the very steep slope location resulted in this disaster occurring. During the very hot and dry summer the peat dried out considerably, it contracted somewhat in volume, and cracks developed in the peat surface and probably within the mass of the peat. This unusual physical structure of the peat meant that the rainfall could penetrate quickly to the base of the peat and generate a type of sheet flow, which would cause a slip surface to develop at the interface with the bedrock. The nature of this slip surface, as described above, suggests that this set of conditions happened very quickly creating a downslope force of considerable momentum to dislodge so much debris.”*

### 34.5 Dooncarton Landslides – Mr. O’Donnell’s 2009 Report

*“I would agree with the combined conclusions of RPS and AGEC with regard to the potential impact of future landslides at Dooncarton Mountain on the LVI and the buried gas pipeline at Glengad, i.e.:*

- *The LVI and the section of the pipeline along the Glengad headland is in a low risk zone with regard to the potential impact of landslides on Dooncarton Mountain.*
- *It is unlikely that a debris flow from a landslide on the mountain would reach the LVI or pipeline due to the topography of the area, and due to the potential offered by the berm and drainage system at the base of the steep slopes on Dooncarton Mountain.*
- *The main risk with regard to the LVI and pipeline is limited to the potential for erosion and scour in the watercourses along the route of the pipeline and there are established design measures that can be implemented to protect the pipeline from this risk.*

*The assessment carried out by RPS and AGEC is largely based on the report on the landslides produced by Tobin Consulting Engineers in 2003 rather than a recent independent inspection of the slopes. AGEC inspected the slopes in 2003 as part of the investigations into the cause of the landslides. However, I would recommend that AGEC or RPS carry out an independent inspection of the slopes during detailed design to ensure that the conclusions in the Tobin report are still valid.”*

#### **Rock Excavation – Mr. O’Donnell’s Report 2009**

*“I also agree with the opinion of RPS that vibrations generated from rock excavation at the LVI and possibly in the launch pit for the Lower Sruth Fada Conn Bay crossing are unlikely to have any significant effect on the destabilized material on the upper slopes of Dooncarton Mountain. Much of the excavation will be in the weathered rock and the rock will be removed by digging and hydraulic breaking. No rock blasting will be carried out. Vibrations generated by the rock breaking would attenuate with distance from the source so that the magnitude of the vibrations would be negligible at the destabilized material on the mountain slopes, which is more than 1 km away from the pipeline and LVI.*

*To address the concerns of local residents I would recommend that vibration monitoring be carried out at two locations at a distance of about 25 m and 50 m from the site to establish a response curve for the attenuation of vibrations generated from the rock excavation and to demonstrate that the vibrations are unlikely to have an effect on the adjacent properties or the destabilized material on the upper slopes of Dooncarton Mountain.”*

## 34.6 Observers Submissions

### Ground Stability

- Landslide Danger at Dooncarton historically
- Also due to extensive heavy work in whole area of unstable mountain landslide risk is increased
- Tunnel likely to generate vibrations and shock waves that will destabilise the steep ground
- Inadequate survey work, no seismic study in Dooncarton
- New route is closer to Dooncarton mountain than 2009 route.
- Risk due to fault lines through Dooncarton mountain
- Tunnel proposed through material of high plasticity
- What are the consequences of a debris flow hitting the LVI?
- Sufficient surveys have not been carried out on Barnacoille
- Potential that unstable deposits in Bay could exist – risk to tunnel and pipeline
- Tunnel across Caocáin and Codhlata and the soft sands there – new vibration study needed
- Landslides are a cause for concern at Dooncarton

## 34.7 Inspectors Assessment

1. *“The landslides (more than 40 occurred on Dooncarton) resulted in such flows of floodwater and overburden that it was fortunate that lives were not lost in the event”* – Tobin Report.
2. *“The exceptional conditions induced by the September 19<sup>th</sup> rainfall have lowered the threshold of weather conditions now likely to remobilise disturbed material on the mountain slopes”* – Tobin Report.
3. *“There remains therefore elevated residual risks of further landslides”* – Tobin Report.
4. I accept fully the degree of concern of the local residents that further landslides may occur.
5. I note that the Tobin Report has identified Low Risk Areas, Medium Risk Areas and High Risk Areas indicating the degree of risk to persons of injury or property damage from further landslides.
6. I note that the LVI site and pipeline route at Glengad are located in Low Risk zones.
7. I note that the reports indicate the 2003 event brought liquefied debris down onto the beach.
8. I note that Mr. O’Donnell agrees with the opinions of RPS and AGEC, and based on the detail analysis carried out by Tobins. That conclusion is that it is unlikely that debris flow from a landslide would reach the LVI or pipeline.
9. In particular I note agreement that the topography and drainage channels took debris down along streams away from the LVI site and pipeline route in the 2003 event.

10. I note that remedial works and berms have been carried out or installed by Mayo County Council and OPW to mitigate the impacts of any future landslides.
11. I am satisfied with the expert evidence that the LVI and the pipeline are located in such topography and at such distance from the Dooncarton Mountains that the proposed development (the LVI and pipeline) is not at risk from further landslides on Dooncarton Mountain.
12. SEPIL confirmed in E.I.S. and in evidence (2009 confirmed again in 2010 OH) in response to Mr. O'Donnell that no blasting of rock will take place in excavations at Glengad.
13. I note that the reception pit for the 2010 tunnel and the launch pit for the tunnel as proposed in 2009 are in the same location more or less and that the additional borehole information (Nov 2009) has been obtained from those sites.
14. I accept Mr. O'Donnell's conclusion that there will be no impact from the rock excavation on the stability of the slopes on Dooncarton Mountain.
15. Mr. O'Donnell has recommended that vibration monitoring at 25m and 50m from the rock excavation and tunnelling works be carried out. I believe this should be carried out. This will provide information that will allay the concerns of local residents but more importantly it will provide control information for the excavation activity.
16. I note the evidence of Mr. Peter Waite, ENTEC, on behalf of DCENR [Refer 30.2.3 of this report, point 20] regarding standards for thresholds of vibrations. I have decided to use the NRA standards for control of vibrations.
17. I also note evidence given by Mr. Tim Jaguttis Tunnel Specialist Consultant that the tunnel boring machine vibrations will dissipate within a short distance from the construction of the tunnel itself. Mr. O'Donnell's recommendations regarding monitoring of vibrations will provide confirmatory information which should be made available to the local monitoring group.
18. A condition is also proposed in Chapter 43 Hydrology to protect against any environmental damage at the reception pit should an extreme storm event occur.
19. I also note the topography proposed for the LVI itself. The pipeline and valves will be underground. Only the valve actuators will be above ground. The LVI compound is set down within a perimeter fence. SEPIL in evidence indicated that in the extreme situation where a debris flow did reach the LVI, that the actuators on the surface could be damaged. In such event, the valves would close and the integrity of the pipeline and valves would not be affected. Alternative actuators could be sourced and re-fitted.
20. My overall conclusion on this issue of Dooncarton Mountain and the landslide potential, is that the proposed development is satisfactory and that the proposed development does not pose a risk or exacerbate the risk of further landslides on the mountain.
21. However because of the very real consequences for Local Residents should there be further landslides I believe it must be clearly demonstrated by the applicant to the local residents that the control and monitoring of the construction works and the construction works themselves will be controlled so that there will be no vibrations or vibration effect at Dooncarton Mountains from the excavation or tunnelling works.



### 34.8 Inspectors Recommendation

I have reviewed the proposed monitoring of vibration [DRN OH 131] as submitted by SEPIL to oral hearing in response to questions. In the event that ABP decide to approve these applications I recommend the following condition:

Vibration monitoring should be carried out during construction as provided in the E.I.S. – generally and in the specific detail provided at Oral Hearing [DRN OH 25].

The monitoring shall include:

- (1) Monitoring at the Aghoos Tunnel Launch Pit Area
- (2) Monitoring at the Glengad Tunnel Reception Pit Area
- (3) At each site monitoring vibration from (a) Piling activity (b) Rock Excavation activity (c) Tunnel Boring Machine activity. In the case of the Glengad site as the TBM makes its way towards the site.
- (4) Monitor at 25m and 50m from the source on two orthogonal planes aligned parallel and perpendicular to the predominant foliation or schistosity of the rock or as close to parallel and perpendicular as may be practicable.
- (5) The monitoring should serve to characterize the site specific ground response to these construction activities and shall provide verification data for review of the model predicted vibrations.
- (6) An interpretative report and the data of the monitoring activity to be provided to Mayo County Council and to the PMC and published via web in accordance with monitoring procedures established.
- (7) Vibration shall not exceed the standards set out in NRA Guidelines for Treatment of Noise and Vibration in National Road Schemes as follows:  
Allowable vibration velocity (PPV) at the closest part of any property to the source of vibration at a frequency of  

Less than 10Hz	For all vibrations >10Hz
8 mm/sec	12.55 mm/sec

**Reason:** This is necessary to provide control on vibrations and to provide control information on the dissipation of vibration and to ensure there is no impact arising from such excavation works.

## Chapter 35 The Tunnel Crossing

### 35.1 Introduction

The 2009 E.I.S. included a lower crossing chainage 83+914 to chainage 84+507 (2009 chainages) and an upper crossing chainage 88+517 to chainage 89+555.

The 2010 E.I.S. for the modified development proposes a 4.9Km tunnel, 4.2Km of which will be located under and along Sruth Fada Conn Bay. This tunnel will be a 4.2m diameter segment lined tunnel.

The 2010 proposed tunnel is one of the substantial modifications to the proposed development arising from the applicants SEPILs response to ABP letter of 2/11/2009

The 2010 tunnel differs from the 2009 tunnels (lower and upper crossings) in a number of important aspects.

- (a) The tunnel is longer, larger in diameter, located at a greater depth,
- (b) The tunnel will be constructed using a TBM but with full manned entry and segment lined and grouted in place.
- (c) The tunnel will take 15 months approximately to construct on a continuous 24 hour 7 day week basis. 11m per day is the expected average rate of tunnel construction. Tunnel segments are 1.2m long and the TBM is expected to operate approximately 20 minutes within each hour.
- (d) Tunnel construction, pipe lay and tunnel grouting will be located/centred at Aghoos away from residential area of Pollathomas, Glengad.
- (e) The segmented lined tunnel because of its size and construction methodology is less likely to require the construction of an intervention pit than the 2009 tunnel crossings (smaller unmanned tunnels where boulders could have necessitated intervention pits), indeed SEPIL indicate intervention pits are not expected at all.

In my first report (on the 2009 E.I.S.) Chapter 35 I noted the conclusions of Mr. Conor O'Donnell the geologist appointed by ABP to assist me as follows.

“Mr. O'Donnell has considered the proposed tunneling methods and he has clarified the issue of potential scour particularly in the lower crossing. Mr. O'Donnell has accepted the mitigation measures for scour (at intervention pits) as set out by Mr. Wilson.”

In my first report (on the 2009 E.I.S.) Chapter 35 I also noted the conclusions of Mr. Stephen O'Sullivan, the senior planner appointed by ABP to assist me as follows

“Mr. O'Sullivan has considered the impacts of the proposed tunnels on the Blacksod Broadhaven Bay SPA. He concludes that *“the works envisaged would not have a significant impact upon birds, fish, marine mammals or other flora or fauna or habitats in the Bay”*.”

## 35.2 SEPIL Proposed Tunnel Construction Method

Evidence of Mr. Tim Jaquittis, de la Motte and Partner GmbH

1. de la Motte and Partner GmbH is an engineering company focussing on special pipeline construction including landfalls and utility tunnels.
2. Mr. Jaquittis has worked since 2006 on the Emstunnel project between Germany and Holland where a 4km long tunnel, 3m internal diameter segment lined tunnel has been constructed and completed in July 2010 for the installation of a 1.2m(48") diameter, 80barg high pressure gas transmission pipeline. 3.9m internal diameter is proposed for Sruth Fada Conn Bay. Mr. Jaquittis has been involved with Corrib Scheme since 2007 and assisted SEPIL in preparation of the tunnel proposals for the 2009 route.
3. Mr. Jaquittis in his brief of evidence outlined how obstructions to the tunnelling were proposed to be handled from within the tunnel – high strength rock, highly fractured rock, boulders, weak soil layers, artificial objects, machinery breakdown. He indicated that these obstructions could all be handled from within the TBM itself. However an intervention pit cannot be ruled out. Such a pit would require to be 12m x 15m in size to create a safe access or to completely recover the TBM.

### 35.2.1 Bentonite Drilling Fluid

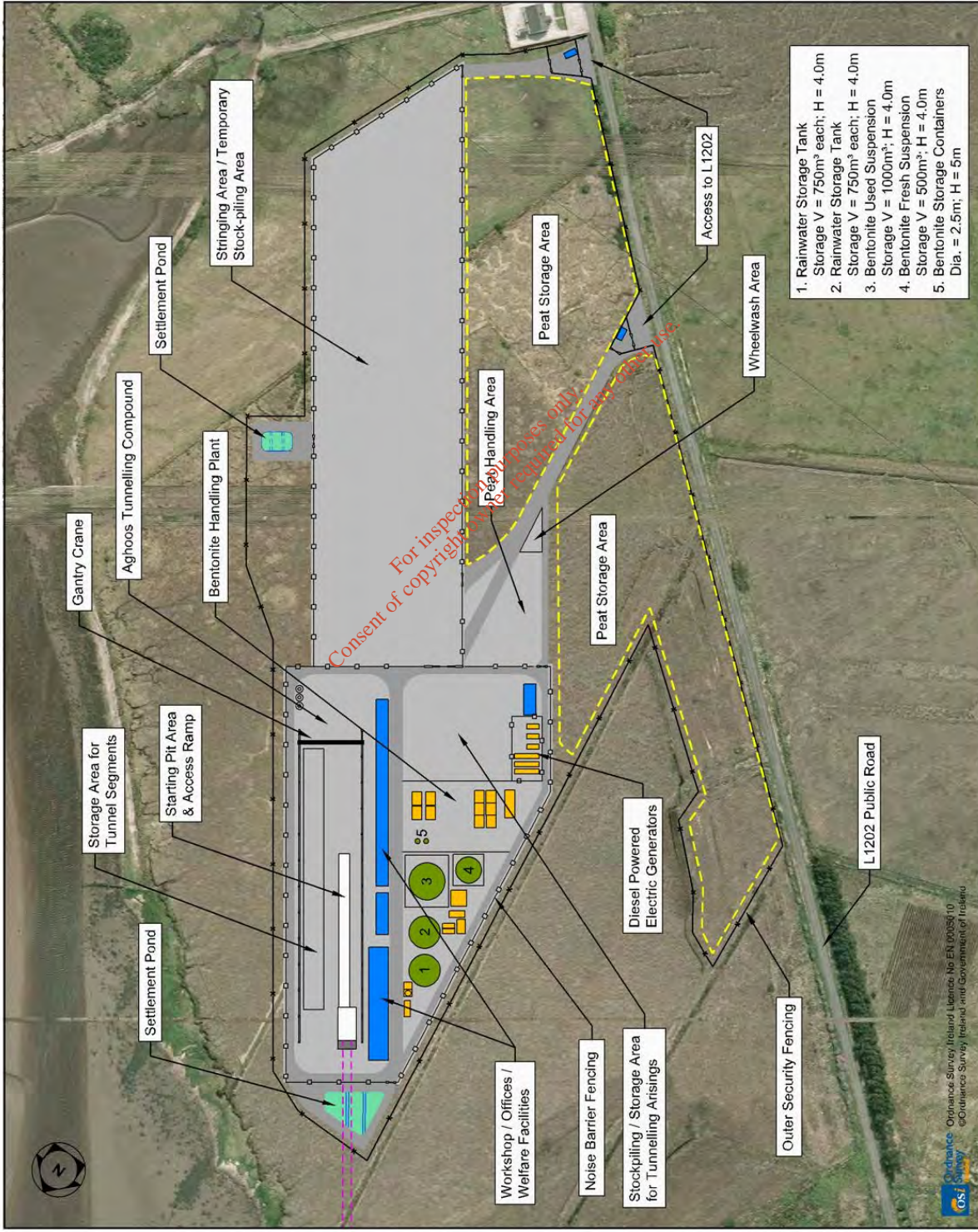
Approximately 150m<sup>3</sup> per day will be consumed at the TBM ground interface, removed as waste with the soil, or removed and replaced with fresh slurry mix. The Bentonite mix removed will be passed through a centrifuge and the cake will be pressured in a filter press. The liquid will be treated at an onsite water treatment system and will then be disposed at an authorised facility. The cake will be disposed at a licenced facility.

### 35.2.2 Aghoos Tunnelling Compound

This will be 24000m<sup>2</sup> approximately with a stringing area as large again. The E.I.S. describes the main equipment and facilities required at the compound but the final details of the plant may vary depending on the contractor selected for the works. These are shown on Figure 5.7 attached.

SEPIL provided evidence (22<sup>nd</sup> September 17.32) regarding the proposed size of the tunnel. The issues involved were the length of the tunnel, the duct size for ventilation, the need to operate two locomotives to move trains of materials forwards and trains backward this required the passing space in the tunnel, pumps would be required at intervals and room would be required for these pumps beside the railway system. It was further indicated that boring the tunnel in the sediments in the Bay provided a shorter construction period. Construction in rock could take up to 36 months and would require additional retooling of the TBM by manpower working under compressed air within the face of the TBM which increased the risks for the workers there. It was clearly stated by SEPIL that it is not intended to put further pipes through this tunnel in future.





The compound will contain:

- Large gantry crane at the launch pit
- 4 large storage tanks for water, bentonite, used bentonite
- Settlement Lagoon for surface water from the compound and to provide settle out time before discharge
- Power generators 3No-2@1MW, 1@0.5MW
- Bentonite handling plant, Bentonite separator
- Grout silos – grout will be mixed and batched on site and sent through the tunnel on containers via the railway
- Storage areas
- Bentonite silos
- Workshop
- Office and welfare facilities

It is proposed to construct a 3m high, non transparent, noise barrier around the site which is also intended to screen the works. This will be installed following completion of the stone placement works.

It is proposed to install a surface water management system comprising a bypass separator for hydrocarbon removal, a settlement lagoon and a filtration system to manage the run off and drainage system from the site.

The compound will be constructed in a manner similar to the stone road construction except that up to 1m of peat will be left in situ above the mineral soil and into which the stone will be placed.

### 35.2.3 Stringing Area

This will be constructed in a manner similar to the tunnelling compound and it is proposed to use 11,000m<sup>3</sup> of tunnel arisings in this construction. A second exit onto the L1202 is proposed from the eastern side of the stringing area and a one way system of access/exit is proposed once the two exit locations have been constructed.

#### **The main issues that arise at the Aghoos compound relate to:**

1. Peat stability during the establishment of the compound and during the site restoration works.
2. The footprint of the compound in environment at Aghoos.
3. Hydrology and management of all surface water in the collection system and prior to discharge.
4. Pollution or contamination of surface water from Bentonite, cement, spillages of fuel, other spillages.
5. The protection of residential amenity at Aghoos 24 hour, 7 day working pattern and the management of nuisance arising from that.

6. Traffic management and road safety at entrances.
7. Haulage and management of vehicles to prevent nuisance and hazard from dust, site spoil on roads, potential spillage on roads.
8. Removal and disposal of liquid waste from Bentonite filter press, Bentonite cake from filter press, other Bentonite covered soil/material, wastes from site facilities, removal of other liquid wastes.
9. Bulk movement of peat to Srahmore and bulk movement of wastes from tunnelling and bulk movement of stone at reinstatement stage of the programme.
10. Visual impact of the compound.
11. Noise from generators, bentonite separator, other equipment, construction activity for the tunnel construction.
12. Vibration and controls on vibration
13. Lighting.
14. Air Quality.

These issues have been addressed throughout the Report in various chapters dealing with the issues.

**The main issues that arise in relation to the tunnel proposed:**

**Issue 1:** Alternatives considered – route and construction methodology

*Response:* Mr. Butler in his brief of evidence [DRN OH2] outlined the alternative routes considered and the alternative methods considered for construction. This issue has been fully considered in Chapter 45 Route Selection. I am satisfied that the route selected is one which respects the community concerns regarding proximity, distance to dwellings. I am satisfied that the construction methods chosen (tunnel, one direction, Aghoos) has a profound effect on reducing the impacts of 4.9km of construction in total. I believe the best route has been selected and I see no reason why the proposed tunnel should not be approved.

**Issue 2:** Is the methodology for construction satisfactory?

*Response:* I am satisfied that SEPIL have demonstrated that the segment lined tunnel with the pipeline laid and grouted in place is a satisfactory method for construction of pipeline under Sruth Fada Conn Bay.

**Issue 3:** Potential for settlement of tunnel and the impact on the pipeline of any settlements.

*Response:* SEPIL have indicated the settlements will come in the boring of the tunnel with the weight of the TBM the main factor. SEPIL have indicated that once the segments are constructed and grouted in place behind the TBM there will be very little settlements as the empty tunnel is buoyant and the grouted tunnel is similar in density to the sands/gravels through which the tunnel is bored. Mr. Jacuttis demonstrated that on the Ems tunnel project 4km long similar method was used. This latter tunnel is now completed satisfactorily. SEPIL also demonstrated for Mr. Wright that the initial stress analysis of the pipeline in the grouted tunnel indicates that the stresses are within the allowable



stresses. These will be verified by SEPIL when the final design and pipelaying methods have been agreed with the contractor involved. I am satisfied on these matters with the evidence presented.

**Issue 4:** Impacts on Bay with regard to Marine and Fresh Water Environments.

*Response:* This has been examined, Mr. O’Sullivan has concluded that the proposed development is satisfactory and that impacts on the natural environment are acceptable.

**Issue 5:** Impacts on Bay with regard to potential intervention pit, pollution from break-out Bentonite cement grout potential collapse into tunnel.

*Response:* I have accepted that an intervention pit is an unlikely event but that it cannot be ruled out. In the event that it becomes necessary then there will be an impact on the Bay. The impact will be local and temporary and the Bay will recover.

**Issue 6:** Vibrations – structural impacts on buildings, ground borne vibrations impact on Dooncarton, impact on water body in Bay.

*Response:* The potential impacts of vibrations have been considered. IN regard to Dooncarton Mountain it is not considered that any impacts on the stability of the mountain will arise from vibrations due to traffic or rock excavation or TBM action.

A monitoring system has been proposed by SEPIL which will control vibrations at properties along the route.

I have proposed a condition to monitor the activity of the TBM and to control the limits of vibrations arising from the proposed development.

**Issue 7:** Noise – Marine mammal environment, other noise impacts

*Response:* I am satisfied on the basis of the evidence produced that the character of the noise in the Bay will not impact in a manner that is unacceptable with fish life and marine mammals present. Mr. O’Sullivan has examined this issue and is also satisfied that the impacts will be acceptable.

I accept that noise at Glengad and Aghoos have the potential to impact on residential amenity. I have proposed a condition to limit the levels of noise emanating from these sites.

**Issue 8:** Impacts on above ground ecology.

*Response:* The location of the Aghoos Compound outside the Natura 2000 sites is an important factor. Mr. O’Sullivan has considered this. I accept the size of the Aghoos Compound and Stringing Area is very large. However, the terrain all round the Aghoos Compound is similar. It is proposed to restore the Aghoos site and expertise is proposed that will focus on revegetation measures to limit the potential for the peat lands to drain. There will be an impact, the site will take time – 7 years has been discussed to regenerate the species. Mr. O’Sullivan in his report concludes that the proposed development would not

have a significant adverse impact on blanket bog habitats. I accept that there will be an impact but the peat lands will recover and the overall impact on the peat lands and which supports local ecology will not be significant.

**Issue 9:** Long term impacts of grouted tunnel underneath the Bay.

*Response:* The depth of the tunnel and the method of construction whereby the tunnel is filled with grout lead me to conclude there should be little or no impact long term from this tunnel under Sruth Fada Conn Bay.

**Issue 10:** Impacts on residential amenity from noise/lights/construction 24/7 at Aghoos.

*Response:* These have been considered under each heading safety, traffic, proper planning and development, environment, noise, lights, visual amenity. It is not possible to construct a project of this magnitude without impacting on the residential amenity of the area. It is also clear that the lack of community trust for SEPIL when combined with the protest actions of those against the project that local residents bear the brunt of the construction activity and any security related activity.

Overall, the 2010 tunnel proposal has a profound impact on reducing these impacts. Provided the impacts of noise and lighting can be controlled at Glengad and Aghoos sites I am satisfied that otherwise the impacts on residential amenity will not be at a level that will constitute an unacceptable intrusion on residents in the area. I have proposed conditions to control the impacts of the proposed development on the residential amenity of the area and I am confident that noise and lighting can be controlled at Glengad and Aghoos sites.

**Issue 11:** The footprint of the tunnel during construction and during operation.

*Response:* The footprint of the tunnel itself up underneath the Bay, as set out in the E.I.S. and in all the evidence, will be light. Indeed because an intervention pit is not expected and because activity on the surface in the Bay is not part of the proposed development I am satisfied that the footprint will be light.

In the operational phase I expect only monitoring activity will be involved at period intervals. I expect such monitoring will be a small and light footprint and will not affect the amenity of the area or the ecological value of the area in any way.

### **Lighting**

The consideration of lighting at Aghoos compound during tunnel construction is shown in Figure 1.5 in Appendix I and this is also considered in Chapter 5, Chapter 10 and Appendix J<sub>1</sub> of the EIS.

Three levels of light output are proposed; 400 watt floodlights at tunnel launch pit area, 250 watt floodlights at stringing area and in the tank compound and storage and equipment areas

and 100 watt roadlights on the access and circulation road areas. The road access/exit locations will be lit up at night.

SEPIL have estimated that light spillage at 25m outside the compound will be less than 1 lux and that no measurable light spillage will occur at the shore line on Sruth Fada Conn Bay.

### **Mitigation Proposed**

1. Lighting will be switched off when not required.
2. Lanterns will be selected for light control and containment performance.
3. Lighting will be directed inwards and baffle plates will be fitted behind lights on site perimeter.
4. Surfaces within the compound will be of a dark colour where possible.
5. Green lighting will be used on cranes/high structures.
6. Perimeter fencing will be non-transparent to reduce light spread.

Lighting at Glengad will not be required for general works but may be required occasionally. In practice while the onshore pipeline is proposed to be constructed at Glengad in normal working hours the works associated with commissioning of an offshore pipeline and nitrogen use in that process will be concentrated at Glengad as will the works associated with pulling in the umbilical for offshore pipeline programmed for 2011. The works at the Glengad reception out for the tunnel construction will run over a 24 hour basis and the commissioning work of the LVI itself is, I expect, likely to be a continuous operation potentially over 36 hours. There will therefore be night lighting in use on such occasions at Glengad.

There will also be a requirement for lighting at night in the Glengad area in the event that protest activity is, or threatens to become, a danger to Health and Safety arrangements on either compound site or along the pipeline route at Glengad.

SEPIL conclude that the risk of lighting as a potential cause of significant disturbance to birds in the zone of influence of the compounds would be considered low.

### **Observers Concerns**

Observers expressed concern that light usage at Glengad in the past had caused floodlight spillage directly into homes there.

I accept that this evidence is representative of the potential impact from lighting at Glengad and accordingly I recommend conditions below to monitor and control night lighting in use should this be required at Glengad and at the Aghoos Compound.

## **35.3 Observers Submissions**

The following submission summary points from observers are set down for consideration of the Board. There is some repetition but as the tunnel is the major modification proposed, I believe it is important to get a full understanding of objections put forward.

**Issue 1:** Concern that a geological fault extending to Ballygalass Lighthouse and the strong currents and areas of deep holes in Sruth Fada Conn may not be identified sufficiently in site investigation work.

**Response:** I note that GSI has indicated that while there are faults in the area that the underlying bedrock is tectonically stable. I have examined the geotechnical information provided and I note the following:

- i. The modified route through the Bay is the third route for which approval has been sought and which has been the subject of detailed site investigation considerations – 2002 route, 2009 route, 2010 modified route through the Bay.
- ii. In course of the 2009 route consideration crossings within the Bay were proposed at lower crossing at Glengad to a launch pit located adjacent to the 2010 launch pit. In the 2009 also considerations the upper crossing at Aghoos was proposed to be launched from a launch pit adjacent to that proposed as part of the 2010 scheme.
- iii. In the 2009 scheme as proposed section details of alternative routes to the upper crossing were considered as part of that E.I.S. These sections extended through approximately the upper half of the Bay. Refer to section C, as the chosen upper crossing (2009) and Section B and Section C provided in that E.I.S. (2009).
- iv. The two site investigation reports submitted at OH contain useful data in the consideration of the proposed development. It is correct that once such data became available that a copy was provided for the assistance of ABP in carrying out the assessment of the project.
- v. In my view, the additional data provides information that is supplementary to the significant amount of data previously obtained and which is contained in the 2010 E.I.S. as submitted on 31/05/2010.
- vi. In my view ABP has sufficient information available regarding the geological conditions through which it is proposed to construct the tunnel in order to conduct the E.I.A.
- vii. It was my preliminary view at the OH that the additional geotechnical information was considerable both in volume and extent because it extends the length of the Bay. I was satisfied that sufficient time was allowed for the volume of material to be considered and for any submissions that were required to be made at the OH.
- viii. It is now my considered view, having had the opportunity to review the material submitted in detail, the additional data provided can be accepted as supplementary data without a requirement for the procedures of public notice envisaged by Section 182c(8) of the S.I. Act 2006 to be invoked. It is also my considered view that

adequate opportunity was afforded to the general public to consider this supplementary data and make submissions as they required at OH.

Accordingly it is my recommendation to the Board that this supplementary data on site investigations in Sruth Fada Conn does not require a further round of public notice and consultation.

- ix. The EPA regard sufficiency of data as when there is enough data and information upon which to base a decision.

I am satisfied that the evidence presented in terms of the geology and site investigation in the Bay is satisfactory. I am also satisfied that the evidence provided and the survey and modeling of the tidal and current conditions in the Bay is satisfactory. The concern regarding the possible influence of tunnelling on the Dooncarton Mountain and the potential for landslides has been considered fully in 2009 report and in Chapter 34 of this report. In my view the monitoring condition proposed for vibrations will provide a satisfactory control that vibrations will not cause or contribute to landslides there.

**Issue 2:** The site investigation ongoing in the Sruth Fada Conn Bay and cSAC is considered scandalous, and a lack of integrity in preserving the environment.

**Response:** The foreshore licence granted for the site investigations is outside of my remit from ABP. The foreshore licence was issued by DEHLG on 11/6/2010.

**Issue 3:** The tunnel construction is likely to generate vibrations and shock waves that could induce bogslide/ landslide on the adjacent steeply inclined landscape. The tunnel at 4 m seems overdesigned to accommodate a pipe of 0.5 m.

**Response:** The size of the tunnel has been explained by Mr. Butler and Mr. Jaquittis and relates to the length of tunnel and the man power and equipment required within the tunnel for the safe construction of the tunnel at that length. I accept the position that it is not intended that other pipelines will be laid through this tunnel. I see no evidence that this may happen or may become a future option. In fact because the tunnel is proposed to be fully grouted I believe this concern is not a real issue. The condition that I have proposed to control vibrations has already been discussed.

**Issue 4:** The modification brings the section of the project within Sruth Fada Conn Bay into the jurisdiction of Government.

**Response:** This concern is that in some way a part of the proposed development will not be properly assessed. In these applications the impacts of the tunnel proposed and the impacts of the proposed development as a whole are being assessed. Because the tunnel itself (below HWM up through the Bay) is in the foreshore area, legislation prescribes that a foreshore licence is required.

**Issue 5:** The tunnel where it goes across from Cnocáin a Chodlata Rosspport is under the hill of notable instability. This is cause of concern. A new set of vibration studies is required to consider the different materials and multiple interfaces

involved. Concern is expressed that some interference with the Tidal Flow in Sruth Fada Conn Bay will lead to unknown changes there.

**Response:** As outlined, I am satisfied with the information provided by the applicant. I am satisfied that the tunnel construction proposed can be carried out without the necessity for an intervention pit. Evidence was provided [DRN OH 159] by Mr. Monaghan regarding a tunnel being bored in Canada where subsidence occurred and an intervention pit was necessary. Mr. Jaquittis the tunnel consultant responded that an improved method of TBM is being proposed in the Bay that will involve the segment linings being constructed within the protection of the tail of the TBM. This method provides additional assurance against subsidence at the tail of the TBM as happened in the Canada incident. I was satisfied that all the evidence presented enabled me to arrive at the conclusion that a reception pit is most unlikely to be required.

**Issue 6:** How can it be said that 26 months construction work on tunnel and pipeline would not “*seriously injure the residential amenities of the area and the development potential of lands in the designated rural settlement of Rossport, Glengad, Pollathomais, Aghoose, Leenamore, Bellanaboy and other townlands?*”

**Response:** In my view the decision to propose a tunnel under the Bay, the location of the tunneling compound at Aghoose and the adoption of a reasonable contract period of 26 months all these factors have had a profound effect on reducing the impact of the proposed development on the residential amenity of the area.

**Issue 7:** Landslides – Reference is made to The Tobin Report carried out by Mayo County Council on the 19<sup>th</sup> September 2003 following 40 separate landslides around Dooncarton. The report states there is “*elevated residual risks of further landslides of material*”. We view AGECC assertion that “*it is highly unlikely that a debris flow on the open slope would reach the pipeline route or landfall valve installation*”, as not particularly comforting.

**Response:** The landslides issue has been dealt with in Chapter 34.

**Issue 8:** The proposed development poses unacceptable risks to habitats and species in two cSAC’s and one pSPA. In particular the Glenamoy Bog Complex cSAC covers the entire route (in the bay). This is an internationally important area of lowland Atlantic bog with two Annex 1 habitats and 6 Annex 1 bird species. The LVI will be located within this cSAC as well as the tunnel. The Broadhaven Bay pSPA includes Sruth Fada Conn Bay. Broadhaven Bay candidate cSAC borders the mouth of Sruth Fada Conn Bay. It is contended that Ireland has a poor record of protecting the habitats and of protecting wild birds and that this has been confirmed by decisions of the European Court of Justice

**Response:** Mr. O’Sullivan has considered the impacts of the proposed development on the natural environment and has concluded that the project would not affect the integrity of the Natura 2000 sites. Mr. O’Sullivan’s Report concludes that the impact of the modified proposed development



would not require a refusal of approval or substantial alterations to the development.

I accept fully Mr. O'Sullivan's conclusion. As outlined in this report, the tunnel proposal has a profound effect on reducing the impact of this development on the natural environment.

**Issue 9:**

SEPIL have applied for a foreshore licence for the construction of intervention pits in the bay. In the EIS they claim that these are highly unlikely to be needed but admit that if they are used they will damage the integrity of the estuary. ABP should not grant SEPIL permission for any intervention pits as the likelihood that they will damage the integrity of the SPA is too high.

The submission refers to SEPILs own reduced route evaluation matrix (June 2009) where it states: - the potential impact on habitat and species of conservation value/environmentally designated areas is **medium/high** as a long section is within Sruth Fada Conn Bay/Glenamoy complex. It also refers to the potential impact on fauna, and potential impact on salt marsh will be **moderate-significant**. An Taisce also raised this issue.

**Response:** The consideration of the foreshore licence is outside my remit from ABP.

*Intervention Pit:* An Taisce contend that should an intervention pit be necessary it will be subject to agreement of NPWS. In effect An Taisce argue this is a post consent consent and therefore not legally permissible as it has an implication that permission was not granted for an intervention pit.

**Response:** The intervention pit proposal was discussed in some detail at the 2009 OH in light of the factors that would have necessitated such an intervention on the smaller tunnels proposed at that time. These factors were more likely than any factors that may cause requirement for an intervention pit in the 2010 modified proposed development.

The 2010 modified development of a segmented lined tunnel is unlikely to require an intervention pit. This was outlined in some detail by SEPIL (Mr. Jaquittis). I accept SEPIL's position on this. Nevertheless this assessment of these applications has been conducted on the basis that an intervention pit may be necessary not just in the construction phase but at some time it may be necessary to have an intervention pit during the operating phase of the development. Details of the pit were provided in the E.I.S. itself and in evidence Chapter 5 Section 5.5.1.3 of E.I.S.

It is expected that an intervention pit would be open for 8 weeks and would be approximately 25m x 15m size or less 15m x 12m.

In the construction phase obstacles will be removed within the intervention pit on an underwater basis. The addendum outlines the potential impacts as loss of sediments, noise from piling and construction, noise and possible construction spills, potential scour around the pit, release of sediments/bentonite when recovering obstruction, loss of habitat at Aghoos temporary jetty. It is outlined that mitigation measures are proposed and that

details of the refined operational strategy will be produced in consultation with NPWS prior to commencement.

I am satisfied that this intervention pit is not a planned activity, rather it is an unplanned and unlikely activity. I am satisfied that should an intervention pit become necessary there will be an impact on Sruth Fada Conn Bay. The impact will be local to the pit and the area will recover. As the location may be anywhere along the length of the tunnel, I accept that details of the actual pit can realistically only be reviewed when the location, timing and circumstances that give rise to the pit become known.

I am satisfied that sufficient information is available to enable an assessment to be made now of the potential impacts of such a pit [DRN OH 8] [DRN OH 80]. I say this because the size, the duration expected, the means to access the pit, the type of construction are known and because details have been provided regarding the methods proposed – underwater removal of blockage, silts excavated will be taken to Aghoos and stored. In this knowledge on the basis that local impact at the site will be (1) the site will be restored on completion, (2) the works method when determined will be agreed with NPWS and will include the mitigation measures outlined. I am satisfied that an intervention pit:

- (1) Should be avoided. This is what is proposed using segmented lined tunnel.
- (2) Alternative options should be tried to resolve any problem. This is what is proposed. The manned construction within the tunnel allows for such alternative options working under compressed air. The TBM Design will allow for such alternative options to be used.
- (3) I am impressed at the experience of Mr. Jaquittis and his indication of 30 years experience of segment lined tunnels without an intervention pit.
- (4) I acknowledge information submitted by Mr. Monaghan concerning the collapse through the rear of the TBM in an incident (Canada). I note a different type TBM is proposed here. The TBM specification will be able to handle the ground conditions in the Bay.
- (5) In the operational phase SEPIL have outlined a feasible option of threading a smaller pipe through the 20" pipe should there be a problem with the 20" pipe.

In all these circumstances and noting the size of the pit proposed and the duration of works proposed, I find that the proposed development which may include an intervention pit is acceptable. I believe the environmental risk is there but that it has been overstated by observers. The NPWS have also considered that an intervention pit may be required. They have not raised objection to the proposed development. Mr. O'Sullivan has considered the intervention pit in his assessment of the natural environmental impacts and he has concluded that the applicant's statement that the tunnelling method

proposed made it unlikely that an intervention pit would arise was soundly based and acceptable.

**Issue 10:** The submission refers to archaeological facts of Michael O'Connell from his article; Early Environment and the First Settlers. The article indicates that the Sruth Fada Conn estuary was a prime site for Mesolithic settlement. The submission feels that the principle objective of the developer is to complete this project in a way they see fit come hell or high water. The community's main concern has always been the health and safety of themselves and their environment. They feel that the archaeological degradation of their environment is not an acceptable compromise to achieve this goal. Glengad and Aughoose, the two sites with recorded archaeological monuments are to be the main compounds of construction for the proposed new route.

**Response:** I accept the position that by tunnelling under the Bay the archaeology of the Bay itself will be undisturbed. It may be that some archaeological material will be uncovered in the tunnel excavation. In such event proposals have been set out for examination of the wastes arising from tunnel construction by archaeologist. At the depth proposed for the tunnel it is more likely that little will be found in my view. As I have indicated I do not see archaeology as a major issue of concern in this development. The proposed development does provide for archaeological monitoring. The proposed development does also provide for deviation in the route. Such deviation potential has been provided to cover any possible archaeology find in the direct route. I am satisfied as are NPWS at SEPIL's proposals and an appropriate condition on monitoring under the supervision of NPWS is proposed.

**Issue 11:** Concern is expressed at the tunnel route moving closer to Dooncarton Hill, which is considered very fragile and subject to inclement weather. The Bay was formerly a forest and there are strong currents in the Bay. Tunnelling will be difficult due to the tree roots. The tunnel construction will cause silt to rise and choke fish and marine life including otters. The currents will eventually affect any tunnelling. Atlantic Salmon, Golden Plover Otters and Seals will be effected.

**Response:** In regard to the impacts of the tunnel and vibrations on silts and the impact on marine environment fish, otters, etc. I note Mr. Kelly NPWS was satisfied that the TBM would not impact on the marine environment, that species would be affected temporarily in the top 5-10cm of the bed of the Bay but that as the TBM moved forward the effects would diminish and he was satisfied that such impacts were of temporary nature and that the area would recover. The Inland Fisheries had concerns regarding potential polluting material entering the water however subject to conditions to control such potential pollution, Inland Fisheries Ireland were satisfied with the development as proposed. I do not accept that (and no evidence has been put forward to explain why) Atlantic Salmon, Golden Plover, otters and seals will be impacted by the tunnel proposed. Mr. O'Sullivan has considered the

impacts of the proposed development on the natural environment and has concluded that the project would not affect the integrity of the Natura 2000 sites. Mr. O'Sullivan's Report concludes that the impact of the modified proposed development would not require a refusal of approval or substantial alterations to the development.

**Issue 12:** A significant proportion of the entire pipeline route has not been physically surveyed and the associated environmental impacts cannot be predicted with any accuracy.

**Response:** See my response to Concern 1 above.

**Issue 13:** Concern that the results of relevant survey work are not available and will not be available until October 2010. It is contended that proper planning and sustainable development should require that if it is necessary to survey within a cSAC and pSPA then those results should be part of the planning application.

**Response:** This concern needs to be considered. In reality a significant level of detail regarding the site for the proposed development had been provided in the E.I.S. and in the additional material, including the site investigations data from the Bay provided at OH. I have considered this information, Mr. O'Sullivan in his report has considered the information on the natural environment and the likely impacts of the development on the Natura 2000 sites. The information provided is in fact part of these applications. I do not accept the contention that there is a deficit somehow in the level and detail of the information provided. In my experience, and largely because this onshore pipeline development has been proposed over three routes, the level extent and different surveys over the years for the site of the onshore pipeline provide a large and satisfactory volume of data on which to base the assessment of these applications more than would normally be provided for a linear infrastructure development.

**Issue 14:** Mr. Tony McGrath lives adjacent to Sruth Fada Conn Bay separated only by the road from Aghoos to Glengad and by some family land between that road and the seashore. Mr. McGrath has a license from the Department of Fisheries for the cultivation of oysters in Sruth Fada Conn Bay adjacent to the line now being taken by the Applicant (SEPIL) for exploratory boring in connection with the application to put the pipeline under the Bay.

Mr. McGrath is most concerned that his oysters beds (shown on a map attached with submission) will be adversely affected by the proposed operations.

The submission refers to Mr. McGrath's concerns that any disturbance to the sand and mud in the course of tunnelling operations may adversely impact the bed of the Bay and seriously affect his oysters. The oysters are filter feeders and quite apart from direct risk of destruction of the oysters, their marketability and their chances of thriving could be drastically affected for periods of time by excessive sand in the water.

**Response:** I accept the evidence from Mr. Kelly NPWS that disturbance caused by the TBM will have the effect of inducing defensive responses from species such as the oysters in Mr. McGrath's licenced oyster cultivation area . Mr. Kelly indicated that once the TBM has moved forward the species will return to normal activity. In looking at Mr. McGrath's mapped licences as I see it the tunnel will not travel under the licenced area. The area within the Bay for deviation limits is 100m wide. It appears to me that this area while it comes near the mapped licences it will not cover the licenced area. This is my own view and was not verified at OH however I am reasonably satisfied that will be the situation. In effect then the line of the tunnel will be approximately 50m from the licences. I accept that should an intervention pit be necessary in the area of Mr. McGrath's oyster beds then an impact would be more likely. I am satisfied that an intervention pit on the overall tunnel development is an unlikely event. I am also conscious of the evidence provided by the Foreshore Section of DEHLG and no objection has been raised by that section to the proposed tunnel development. No objection has been raised by Department of Agriculture Fisheries and Food. I therefore conclude that there should be no impact on Mr. McGrath's oyster beds from the proposed development.

**Issue 15:**

It is believed that the development is highly detrimental to the ecology and archaeology of the entire Sruth Fada Conn Bay area and that there are suitable alternatives.

The route is still undefined in a 100m wide corridor. The definition of the route awaits the results of the borehole site investigation.

Mr. Naughton is a qualified engineering geologist. Using diagrams Mr. Naughton has shown how unstable deposits could exist where the proposed pipeline route is located and any future movement could overstress the pipeline.

Concern is expressed that fault lines trending directly perpendicular to the pipeline and Dooncarton which is steeply sloping could cause risk to the pipeline.

Was a baseline study of the Bay carried out prior to the 2003 landslide?

Why did Shell previously rule out a tunnel on technical grounds?

It is considered that the examples and diagrams presented show a plausible and serious threat exists and a potential catastrophic occurrence is possible in the area.

It is considered that the Bedrock Geology and Quaternary Geology is not mapped in any great detail. It is considered that the schist and psammite bedrock is overlain by till and peat which are vulnerable to landslide.

It is considered that the mountain could become gravitationally unstable because large volumes of the toe at the base of the mountain were washed away. In that way the mountain could collapse under its own weight and sweep away the pipeline.

It is considered that the 2003 landslide probably weakened the bedrock geology along probable fault lines.

The submission presents two diagrams (5) & (6) which show possible mountain collapse scenarios both of which it is believed would damage the pipeline.

It is contended that no proper geohazard analysis, no apparent borehole, or seismic study have been done on Dooncarton Mountain.

It is considered that there is evidence near Rinroe of rebound movement of a sea stack there. It is contended that rebound of 1cm per year is possible leading to 10cm over 10 years. Has the contractor accounted for movement on this scale?

**Response:** Mr. Naughton's submission is concerned with the impacts of the pipeline construction on the geology of the area and vice versa the potential effects the geology of the area may have on the integrity of the pipeline. The submission suggests potential failure of Dooncarton Mountain including one scenario where the mountain would become unstable and collapse in a major earth movement that could potentially sweep through the buried tunnel and pipeline.

The landslides at Dooncarton Mountain were considered fully in the 2009 Report. Mr. O'Donnell has reported on the potential for the landslides (a) to be caused by the pipeline, (b) to cause damage to the pipeline. These matters are considered again in Chapter 34 of this report where it is concluded:

*"My overall conclusion on this issue of Dooncarton Mountain and the landslide potential, is that the proposed development is satisfactory and that the proposed development does not pose a risk or exacerbate the risk of further landslides on the mountain."*

I have outlined already my assessment of the site investigation material provided. I have recommended that vibration monitoring from the TBM be carried out to provide control information on the dissipation of vibration and to ensure that there is no impact on properties in the area. I do not expect that the vibrations will have any impact on the stability of Dooncarton Mountain because of the methods proposed for the rock excavation (no blasting) and because of the distance involved. I also draw attention of ABP to the GSI report on Pollatomish landslide where it is stated that while geological faults occur in the area the underlying bedrock is tectonically stable.

I also draw attention again to the Tobin Report into the landslides that occurred in 2003 where it was concluded that these landslides occurred because of the exceptional rainfall event that occurred at that time.

**Issue 16:** It is considered that the principles of fair and proper participation is not being applied by government and reference is made to the Aarhus convention.

**Response:** The Aarhus convention issue was dealt with in the Inspector's Report 2009 and in Mr. O'Sullivan's 2009 Report.

**Issue 17:** Refer BH 10 Box 3 of 6, 10.7 m deep "hazelnut shells fragments were identified" .... Mr. Taylor seeks further information on what "further analysis"



SEPIL have conducted. The point being that it is considered at a depth of 10.7 m silt and mud is less than 8800 years of age.

It is considered an act of “unprecedented stupidity” to bore a tunnel through mud silt and clay in Sruth Fada Conn Bay.

Borehole No. 8 (in Bay below Aghoose) m/c @ 14.7 m is 119%. The contents of the borehole are extremely high plasticity.

Concern is expressed that the unstable mountains will subside and fill the proposed tunnel.

Archaeology, the expertise and knowledge of Kilcommon Archaeology among the archaeologist consultants listed by Shell is questioned.

Concern is expressed at the hazard of Bentonite breakout and its effect on fish.

Concern is expressed at the possible noise levels from tunnel operations 125dB to 160dB.

The conditions along the site are different to conditions pertaining to the reference pipelines shown in Holland – weather storms, peat under Sruth Fada Conn Bay, different rock types, Blanket Bog, dangerous waters at Sruth Fada Conn Bay where the pipeline enters the Bay.

It is contended that respect for nature and wilderness and the interests of other organisms (other than human) are not compatible with the proposed development. Sruth Fada Conn estuary is a wild place, leave it so and explore other options. In this way find a solution that will balance all those interests.

**Response:** *Archaeology:* The recommendations of the National Monuments Section of DEHLG are set out in Chapter 13. In the event that ABP decide to approve these applications it is recommended that appropriate conditions as recommended by National Monuments Section be applied to such approval.

*Site Investigations:* Material of high plasticity - SEPIL have accepted that the site investigations have shown layers of weaker materials. SEPIL’s Geotechnical Consultant, Mr. Johnston, has indicated that such layers are not unexpected but that the existence of these layers does not alter his opinion that materials through which the tunnel is proposed to be bored consist largely of sand and gravel. He is satisfied that these materials are suitable materials for tunnel construction. [DRN OH 73A & B, DRN OH 34, DRN OH 58 and DRN OH 8 refers].

Mr. Jaquittis the specialist tunnel consultant for SEPIL also confirmed that the TBM specification proposed for the tunnel could handle the materials identified in the geotechnical investigations/ He indicated that problems could occur in deep layers of weak material as such material would not support the weight of the TBM and consequently steering of the TBM would become difficult. He further indicated that such deeper layers of weak material has not been found in the site investigations in the Bay. He further stated that it was not intended to carry out pre-treatment of the ground to strengthen it but that such could be done.

The construction of the tunnel proposed is a major operation involving specialised equipment and specialised construction methods and technology.

SEPIL have put forward a substantial proposal and they have demonstrated that the necessary expertise and experience is available to enable this work to be completed successfully. I am satisfied on this point. The information in the borehole logs and other site investigation data on the materials through which the tunnel is proposed to be bored as presented is consistent with the evidence presented by Mr. Johnston. The other aspects of this concern have already been dealt with in this Report.

**Issue 18:** The Barretts home was devastated by the 2003 landslides, and they had to move out for four months. There is concern that their home is between the landslide potential area and the high pressure pipeline.

The Barretts consider that SEPIL's conclusion that "there will not be a significant negative impact from tunnelling vibration..." is an unproven statement and they are concerned that such vibration could trigger further landslides.

If an intervention pit is required the construction of such a pit would ruin the cSAC and pSPA. Are ABP willing to take that risk?

**Response:** I have dealt with the landslides at Dooncarton issue in both 2009 Report and in Chapter 34 of this report. I am recommending a condition to control vibrations from tunnelling. In my view the submission of SEPIL and in particular Mr. Jaquittis on the likelihood of an intervention pit is acceptable. Mr. Jaquittis has indicated that the segment lined tunnel method and the TBM type proposed (whereby the segments being constructed are within the tailskin of the TBM) is such that obstacles can be overcome from within the tunnel and the threat of subsidence into the tail of the tunnel is reduced. Of course an intervention pit may become necessary in certain circumstances. I am satisfied on the basis of the evidence presented by SEPIL that those circumstances are unlikely to occur during the construction of the tunnel or during the operating life of the tunnel.

**Issue 19:** Mr. Meenaghan's farm was left devastated by the 2003 landslide. The land above his home has been left scarred and is visibly unstable. Concern is expressed at vibrations from traffic and tunnelling which could increase the odds of another landslide.

**Response:** The Meenaghan's concerns are about the threat to the stability of Dooncarton Mountain. This has been dealt with in Chapter 34 of this report.

### 35.4 Site Investigation Information

In the 2009 E.I.S. the site investigation report on the then proposed micro tunnels at the upper and lower estuary crossings indicated that further site investigation information would be required at the launch and receptor pit areas and in peat areas. Data from boreholes at the reception pit Glengad BH4 and at launch pit Aghoos BH3 has been provided. Additional peat probe data for the Aghoos Compound site has been provided.

This information is provided in Appendix M<sub>1</sub> of the E.I.S. SEPIL indicated in Section 5 Appendix M<sub>1</sub> that further ground investigations would be required to verify existing geotechnical data. That was provided in two parts in submissions made to OH.

**1. Interim Summary Geotechnical Report**

In the addendum (DRN OH 8) AGECC, the Geotechnical Consultants, provide a summary of part of the site investigation works carried out in Aug/Sept 2010. (DRN OH 34) provides drawings showing the profile of geology based on the 2010 site investigation and previous investigations

**2. Summary of ground investigations to 31/08/2010 Interim Report No. 2**

(DRN OH 73A, B, C) present a further submission of site investigation data obtained up to 31/08/2010.

**Mr. Coyle's Submission and Questions to SEPIL on the tunnel and site investigations**

Mr. Coyle is a structural engineer.

**Issue 1:** Concern that the tunnel is being located through weak sands and may settle or move and induce stresses on the pipeline.

*Response:* Mr. Johnston, AGECC Geotechnical Consultant responded that sands encountered in some boreholes did blow back as a result of the suction created by the action involved and that this was not unusual as the sands were granular and mobile.

Mr. Jaquittis, Tunnel Design Specialist responded that the tunnel when constructed initially would be buoyant and that was why sufficient overburden must be maintained above the tunnel in that state. On completion of the pipeline the tunnel will be grouted and the weight of the tunnel in that finished state is close to the weight of soil/material removed so the tunnel in either state will not produce significant settlement pressures.

**Issue 2:** In particular at CP8 CP9 Mr. Coyle was concerned that at formation depth of the tunnel at 14 metres the SPT value of 10 indicated weak material.

*Response:* Mr. Johnston in reply accepted that it is possible to get less dense material at greater depth but that the description of the material in accordance with Eurocode 7 is medium dense. Mr. Jaquittis indicated that in loose material like this settlements of the tunnel of 5 to 6 millimetres would be expected and that this is not considered critical.

**Issue 3:** Mr. Coyle expressed concern that organic material layers were present and was concerned at how recent these layers might have been deposited.

*Response:* In response, Mr. Johnston considered these materials were quite dated, a lot older than the estuarine sands through which it is intended to place the tunnel and no carbon dating had been done on that material.

**Issue 4:** On spatial distribution of site investigations, Mr. Johnston indicated Eurocode 7 recommends the spacings for a linear structure varies from 20 metres to 200 metres. Eurocode 7 allows the option to look at the uniform nature of the ground and widen the spacing on the basis of strength and stiffness of the ground.

**Issue 5:** Mr. Coyle raised the question of the gravel layer with cobbles borehole 16.

*Response:* Mr. Johnston considered this was a deposit in a former channel infilled so that the gravelly layer would have been the surface at one point and then filled with later deposits, it was a standard feature within estuarine alluvial deposits. Mr. Johnston accepted that this was a channel but that the crown of the tunnel is below the silted sand and well below the gravel layer. He indicated that it did not have any engineering impact on the tunnel design or construction.

**Issue 6:** Mr. Coyle had further concern that such layer could have come from a landslide on Dooncarton.

*Response:* Again Mr. Johnston was not concerned, the material was gravelly layer – good engineering material.

**Issue 7:** Mr. Coyle asked was this material dynamic referring to clay organic material further up the Bay.

*Response:* Mr. Johnston indicated that you get less dense layers underneath in estuarine alluvial materials but it is not dynamic or subject to movement now.

**Issue 8:** Mr. Jaquittis indicated that it was not intended to use piles to support the tunnel. He did agree that in significantly weak layers of greater magnitude you could build structures to support a tunnel in those circumstances.

### 35.4.1 Discussion

The data provided by SEPIL from the site investigations is good quality site investigation logs and interpretation of these logs. A reasonable spread of site investigation points are covered along the route. The requirements of Eurocode 7 for site investigation of tunnel linear projects appears to have been met. While I understand the objections by observers that the material provided at OH should ideally have been included in the E.I.S. as submitted on 31/05/2010, I also am conscious that it required a foreshore licence to begin that site investigation work.

SEPIL indicated that the application for the foreshore licence was made following consideration of ABP's letter of 2/11/2009 but that the licence itself could only be issued by DEHLG in June 2010. A significant amount of data from previous tunnel proposals and from geophysical survey of the Bay has already been presented to ABP in 2009 and again in 2010. Additional boreholes were completed Nov 2009 at the launch pit and reception pit sites and included in the E.I.S. [E.I.S. reference – Chapter 15 Table 15.1 Appendix M, Submissions at OH].

In all these circumstances I accept the data as now before ABP is a sufficient set of information upon which to base a decision.

### **35.5 Inspector's Conclusions on Site Information**

1. I am satisfied that investigation of the soils/geology under Sruth Fada Conn Bay have been presented. In my view a sufficient set of information is available to ABP on which to base a decision.
2. I am also satisfied that the soils/geology of the tunnel have been placed in the context of deposits within the overall geological context of the area.  
E.I.S. reference – Chapter 15.1, Figure 15.1
3. The tunnel proposed through Sruth Fada Conn is in my opinion the best route for the proposed development when considered under the proper planning and sustainable development of the area.
4. The tunnel proposal has a profound effect on reducing the impact of the construction project on the residents in the area and on the environment in the area.
5. The Aghoos compound site is well suited and very well located both from visual point of view, from being outside the Natura 2000 sites point of view and from an access point of view for traffic.
6. The method of construction of the grouted pipeline in the tunnel has been demonstrated to be a substantial and satisfactory method for constructing the pipeline underneath Sruth Fada Conn Bay.

### **35.6 Inspector's Recommendations**

#### **Night Lighting at Glengad**

1. General works at Glengad shall be carried out in normal daytime working hours. Where work is required outside normal working hours at Glengad the approval of

Mayo County Council, the Planning Authority shall be obtained for such period of work on each occasion.

**Reason:** To control the impact of the development on the residential amenity of the area

2. Where night lighting is proposed to be used at Glengad the impact of these lights on the area outside the work areas shall be mitigated in the same way as is proposed at Aghoos – selection of appropriate lanterns, downward, inward facing lights, baffle boards at lights at periphery, lights to be switched off when not required.

**Reason:** To protect the residential amenity of the area.

3. Monitoring of lighting impacts at the residential properties nearest and at those most likely to be impacted by night lighting shall be carried out on completion of the lighting installation and any necessary adjustments shall be made so that light nuisance is not caused at those residential properties.

**Reason:** To protect the residential amenity of the area.

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## Chapter 36 Peat Stability

### 36.1 Background

This chapter is concerned with construction of the pipeline between chainage 88+600 and chainage 91+720 through Peat Lands.

### 36.2 Additional Information Provided

ABP in its letter of 2/11/2009 requested that the following be provided (1) additional analysis be carried out on peat storage for the proposed development, and that (2) a section by section analysis of the risks of peat failure, the corresponding mitigation measures and where a conservative design approach would be proposed for these sections, and that (3) an analysis of the settlement of the stone road and the potential impacts of a rupture of the umbilicals on the stability of the stone and on the integrity of the pipeline.

SEPIL have provided analysis as requested in Appendix M2 Section 5, Section 8 and Section 9.

At the 2009 Oral Hearing incidental additional information was provided by SEPIL in response to questioning on potential settlement of the stone road and on the consequential stress's induced in the pipeline. ABP letter of 2/11/2009 requested that the design and documentation for the pipeline be integrated to include such incidental analysis and to provide transparency in the documentation.

This has also been done and in Appendix Q 4.1A. SEPIL (through JP Kenny) have provided the analysis of the impacts on the integrity of the gas pipeline, the outfall pipeline and on umbilicals, on fibre optic cable and on the signal cable of the potential settlement of the stone road.

### 36.3 Observers Submissions

- Storage of turves will damage vegetation
- Peat Stability concerns that bog slide may develop and threaten pipeline integrity
- In 2009 there were a lot of observers concerns and discussion on peat stability and this is covered in Mr. O'Donnell's report and in the Inspector's 2009 Report.

### 36.4 Conclusions Presented by SEPIL

It is considered that there is negligible to extremely unlikely risk to the pipeline and associated services with respect to ground movement from settlement of the stone road in peat. Instrumentation and monitoring will be installed prior to placement of pipeline to monitor settlement of the road. (refer Appendix M2 Section 8.4.)

The finite element analysis has used the worst case displacements (Settlement Case 1) for analysing the stone road settlement under two conditions (1) Hydrostatic Test and (2) operating conditions at the design pressure and over the sections of pipeline and services

which are routed through significant areas of peat (including the transitions to non-peat areas).

The model used in the analysis has been intentionally conservative.

The results show that for the onshore gas pipeline, should settlement take place during hydrostatic testing, with the pressure in the pipeline at 504 barg, the calculated stress is within the allowable stress limit.

During operation the pressure will remain below the MAOP. However for conservative calculation purposes the design pressure ( 144 barg) has been assessed. Should potential settlement occur coincidentally with the design pressure, then the results are also within the allowable stress limit.

It is concluded that the onshore gas pipeline routed through areas of peat and installed in the proposed stone road would not be subject to loss of containment of the pipeline due to the predicted worst case settlement of the stone road.

The effect of settlement on the services such as outfall pipeline, umbilicals, FOC and signal cable was evaluated. These services were assessed on allowable stress, curvature, axial strain, and axial load criteria provided by vendors. The results show that the design settlement values will not cause failure.

### **36.5 Inspectors Assessment**

The 2010 proposed development differs from that proposed in 2009 through peatlands (1) the stone road will be 12 m wide (9 m wide 2009) (2) some side casting of peat is proposed in those areas where SEPIL consider there will be no risk of peat failure.

A complete examination of the methodology for construction of the stone road was conducted by Mr. Conor O Donnell Geologist Consultant advising ABP in 2009.

It is not proposed to re-examine the proposed development in the peat lands as the 2009 and 2010 routes are the same and with the above exception the methods and construction proposed are the same.

### **36.6 Inspectors Conclusions**

1. Mr. O Donnell in 2009 in his examination of the then proposed development in the peat lands concluded that it was acceptable.
2. SEPIL have now provided an integrated set of design documentation as required by ABP.
3. I am satisfied that this documentation provides confirmation for the 2010 scheme that the pipeline can be constructed successfully without generating peat instability.
4. I am satisfied that the construction of the 12 m wide stone road in lieu of a 9 m stone road will not pose any risk of peat instability. I am also satisfied that Mr. O Donnell in his analysis and report 2009 satisfied himself with the method proposed for the stone road construction.
5. I also note that the side casting of peat as proposed has been assessed by SEPIL using the qualitative risk assessment methodology proposed by Mr. O Donnell and is considered acceptable. I noted on my site visits that that portion of stone road

constructed between 90+700 and 91+500 near the terminal varies in width 11 m and more and that side casting of peat in this area has been used.

### **36.7 Inspector's Recommendations**

1. Prior to construction of the Stone Road in the peat lands pre-construction examination of the site by experienced Engineer/Geologist as provided in the E.I.S. and Risk Register shall take place.

In particular in relation to those areas identified in the qualitative assessment of relative potential for peat failure of medium potential and high potential the following should apply:

- a. The design of the Stone Road proposed and the design of the stone compound at Aghoos shall be reviewed and confirmed in light of the examination and the conditions of the site at the time of construction.
- b. Side casting of peat should be restricted as follows:
  - No side casting of peat shall take place in those areas of relative high potential for peat failure
  - No side casting of peat shall take place at any location ahead of the completed Stone Road i.e. where side casting peat, the area on which the peat is being placed shall lag behind the area where the Stone Road is being constructed so that peat is not sidecast adjacent to an open or partially backfilled excavation.
  - No side casting of peat shall take place either where the slope on the surface or at the base of the peat is greater than 3 degrees
  - No side casting of peat shall take place within 25m back from a break in slope greater than 3 degrees.

Notwithstanding the above, the designer shall carry out the necessary site investigation, design and analysis to confirm that the stability of the peat repository will be acceptable at the time of construction. Specific consideration shall be given to areas where the alignment of the road is perpendicular to the slope contours which means that it will not be possible to sidecast upslope from the stone road. In these areas the peat repository will not be supported by the stone road and will be 'floating' on the existing surface of the peat.

Within the stone road, the rockfill below the trench for the gas pipeline and umbilical shall extend beyond a minimum 1V:1H influence line from the sides of the trench at pipe invert level down to the base of the peat.

**Reason:** To ensure stability of peat and to protect the environment from any peat slide damage.

2) In the event that the Board decide to grant approval for the proposed development, I recommend the following condition:

- a. The pre-construction site investigation shall be carried out as provided in the E.I.S.
- b. Method statements for construction works in the peat lands shall be developed using conservative design values and applying conservatively the risk mitigation measures set out in the E.I.S. risk register.
- c. The work shall be supervised by an experienced Geotechnical Engineer with specific experience in peat lands construction. An experienced contractor with specific experience of construction in peat shall be used for the construction.

**Reason:** To protect against peat instability.

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## Chapter 37 Stone Road Method

### 37.1 SEPIL's proposals in the 2010 Scheme

The stone road method of construction in peat areas was proposed in the 2009 E.I.S. and this has not changed in the 2010 modified proposed development scheme.

There are some changes however in the modified 2010 scheme and these have been set out by SEPIL in E.I.S.:

1. The existing stone road at the terminal end of the proposed route has been shown in the E.I.S. as requested by ABP in their letter of 02/11/2009. [Reference Appendix M3 Drawing No. DG 0112 R14)
2. SEPIL have indicated in E.I.S. where turving will take place and where turving will be stored beside the stone road construction (chainage 89+350 to 89+540).
3. SEPIL have provided information regarding the storage of peat generally along the pipeline itself with the exception of those areas that have been assessed with a higher potential of failure, response to ABP's request for further information. [Reference Appendix M2 Section 5].
4. SEPIL have indicated at the Aghoos compound where peat will be stored in that area. 27000m<sup>3</sup> will potentially be stored there.
5. In the Aghoos compound the construction will be similar to that for the stone road except that 1m of peat will be left in site and into which the stone fill will be placed to form the working surface of the compound.
6. It is now proposed that the stone road will be 12m wide. This is an increase of 3m over that proposed in the 2009 scheme. However, in that part of the site chainage 89+350 to chainage 89+540 through intact blanket bog habitat the width will be reduced to a 9m wide stone road in that section.
7. The incidental additional material and detailing as provided in response to questions at the 2009 OH has now been incorporated into the 2010 modified E.I.S. in an integrated manner. This includes the sensitivity analysis to assess potential settlement of the stone road, of the pipeline and associated services in the peat lands.

### 37.2 Aghoos Compound Construction

1. SEPIL propose to construct this compound in a manner similar to the construction of the stone road except that 1m of peat above mineral soil will be left in situ with rock/stone fill being placed into this peat.
2. The compound area proposed is 24000m<sup>2</sup>.
3. 27000m<sup>3</sup> of peat upper vegetated layers will be stored temporarily for re-use in reinstatement of the compound at completion of the works.
4. The stored peat will be 1m high.
5. The remainder of excess peat from the compound will be removed to Srahmore for deposition there.



6. The significant issues relating to the Aghoos compound and drainage and traffic on the site are dealt with in Chapter 43 Hydrology and Eco Hydrology and Chapter 44 Traffic and Haul Route.

### 37.3 Inspectors Conclusions

1. The 2009 Inspectors Report largely dealt with the stone road issues.
2. Mr. O'Donnell's report [Reference Appendix 3 to the Inspectors 2009 Report] dealt very fully with the stone road construction proposed.
3. I have reviewed again the recommendations in Mr. O'Donnell's report and my recommendations below have been made to give effect to Mr. O'Donnell's recommendations.
4. I am satisfied that the 12m width for the stone road as proposed is acceptable, it will provide a greater width for construction of the pipeline in the peat lands.
5. I am also satisfied that the reduced working width of 9m in the intact Blanket Bog habitat is a positive mitigation measure for that area. It is also proposed that construction and backfill including returving will be conducted in this section at as early a time as possible in the programme to reduce the impact of the development on this section of blanket bog and to assist in restoration of vegetation there as quickly as possible.
6. The stone road is an acceptable method for construction in peat lands. The work needs to be carried out by an experienced contractor and under the supervision of an experience Geotechnical Engineer. The work also needs to be conservatively designed. All these recommendations from Mr. O'Donnell's report are included below.

### 37.4 Inspectors Recommendations

In the event that the Board decide to grant a permission for the proposed development I recommend the following condition be added to those in Chapter 36 above:

1. I recommend that ABP accept Mr. Wright's recommendations as follows:

*"It is recommended that SEPIL set up the required instrumentation to measure ground movements at the areas of concern. These are; landfall valve site interface with offshore pipeline is not rock dumped, at the transition areas between the grouted pipe in the tunnel and the buried sections, in the stone road at the deep peat sections and at the interface between the existing and newly laid sections of the stone road. Also SEPIL should deploy stable strain gauges (including vibrating wire gauges with protective housings) on the pipeline to verify the maximum predicted stress levels on the pipe and confirm the modelling accuracy. The instrumentation needs to remain insitu until steady state levels are confirmed and a sufficient period of time has elapsed to ensure exposure to a variety of environmental conditions."*

**Reason:** In the interest of protection of the Health and Safety of the public.

2. In the construction of the pipeline care shall be taken in those areas where the pipeline is being laid within the stone road and below the peat in the mineral soil. In those areas peat plugs shall be installed across the stone road section at either end of those sections and at centres in between not greater than 100m apart.

**Reason:** To prevent the stone road and pipeline construction acting as a preferential drain in the peat.

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## Chapter 38 Natural Environment cSACs

### 38.1 Natural Environments

#### 38.1.1 Mr. O'Sullivan's report

Mr. Stephen O'Sullivan Senior Inspector was appointed by ABP to assist me in the assessment of these files and in the preparation of my report. Mr. O'Sullivan has examined the natural environment in Section 3 of his report. In particular he has examined Chapters 12, 13, 14 and Appendices P, J, K and L of the E.I.S. He has considered the other material submitted by SEPIL in the addendum to the E.I.S. He has also considered the submissions made to the Board including the submissions made by An Taisce and by DEHLG and NPWS and Inland Fisheries Ireland and he has considered the additional information presented and discussed at the OH. Mr. O'Sullivan has reported with recommendations and Appendix 1, attached to this Report, contains a copy of Mr. O'Sullivan's report. It is not proposed to repeat the analysis carried out by Mr. O'Sullivan here.

### 38.2 SEPIL 2010 E.I.S. for the Modified Proposed Development

- The route will potentially impact or intersect the Blacksod/Broadhaven Bay pSPA No 4937. The construction of the tunnel under Sruth Fada Conn Bay and that part of the proposed development outside the cliff face on the beach of Glengad to the HWM are the parts of the development in the pSPA. The Leenamore river crossing will be in the pSPA.
- The Glenamoy Bog Complex cSAC No 500. The construction of the tunnel under Sruth Fada Conn Bay is within the cSAC. The Leenamore river crossing will be in the cSAC.

A large part of the construction proposed at Glengad is also within the cSAC (500).

- The Broadhaven Bay cSAC No 472. That part of the proposed development outside the cliff face on the beach at Glengad to the HWM will be within this cSAC.

The E.I.S. provides information on the following:

- Chapter 12 – Terrestrial Ecology and Birds
- Chapter 13 – Freshwater Ecology
- Chapter 14 – Marine Environment

The Natura Impact Statement for the impacts of the project has been proposed by ecological experts and is set out in Appendix P. This appendix has been expanded from that contained in the 2009 E.I.S. and contains a clear set of information regarding the impacts of the proposed development on the qualifying interests for the Natura 2000 sites directly affected by the project.

The Appendices J (Flora and Fauna Terrestrial Environment), K (Fresh Water Ecology Assessment) and L (Marine Environment Supplementary Reports) contain data and support the information with the E.I.S.

Unfortunately, some information, in my view information that was important in understanding the E.I.S., was omitted in error from the E.I.S. Appendix J when lodged on 31/05/2010. An updated Appendix J1 was provided by the applicant during the period allowed for receipt of submissions. At the end of the OH I was satisfied that adequate procedure had been followed with regard to Appendix J1 and its availability to observers and opportunity was available to observers to make submissions to ABP on Appendix J1. The specific issue relating to adequate procedures and Appendix J is dealt with in Chapter 16 Other Issues as part of this report.

### **38.3 Department of Environment Heritage and Local Government Submissions**

The DEHLG made a number of submissions and the DEHLG and NPWS participated extensively in the discussions on the impact of the proposed development on the natural environment at the OH. Chapter 13 of this report contains my summary of DEHLG and NPWS submissions which is repeated here in full:

#### **Nature Conservation**

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- **SPA** The areas that are within the current SPA (as per SI 31 of 1995) and the areas that are proposed for inclusion in the pSPA were considered to be part of the SPA when assessing the impacts of the proposed works. SI 31 designated the SPA for wetland waterbirds and breeding terns.
- Sruth Fada Conn Bay is part of Blacksod /Broadhaven Bay SPA (4037) this area is to be designated in the near future accompanied by a detailed list of the special conservation interests for this wetland site. The wetland habitat and the waterbirds that utilize the resource are to be listed as a special conservation interest for this site. Bird Species are identified that have a special conservation interest for the site as follows: Sandwich Tern, Ringed Plover, Bar-tailed Godwit, Great Northern Diver, Common Scoter, Red Breasted Merganser, Dunlin, Turnstone, Light Bellied Brent Geese.
- The submission identifies the alternate methods considered for construction in the Bay and indicates that from an SPA management perspective the tunnel represents the preferred option because no open cut trench work is involved and no intervention pits envisaged though the possibility of intervention pit is noted.

### **Impacts Sruth Fada Conn Bay**

The potential impacts of the proposed development are identified as:

- Habitat Loss or degradation and disturbance caused by personnel and machinery in the SPA if an intervention pit is required
- The open cut trench across the Leenamore River in particular can negatively impact on the saltmarsh as well as displacing feeding or roosting birds in the vicinity
- The two compounds although outside the SPA can disturb and displace both feeding and roosting birds in the vicinity of both locations (lighting noise human and machinery activity)
- Intertidal area feeding resource of waterbirds can be impacted through vibrations and sediments emanating from the tunnel boring machine (ringed plover in particular)
- It is considered that the mitigation measures contained in the EIS must be implemented in full.
- Works on Leenamore River Estuary Crossing should be carried out in as short a time as possible.

In summary it is the considered opinion of the Department that the potential impacts are unlikely to have a significant impact on the species of conservation interest or their habitat for this SPA if the recommended measures (below) are implemented.

### **Marine**

- The proposed works beneath Sruth Fada Conn Bay are unlikely to significantly alter the value of the designated area.
- It is considered that the introduction of noise from a Tunnel Boring Machine is very unlikely to produce a measureable alteration in the usage or disturbance by marine



mammals of Sruth Fada Conn Bay because of a very low utilization by these species and the nature of the sounds to be produced.

- The transmission of sound sources to the open sea are unlikely to occur at a registerable level to marine mammals.
- There is a comment regarding the use of the EMP for assessment of measures required to be applied in relation to the potential pollution although the scope of works currently proposed does not point to a likely interaction (intervention pit unlikely).

In summary the proposed works are unlikely to have a significant impact on marine habitat or marine mammals.

### **Terrestrial and Freshwater**

- The Department is satisfied that the proposed works will not have a significant impact on terrestrial or freshwater habitats or species if all mitigation outlined in the EIS are carried out and no blasting of rock is carried out in the rock excavation at Glengad.

### **Conclusion**

It is the Department's view that the development as proposed is unlikely to be significant and therefore unlikely to have an adverse impact on the integrity of either the SPA or SAC provided the mitigation measures outlined in the proposal and as stated below are implemented.

### **Mitigation Measures**

- Area of habitat disturbed to be kept to a minimum
- Construction period to be as short as possible but designed so as to have minimum impact on the conservation interests of the site
- The surface sediments shall be reinstated to their original condition if impacted in Sruth Fada Conn Bay
- All significant scour areas shall be filled in should they occur to preserve the current hydrodynamic regime in the estuary
- All bentonite usage to be monitored by mass balance pressure monitoring of the lines and above ground visual assessment of the works any leaks to be reported to DEHLG

All mitigation measures as outlined in EIS to be implemented for terrestrial and freshwater habitats and species.

### **Specific Measures**

- viii. **Intervention Pit:** In the event of an intervention pit being required in the SPA then mitigation as proposed in the EIS shall be implemented in full and the NPWS shall be notified in advance of construction disturbance in the Natura 2000 sites to be

- minimized and potential noise impacts must be fully evaluated and mitigated to minimize impact on marine mammals
- ix. **Habitat Reinstatement:** To minimize the potential disturbance to waterbirds, the Leenamore crossing should be completed in as short a time as possible and the habitat reinstatement measures in section 6.2.1.4 must be implemented in full.
  - x. **Site Compounds:** Mitigation as per section 6.4 (minimize disturbance) must be implemented in full including acoustic screening and implementation of a lighting regime that minimizes intensity and extent of light into the SPA.
  - xi. Only the nominated entry exit points shall be used away from the seashore and activity outside the compounds during tunnelling works must be kept to a minimum.
  - xii. **Tunnel Boring Machine:** Mitigation measures in Section 14.5 must be fully implemented.
  - xiii. **Rock Breaking at Glengad:** No blasting to occur as a method of rock breaking.
  - xiv. **Environmental Management Plan:** The EMP should be circulated to the DEHLG for comment.

### **Foreshore**

- The key change in the modified development is the tunnel under Sruth Fada Conn
- Construction of the tunnel proposed is not likely to have direct significant negative impacts on the Foreshore

### **Recommendations Regarding Foreshore**

- Should an intervention pit be required it is recommended that a condition of any permission for the development should be to agree timing and methodology to be used for the intervention pit with NPWS, Inland Fisheries Ireland, and relevant regulatory authorities prior to commencement of works to ensure that impacts on passage of migratory fish and relevant qualifying interests of designated Natura 2000 sites in the areas are minimized.
- Liaison with these Agencies should continue throughout the construction period.
- The Leenamore open cut crossing should be discussed with NPWS and Inland Fisheries with regard to proposed construction methodologies prior to commencement of construction.
- The recommendations are submitted without prejudice to the outcome of the Separate Foreshore Licence Application process and are for the purposes of meeting the Department's obligations under the Planning and Development Acts.

## **38.4 DCENR Submissions to ABP Process**

The DCENR is engaged upon a process of E.I.A. regarding an application for section 40 consent to construct a pipeline under the Gas Acts. In this regard, DCENR has appointed Environ, an environmental consultancy to advise the department on the environmental aspects of the proposed development.

This process is a parallel process to the applications before the ABP. The DCENR in its submissions at the OH provided information from the section 40 process of environmental impact assessment which is ongoing. Mr. J. Hancox who has experience in the review of environmental impact assessments for oil and gas projects and pipelines presented the information on behalf of Environ.

1. Environ has raised a number of issues on which further information was requested from SEPIL as follows:
  - Traffic
  - Waste Management
  - Air Quality
  - Noise and Vibration
  - Flooding
  - Peat Restoration
  - Intervention pits
  - Property Insurance
2. SEPIL provided a suite of addenda and errata to the E.I.S. for DCENR. Environ are in the process of reviewing this information. The information was also provided at the OH. [DRN OH 8 Addendum to E.I.S.]
3. Environ noted that any requirements or mitigations arising from a review of security or safety which result in design changes will have to be assessed in relation to their environmental and social impacts. (It is believed this refers to the slabbing over umbilicals issue)
4. In the closing statement by Environ it was indicated that their preliminary findings were that the greater majority of the previously raised issues appear to be adequately addressed in the additional information provided by SEPIL [DRN OH 8]
5. On Traffic: Overall, with regard to traffic issues raised, Environ conclude that the E.I.S. Addenda adequately resolves the issues raised in their review of the E.I.S. Environ do recommend that the potential impact on bus journey times be included in the monitoring process.
6. On Flooding: Environ recommend (1) the minimum as built ground elevation with respect to the tunneling compounds should form part of any consent conditions, and (2) additional flood mitigation measures (a bund) on the western edge of the Glengad reception pit compound is required to alleviate fluvial flood risks.
7. On Noise and Vibration: The E.I.S. addenda demonstrates that night time noise levels at certain sensitive receptors will be lower than previously assessed in the E.I.S. The predicted vibration levels at the nearest residences are below the identified threshold levels for nuisance or property damage. Environ recommend that a lower threshold limit than 12.5mm/s ppv should be set to protect against nuisance complaints together with an action trigger level above which mitigation measures are implemented in order to ensure that the threshold limits are not exceeded.

8. On Air Quality: Environ indicated that the E.I.S. Addenda and additional information resolve the air quality issues raised by them.
- i. Air quality testing during hydrotesting will be included and the prediction is that applicable ambient air quality standards will not be breached beyond the boundary of the terminal (nitrogen will be used in the commissioning process).
  - ii. At the Aghoos compound in the case of NO<sub>2</sub> air concentration “predicted air quality impacts will meet the applicable NO<sub>2</sub> air concentration standard for the protection of vegetation within all areas of the Glenamoy Bog Complex cSAC and that in worst case ... exceedance of the ecological NO<sub>2</sub> standard in the cSAC would be spatially very small.
  - iii. At the Aghoos compound the applicable air quality standard for the protection of human health will be met at the nearest residence under both worst case and most likely equipment location plans.
9. On Stone Road Construction: Environ recommend that measures to adequately mitigate the risk of groundwater leaking vertically through the base of the stone road should be enforced in any consent condition, i.e. the peat layer either left in situ under the stone road or of reworked peat placed as part of the reinstatement should be enforced in consent conditions.
10. On Impacts on cSAC/pSPA: Environ consider that the E.I.S. and associated addenda fulfill the requirements of the appropriate assessment for the normal performance of the proposed planned constructed activities and demonstrate that such activities as planned will not significantly impact on the conservation objectives of these sites.
11. On Impacts on cSAC/pSPA from unplanned construction activities: Environ’s preliminary findings on the potential impacts that could arise are as follows:
- (a) On Bentonite Breakout: Unplanned construction events that have the potential to affect the cSAC and pSPA also need to be considered. In particular, consideration is required of bentonite breakout during tunneling operations and the construction of an emergency intervention pit within Sruth Fada Conn Bay in the unlikely event that obstructions are encountered during the tunneling process that cannot be removed via access from within the tunnel. These potential issues have been further assessed by the applicant in the addenda and other additional information. A bentonite release of 7m<sup>3</sup> maximum has been estimated. Environ consider that such a release is likely to lead to only localised and short-term impacts on the Bay.
  - (b) On Emergency Intervention Pit: Environ have not yet concluded the review of the additional information/assessment of its likely impacts as set out in the E.I.S. Addenda and other additional information provided.
12. On the basis of our (i.e. Environ) current understanding we have a reasonable expectation that the remaining issues identified above can be adequately resolved, although this cannot be finally confirmed until our review

process is complete. It is nonetheless likely that we would recommend a number of consent conditions be applied in the event that a consent be granted for the application under Section 40 of the Gas Act 1976, as amended. [DRN OH174]

### 38.5 Observers Submissions

- Surveys presented are considered insufficient. SEPIL's actions at Glengad have impacted birds there (Sandmartin Colony)
- Noise from the Glengad site could impact on the behaviour of Snipe and Ringed Plover. Snipe have been dismissed as unimportant in E.I.S.
- Monitoring of birds in the area during construction is proposed - this means nothing if no action is taken on information gathered.
- **Vegetation:** Recovery Time is 1 – 7 years - long term impact refers to peat land.
- **Seals:** Many sightings in Bay – concern that SEPIL will disturb and chase these from the Bay
- **Otters:** This new route will disturb the otters foraging range
- **Natural Environment:**
  - i. On the SAC/SPA areas – concern that the proposed development will disturb these sites
  - ii. What is the point in giving an area a special conservation status and then building a pipeline through it?
  - iii. Interference of any sort with tidal condition Sruth Fada Conn - unknown impacts and changes could result there
  - iv. NPWS at one time required work in Sruth Fada Conn to be carried out in Aug/Sept period only (to protect birds )– why has this changed?
  - v. Local wildlife and birds will be affected by the development
  - vi. Marine life and pollution risk
  - vii. Intrusion into salmon and trout fishing areas is a cause of concern
  - viii. Timing of site investigation viz à viz salmon, trout migration
  - ix. Damage to beach at Glengad has already taken place
  - x. The development is not sustainable development
  - xi. Aluminium pollution from peat excavation is a concern
  - xii. Priority habitat peat land (190m) will be impacted
  - xiii. SEPIL ecologist experience in terrestrial ecology is challenged
  - xiv. A wide variety of ecology along the roadside in hedgerows drains etc. will be affected by any road works
- **Marine Environment:**
  - i. Cetaceans, whales, dolphins are not given due regard in E.I.S.
  - ii. 2010 E.I.S. is not comprehensive regarding marine mammals
  - iii. CMRC study relating to impacts on cetaceans in Bay should have been included in E.I.S.
  - iv. Disagreement with SEPIL regarding suitability of Bay for cetaceans (SEPIL indicate Bay not suitable) many local sightings are claimed

- v. Underwater noise impacts on marine mammals are a concern. The E.I.S. is superficial in this regard
  - vi. Significant argument regarding potential impacts on marine environment should works be required (intervention pit)
    - **Blanket Bog 190m Priority Habitat**
- i) SEPIL's analysis that species of vegetation required for designation are not present is not accepted.
- The area is one of pristine quality. It is this quality that is most threatened by the proposed development.

### 38.6 Inspector's Discussion

1. It is noted that the extended timescale over which this Corrib onshore pipeline has been considered and submitted for consent or approval has given rise to a large amount of survey data about the Natural Environment. This data has been collected over in total now 8 years so a consolidated set of local data is available. This is more than one would normally have available for a linear project which usually would have site specific data over one or two seasons only.
2. The study team used for the preparation of the E.I.S. indicates in Table 1.1 the specialist consultants involved. In all 9 firms are listed as having contributed to the preparation of Chapters 12 Terrestrial Ecology (4), Chapter 13 Freshwater Ecology (1) and Chapter 14 Marine Ecology (4) in addition to RPS who prepared the E.I.S.
3. I note that in her brief of evidence, Ms. Neff, the principal ecological expert put forward by SEPIL, who presented the terrestrial ecology section of the E.I.S. on behalf of SEPIL is a qualified Botanist (BSc) with an MSc in ecology and 40 years working in Irish habitats and species. Ms. Neff has indicated specialist area of expertise as a vegetation scientist, coastal habitats, blanket bog, wet heath habitats and scarce Irish vascular plants.  
I also note Ms. Neff has experience since 2000 working on the Corrib scheme and that she worked as a ecological adviser to Arup Consulting Engineers in preparation of the E.I.S. in pre-construction surveys monitoring during construction and post construction on the BGE Galway – Mayo gas pipeline.
4. The above points are brought to the attention of ABP. Criticism has been made by observers that sufficient information has not been provided in the E.I.S. to conduct a full assessment of the likely impacts of the project on the environment. Criticism has also been made by observers regarding Ms. Neff's ecological experience and regarding her professional competence – the latter criticism being supported by material relating to affidavits and amending affidavits in High Court proceedings and also the criticism is supported by submission of selective parts of field notes from NPWS original 1993 surveys of Glengad area in advance of or as part of the designation process and relating to Machair at Glengad. I have examined the two affidavits submitted by Mr. Sweetman. It appears the affidavits refer to the



access road to the works at the landfall and related to the 2002 route. Both affidavits were apparently sworn by Ms. Neff. The later affidavit provides clarification and greater amount of information than the former affidavit and unless I missed something in my examination it seems to me that the two affidavits are not in conflict. Mr. Sweetman's interpretation implied that Ms. Neff's professional integrity could not be relied upon based on his submission of these affidavits. Leaving the affidavits to the side however in my judgement I found Ms. Neff's evidence acceptable. Yes, she is employed by SEPIL and yes she presents the ecological evidence on behalf of SEPIL. However, in the discussion and questioning in 2009 I found Ms. Neff's evidence acceptable and that was in the situation where the DEHLG and NPWS had concerns about the then proposed development within the designated intact blanket bog part of the cSAC (500) and in relation to NPWS concerns about flushes adjacent to the then routing of the pipeline. There was considerable debate and much technical discussion on the issues and I found Ms. Neff's evidence acceptable. In the 2010 proposed development there are different issues relating to the tunnel. DEHLG and NPWS are of the view that the 2010 proposed development is unlikely to have an adverse impact on the integrity of either the pSPA or the cSAC. Also, the DEHLG and NPWS confirmed there was not Machair at Glengad Landfall Site. They confirmed that the Machair was at Garter Hill. In effect Ms. Neff's opinion on these matters has been along the same lines as the DEHLG and NPWS opinion. I found Ms. Neff's evidence knowledgeable, relevant and both Mr. O'Sullivan and I agree that her evidence is acceptable. I do not therefore accept the challenge to her professional integrity. I find that the challenge was not supported by the evidence provided. I fully accept however that one of the purposes of an OH is to allow for challenge to the qualifications, experience and evidence of expert witnesses produced by the applicant, SEPIL. I find that there is no merit in the challenge to Ms. Neff as an expert witness.

5. Mr. O'Sullivan in Section 3.3.3.2 discusses the responses given by NPWS to questions by observers. NPWS (Dr. Sides) expressed confidence in the qualification of the persons carrying out the survey work described in E.I.S.
6. The consideration of the Natural Environment and the impact of 8.3 km of onshore pipeline proposed and the construction project associated with putting the pipeline in place is a major consideration in respect of this E.I.A. being conducted by ABP.
7. In relation to the conduct of the OH and criticism that observers were not allowed by the Inspector to raise issues/questions on natural environment matters that were considered relevant to this application by the observers concerned, the following summarizes the position;
  - There was a very high level of participation throughout the OH by the prescribed bodies and by observers and the applicant put forward expert evidence and made these experts available for prolonged question and answer sessions on the project.
  - The hearing was extensive sitting for 22 days in 2010. Some sessions were long, extended days and this followed a very detailed analysis

of issues at the 2009 OH which itself ran for 19 days. The 2009 route is practically identical to the 2010 route for 4.1km of the total length of the onshore pipeline.

- In effect, there was very little curtailment of argument that was relevant to the application for approval of the Board for the onshore pipeline. Quite the opposite, time was allowed for all relevant matters to be considered at OH.
- There was curtailment applied where observers sought repetitive submissions.
- There was curtailment applied where observers sought to examine:
  - i. Historic applications and consent process
  - ii. The performance of prescribed bodies of their statutory functions – (DEHLG, DCENR, Mayo County Council, EPA, HSA)
  - iii. Details of the overall Corrib Gas Field Development that did not have a direct relevance to the onshore pipeline proposed development (e.g details of the offshore pipeline and terminal).
  - iv. Matters relating to Garda activity and issues relating to protest activity (historic). There was very strong opinion among observers that ABP should allow these matters to be considered as part of the OH process. Argument was put forward that such matters should be part of the considerations of the impacts on the natural environment.

8. Some observers in their submissions intertwined the impacts of the proposed development on the natural environment and on the local community with activities and experiences that related to certain difficulties that had arisen in the past. In summary, this arose whereby normal construction activity had been supplemented by additional security and the consequential additional impacts associated with such security noise, lights, traffic, additional security barriers, and facilities on site for security personnel, etc. I accept that the proposed development most likely will involve such additional security measures and that such impacts as may arise from same are a consideration for this assessment. This matter was also addressed in the 2009 report, Chapter 26 Security, and is again discussed in this report, Chapter 26.

9. The construction activity will give rise to the greater share of the impacts. Impacts will, however, also arise from:
- i. Loss of habitat in cSAC at Glengad LVI compound.
  - ii. Traffic and use of the LVI during the operational life of the project while very limited in extent, this traffic and use of the LVI site will nevertheless relate to this cSAC as an impact of the project.
  - iii. The potential remains that during the construction or during the operational life of the project an intervention pit may become necessary. An alternative strategy of pipe insertion has been identified by the applicant should a problem develop with the pipeline in the tunnel during the

operating life of the project and a set of spare umbilical services and discharge pipe are to be provided within the tunnel.

- iv. The potential would arise in the future that the Aghoos compound would have to be re-established for any such procedure either intervention pit or pipe insertion. A temporary jetty would be required at Aghoos to service the work on the intervention pit.
  - v. The stone road method of construction in the peat lands including in the 190m long area of blanket bog in the Aghoos Bog has the potential to give rise to impacts on hydrology of the peat lands.
  - vi. Impacts will arise from those works that remain related to completion of the offshore umbilical and commissioning of the offshore pipeline. This includes using nitrogen generating plant at Glengad for the commissioning of the offshore pipeline.
10. Advice and recommendations were provided to ABP in the Inspector's 2009 Report, Chapter 38 – Natural Environment. Mr. O'Sullivan's 2009 report also provided detailed consideration of the natural environment and advice to the Board on the 2009 scheme as proposed at that time. Parts of the 2010 proposed development are similar both in route and in construction methodology to the 2009 route 4.1km approx at Glengad and from Aghoos Tunnelling Compound SC5 to the terminal.

In Report (2009) I concluded that "I am satisfied that subject to the mitigation measures proposed in the E.I.S. and in the additional documentation provided at OH that the proposed development can be constructed in a manner that will not impact significantly on the environment of the site."

11. The substantial changes in the 2010 scheme that will affect the natural environment are as follows:
- Tunnel construction under Sruth Fada Conn
  - Tunnel compounds at Glengad and Aghoos
  - A wider stone road is proposed
  - Reduction in pressures MAOP for the operational phase of the development.
  - A longer construction period
  - Construction technology for the tunnel is on a different scale to that proposed in 2009.
  - Changes in the traffic plan and haul routes proposed.
  - Changes in the proposed peat deposition in programme and use of larger trucks.
12. The laying of the pipeline in a tunnel underneath the Bay provides a significant mitigation for the impacts of construction of 4.9km of overall route.
13. By removing the construction of the tunnel to Aghoos, outside the Natura 2000 sites, and by proposing to tunnel in one direction it will be possible to provide a level of control of potential construction impacts from that 4.9km of construction in one site.

14. In effect this represents a substantial reduction in potential impact of that 4.9km of the pipeline by converting a linear project open cast construction to an underground tunnel based at one large construction compound which is removed from the residential areas of Glengad, Pollathomais.
15. The construction technology involved is more sophisticated and will require a longer programme for completion and consequently the impacts of construction on the natural environment will now run over 26 months. This in my view is far preferable to the alternative construction methods considered. NPWS have also confirmed that the tunnel option is the preferred construction technology option from a management perspective of pSPA point of view. There will be minimal impacts arising for the natural environment from the operation of the proposed onshore pipeline.
16. The focus of the assessment of the likely impacts of the proposed development on the natural environment now in my view becomes a focus on the following and the likely impacts arising:
- (i) Open cut excavation at Glengad
  - (ii) Tunnel construction under the Bay
  - (iii) Establishment/removal of Aghoos compound
  - (iv) Open cut excavation at Aghoos Bog and Leenamore River Estuary Crossing
  - (v) Open cut excavation – Aghoos through forestry to terminal
  - (vi) Traffic plan and haul routes proposed

### 38.6.1 Mr. O’Sullivan’s Conclusions

I am satisfied that Mr. O’Sullivan has examined the impacts of the proposed development on the natural environment. I recommend that ABP accept Mr. O’Sullivan’s Report. I agree with Mr. O’Sullivan’s conclusions. *These are in italics.*

- On Intervention Pit: *“Acceptance that an intervention pit is unlikely.”* The evidence was that a segmented tunnel built using a TBM where the tunnel segments are assembled inside the protection of the tail sheath of the TBM is very unlikely to give rise to an intervention pit being required.
- On modification by slabbing the umbilicals: *“Thus adequate information was not made available to the public or to the board to allow the potential impact of the slabbing on natural heritage to be assessed in accordance with the procedural and substantive requirements of the EIA legislation, notwithstanding the reference by the applicant’s ecologist to the matter at the end of her submission to the oral hearing. It is not considered, therefore, that the installation of concrete slabs can form part of the project that is the subject of the environmental impact assessment that the board is carrying out under the current application for approval under section 182C of the planning acts.”* I fully accept Mr. O’Sullivan’s conclusion that there was not adequate information made available in the material presented at OH to consider properly the likely impacts of this slabbing over the umbilicals on the environment. SEPIL

have indicated that such slabbing is not part of the proposed development and is not necessary for the proposed development. On the issue of concrete slabbing, I have dealt with this in Chapter 26 Security. I am not recommending to the Board that ABP decide to modify the proposed development to include slabbing protection for the umbilicals and services from third party interference.

- On Habitats Machair at Glengad: Mr. O'Sullivan concludes that the pipeline route at Glengad runs through agricultural grassland. He accepts Ms. Neff's position and evidence. He has confirmed this by inspection on site before the ground was disturbed by works connected to the Corrib gas Project. The NPWS have confirmed that machair is not present on the site at Glengad. The NPWS have confirmed machair is a qualifying interest from the Glenamoy Bog Complex cSAC[500]. The machair is confined to the Garter Hill area of the cSAC. There is no machair on the Glengad side of the cSAC [DR Sides NPWS Evidence, 15/09/2010, 16.24]. I have examined the field notes produced from the 1993 survey and I accept the information presented there for what it is – a map with some field notes and part of the legend. The legend details relating to N149, N152, N153 and other map notes were not provided. In my view the observers have not substantiated their concern that there may be Machair present. I am satisfied that Mr. O'Sullivan's interpretation of the evidence in relation to whether or not machair is present at Glengad is satisfactory. Mr. O'Sullivan's conclusion: *"It can therefore be concluded with scientific certainty that the proposed development will not have any impact on machair habitats."* I agree with this.
- On Habitats Saltmarsh at the Leenamore River Crossing: *"The significance of the residual loss of habitat is small because of the limited significance of the small area of salt marsh here."* I agree with this.
- Intertidal and Estuarine Habitats: *"The proposed development would not have significant adverse effect on intertidal or estuarine environments."* I agree with this.
- On Blanket Bog Habitats: *"The proposed construction method and re-instatement of turves for construction of the 190m of bog on the eastern side of the Leenamore River at Aghoos, which is classified as recovering blanket bog, is a reasonable approach that gives due consideration to the value of that habitat. Having regard to the foregoing, it is concluded that the proposed development would not have a significant adverse effect on blanket bog habitats."* I agree with this.
- On Fauna Birds: *"The updated surveys of the sand martin colony at Glengad support the conclusion that the works associated with the Corrib Gas project there did not have an adverse impact on the colony, and neither would the works currently proposed. Having regard to the foregoing, it is concluded that the proposed development would not have a significant adverse effect on birds, including those species which are qualifying interests for the SPA or are qualifying interest or of conservation interest for the proposed SPA."* I agree with this.

- On Fish: *“It is concluded that the proposed development would not have a significant adverse impact on fish, including Atlantic Salmon.”* I agree with this

- On Marine Mammals: *“It is not considered that the development would have a significant impact on the marine environment at Sruth Fada Conn Bay. It is therefore concluded that the proposed development would not have any significant effect on cetaceans...The potential impact of the development upon pinnipeds in Sruth Fada Conn as a result of noise and vibration from the tunnel boring machine, and from disturbance from a possible intervention pit, are adequately considered in the environmental impact statement. The stated conclusions that no significant negative effect is likely are well founded and are accepted. Having regard to the foregoing it is concluded that the proposed development would not have a significant adverse impact on marine mammals.”*

There is no proposed surface activity planned in the Bay as part of the onshore pipeline. I accept that an intervention pit is an unlikely requirement. The observers concerns as presented related (1) a perceived insufficiency of E.I.S. data on marine mammal activity and (2) that proposed construction of the onshore pipeline would have a significant impact on the marine mammals in the Bay. I note the Bay fills and empties completely with each tide. The rivers form a channel through the Bay at low tide. The scope for marine mammals to utilise the Bay is therefore limited to the channels only for much of the tidal cycle.

I am satisfied that Mr. O’Sullivan’s conclusion is correct that the proposed under-bay tunnel would not have a significant adverse impact on marine mammals.

- On Otters: *“The conclusion in the E.I.S. that the impact of the proposed development on otters would be likely to be a minor, temporary negative impact as a result of restriction of the foraging area available to the otter population around Sruth Fada Conn Bay during construction is well founded and accepted...No scientific data or argument has been presented that would support an alternative conclusion. It is therefore concluded that the proposed development would not be likely to have a significant adverse impact on otters.”* I agree with this.

- On Environmental Impact Assessments with regard to Natural Heritage: *“Adequate information is before the Board regarding the characteristics of the proposed development, the environment in which it would be located and the proposed mitigation measures to allow the Board to carry out an environmental impact assessment of the direct and indirect effects of the development on habitats, flora and fauna in accordance with its duties under Irish and European law. If the Board were minded to grant approval, there is no outstanding requirement to complete environmental impact assessment through the gathering of further information on natural heritage of the area of the development’s impact upon it. The monitoring of the site and of works before, during and after the carrying out of the development, and the preparation and submission of construction method statements, referred to in preparation various*



*sections of the environmental impact statement reflect a prudent approach that would help to ensure that there would not be significant deviation from the development and mitigation measures that are described in that statement. Such monitoring and such method statements are not required because of any inadequacy within the environmental impact statement or assessment.”*

The technical objection that an Environment Management Plan, the Emergency Response Plan, the Traffic Management Plan, matters arising from any conditions that may attach to an approval of these applications that these plans should be available before a decision is taken on these applications.

In my view the issue to be decided is: has SEPIL submitted sufficient information in E.I.S. to enable the assessment to be carried out? In my view, yes sufficient information has been submitted to enable the assessment to be carried out. That is what is required by the E.I.A. Directive. The implementation of any approved development requires whatever plans, programmes, contracts as are necessary including compliance with any requirements that may attach to conditions of the approval. It is not acceptable nor is it required by E.I.A. Directive that implementation plans be submitted as part of the E.I.S. There is of course a requirement that implementation of the project if approved will be carried out in accordance with the scheme and the details of the proposed development as presented for the E.I.A. assessment and as presented for approval in these applications.

I agree with Mr. O’Sullivan’s analysis.

- On Omission of figures from Appendix J in the initial 2010 E.I.S. submission of 31/05/2010: *“The omission of certain figures from appendix J1 of the environmental impact statement as submitted to the board on 31<sup>st</sup> May 2010 was a minor but unfortunate defect in the initial EIS. However there is no reason to believe that the omission could have any prejudicial or otherwise significant effect on the environmental impact assessment process carried out with respect to natural heritage or public participation in that process. The information contained in the addendum to the oral hearing did not substantially effect or alter the conclusions reached in this report regarding the impact of the development on habitats, flora or fauna.”* I accept that the omission of these figures together with a lack of clarity regarding where other figures were contained in the original appendix J is a defect of that E.I.S. lodged 31/05/2010. However I concur with Mr. O’Sullivan’s view the matter was a minor one and because the information was rectified in the revised J1 and circulated and made the subject of public notice August 10<sup>th</sup>, 2010. I am satisfied that adequate opportunity was available to observers, prescribed bodies and ABP at OH to fully examine the data provided and to make any submissions in that regard to ABP.
- On Working Programme viz à viz Seasonal Requirements: Mr. O’Sullivan has considered whether any restriction should apply to the working period within which it is proposed to construct the pipeline. He concludes that any such restriction would be redundant because the project

would not have an adverse impact on migrating salmon or over wintering or migrating birds.

Observers expressed concerns that NPWS had on previous occasions sought to limit works within Sruth Fada Conn Bay to seasonal restrictions. These were discussed with NPWS at OH. No such restrictions have been recommended by NPWS. In this situation where no direct surface workings are proposed in the Bay and where the impacts of the construction methods and the construction technology proposed will be minimal on the Bay, I am satisfied that restrictions should not apply to the working programme as set out in the E.I.S. I am satisfied that the construction can be controlled to ensure that the impacts on the Bay can be reasonably expected to be as set out in the E.I.S.

In worst case scenario, I am also satisfied that should an unplanned event of an intervention pit be required that the impacts of such an intervention pit can be managed satisfactorily the impacts will be temporary and that adequate mitigation works for restoring the bed levels within the area affected can be implemented.

### **38.7 Inspector's Recommendations**

1. All mitigation measures described in sections 12, 13 and 14 of main volume of the environmental impact statement submitted to the board on 31<sup>st</sup> May 2010, in the addendum to that statement and in the submissions from the applicant to the oral hearing convened at Belmullet on 24<sup>th</sup> August 2010, shall be carried out in full during the course of development.

**Reason:** In order to protect the natural heritage of the area.

2. In the event that an intervention pit becomes necessary, this shall only proceed with agreement of NPWS regarding the management of the construction and restoration works on the site.

**Reason:** To protect the natural environment.

3. In the event that an intervention pit becomes necessary the agreement of the Dept. Of Agriculture, Fisheries and Food shall be obtained to the construction and restoration works on the site and to any works in the vicinity of the licenced beds in Sruth Fada Conn Bay.

**Reason:** To protect the environment of the licenced beds.

4. Should an intervention pit be required it is recommended that a condition of any permission for the development should be to agree timing and methodology to be used for the intervention pit with NPWS, Inland Fisheries Ireland, and relevant regulatory authorities prior to commencement of works to ensure that impacts on passage of migratory fish and relevant qualifying interests of designated Natura 2000 sites in the areas are minimized.
- Liaison with these Agencies should continue throughout the construction period.
  - The Leenamore open cut crossing should be discussed with NPWS and Inland Fisheries with regard to proposed construction methodologies prior to commencement of construction.
  - The recommendations are submitted without prejudice to the outcome of the Separate Foreshore Licence Application process and are for the purposes of meeting the Department's obligations under the Planning and Development Acts.

**Reason:** To protect the Natural Environment

5. Recommendations Specific Measures NPWS

- xv. **Intervention Pit:** In the event of an intervention pit being required in the SPA then mitigation as proposed in the EIS shall be implemented in full and the NPWS shall be notified in advance of construction disturbance in the Natura 2000 sites to be minimized and potential noise impacts must be fully evaluated and mitigated to minimize impact on marine mammals
- xvi. **Habitat Reinstatement:** To minimize the potential disturbance to waterbirds, the Leenamore crossing should be completed in as short a time as possible and the habitat reinstatement measures in section 6.2.1.4 must be implemented in full.
- xvii. **Site Compounds:** Mitigation as per section 6.4 (minimize disturbance) must be implemented in full including acoustic screening and implementation of a lighting regime that minimizes intensity and extent of light into the SPA.
- xviii. Only the nominated entry exit points shall be used away from the seashore and activity outside the compounds during tunnelling works must be kept to a minimum.
- xix. **Tunnel Boring Machine:** Mitigation measures in Section 14.5 must be fully implemented.
- xx. **Rock Breaking at Glengad:** No blasting to occur as a method of rock breaking.
- xxi. **Environmental Management Plan:** The EMP should be circulated to the DEHLG for comment.

**Reason:** To protect the Natural Environment.

6. During vegetation clearance required for the carrying out of the development, the developer shall monitor all areas of dense vegetation affected by the development which could not be thoroughly searched during the ecological surveying. Such monitoring shall be carried out by appropriate ecological experts.

**Reason:** In order to provide necessary faunal monitoring.

7. No development shall take place until method statements, including construction and access details, details of mitigation measures, an appropriate scale plan showing ecologically sensitive areas where any construction activities are restricted and where protective measures will be installed or implemented, details of protective measures (both physical and sensitive working practices) to avoid impacts during construction, and a timetable to show phasing of works, including a schedule of sensitive periods for wildlife when works should cease or be curtailed should be prepared and agreed in writing with the relevant authorities.

**Reason:** In order to protect the ecology of the area.

8. Prior to commencement of development, the developer shall obtain the agreement of the planning authority for an ecological monitoring plan to ensure that all mitigation measures proposed in the Environmental Impact Statement submitted to An Bord Pleanála relating to the protection of habitats, flora and fauna are carried out. Monitoring shall be carried out by a suitably qualified ecologist who shall liaise with the Project Monitoring Committee.

**Reason:** In the interest of protecting the environment.

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## Chapter 39 Habitats Directive Assessment

### 39.1 SEPIL's Natura Impact Statement

In Appendix P of the E.I.S. SEPIL present the Natura Impact Statement for the project.

This is presented against the constraints that the pipeline needs to be the link between the offshore pipeline which has been installed and comes onshore at Glengad and the nearly fully constructed Bellanaboy Bridge gas terminal.

SEPIL have used the NPWS Guidance for Planning Authorities and EU guidance documents as reference in preparation of the NIS.

SEPIL have considered alternative construction options as follows:

- Conventional open cut construction;
- Specialised open cut method (sheet piled section by section);
- Trenchless methods, micro tunnelling, horizontal directional drilling – 3 intermediate pits would be required;
- Segment lined tunnelling.

In selecting the segment lined tunnelling option, SEPIL considered that construction method would have the least impact on the Natura sites. SEPIL further decided to limit tunnelling to one direction from Aghoos as that option had the least impact on Glenamoy Bog Complex cSAC at Glengad.

SEPIL have summarised the expected impacts of the project in Table P14.1 Expected Impacts on Habitats and Species in the Natura Sites. This table lists the residual impacts on Glenamoy Bog Complex cSAC (500), Blacksod/Broadhaven Bay pSPA (4037), Broadhaven Bay cSAC (472) as none expected, neutral, neutral or imperceptible negative, localized slight to moderate.

The latter refers to the loss of habitat in Glengad at the LVI compound and this is the only negative impact identified in the table of expected impacts.

#### **Observers Submissions**

##### **Scientific Doubt:**

- ABP must ascertain that no reasonable scientific doubt remains regarding the likely adverse impact of the development on Natura 2000 sites.

##### **Habitats Manual of EU**

- ABP should consider and understand this before reaching its decision on the proposed development

##### **Habitats Directive**

- This warrants consideration of alternatives with no impact SAC/SPA

- Where potential is there for damage accept only where no other alternative then IROPI test should apply
- Where there is doubt about maintaining integrity of site – precautionary principle should apply
- Short response time only allowed to respond to J1 – that is not acceptable for making submission to ABP
- Impact of quarry expansion to provide stone for the development has not been assessed
- Sruth Fada Conn ruled out before because that route was considered to have potential to damage the environment in Bay
- Machair at Glengad is described as grassland in E.I.S.
- Disagreement regarding evidence of SEPIL that Machair is not present at Glengad
- Field notes and map from NPWS 1993 Survey claimed to be evidence that Machair is present at Glengad
- Salt marshes will be damaged
- The implications of the EPA licences P(O738-02) (25/03/09) and W(0256-01) (29/01/2009) should be assessed by ABP
- Potential impacts on oyster cultivation in Bay from sand/mud disturbances by TBM
- Natura Impact Statement is like tissue of half truths
- Restoration of environment post construction is not the same as conservation of the environment

### 39.2 Mr. O’Sullivan’s Report

1. Mr. O’Sullivan has in Section 3 of his report considered the impacts on the natural environment. He has provided an assessment of the issues in section 3.5 of his report. I do not propose to repeat Mr. O’Sullivan’s assessment here.
2. In Mr. O’Sullivan’s opinion the very substantial nature of the works should be regarded as likely to have a significant effect on the Natura 2000 sites in which much of the development is proposed to be located. I agree with this opinion. The project should be subject to an appropriate assessment of its implications for those sites in view of the site conservation objectives and in accordance with article 6(3) of the Habitats Directive.
  - Appropriate Assessment: The argument was made by An Taisce and other observers that the failure so far of the NPWS to issue site specific conservation objectives means that an appropriate assessment of the implications for the sites of the proposed project cannot be carried out in the view of the site’s conservation objectives as those objectives are not yet known. I agree with Mr. O’Sullivan’s view that such argument is unacceptable. In my view such argument



would require an interpretation of the Habitats Directive that is not provided in the Directive itself, i.e. that the absence of site specific conservation objectives would prevent the carrying out of an appropriate assessment on the implications for Natura 2000 sites of development proposed that had the potential to impact on such sites. It is clear that the Directive requires that such an assessment be carried out:

*“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”*

- I am satisfied (as is Mr. O’Sullivan) that Appendix P of the E.I.S. sets out adequately the conservation objectives of the Glenamoy Bog Complex cSAC [500] and the special conservation interests of the Blacksod/Broadhaven Bay pSPA (4037). These conservation objectives and special conservation interests have been set out by NPWS. It is against these objectives and interests respectively of the cSAC and pSPA that the appropriate assessment of the likely impacts of the proposed development has to be carried out.
- Mr. O’Sullivan has concluded in respect of the cSAC: *“The proposed project would not have adverse effects on the habitats or species in the cSAC for which that site was designated, including blanket bog, machair or Atlantic Salmon and would not affect their maintenance at a favorable conservation status. The absence of such effects has been demonstrated beyond reasonable scientific doubt by the data and expert opinion which was contained in the environmental impact statement and in the other submissions to the board and to the oral hearing and which are described in the foregoing sections of this report. An appropriate assessment of the implications of the project for the cSAC in view of the site’s conservation objectives can therefore ascertain that it will not adversely affect the integrity of the site.”*
- Mr. O’Sullivan has concluded in respect of the pSPA [472]: *“The proposed project would not have adverse effects on the species in the proposed SPA described by the National Parks and Wildlife Service for which that site was designated and would not affect their maintenance at a favorable conservation status. Neither would the development have a significant adverse impact on the wetland habitat in the pSPA which support the said bird species. The absence of which has been demonstrated beyond reasonable scientific doubt by the data and expert opinion which was contained in the environmental impact statement and the other submissions to the board and the oral hearing and which are described in the foregoing section of this report. An appropriate assessment of*

*the implications of the project for the pSPA in view of the site's conservation objectives can therefore ascertain that it will not adversely affect the integrity of the site."*

- On the Birds Directive: Mr. O'Sullivan has concluded: *"It is noted that An Taisce submitted that the proposed project should not be subject to an appropriate assessment under Article 6(3) of the Habitats Directive in respect of the proposed Special Area of Conservation, but rather that it should be tested against the requirements of Article 4 of the Birds Directive. A grant of approval for the proposed project by the Board would not contravene Article 4(4) of the Birds Directive because the project would not give rise to pollution, deterioration of habitats or disturbance that would be significant having regard to the objectives of the article to conserve the species listed in Annex I of the directive, as well as regularly occurring migratory species not listed in Annex I, and the wetland habitats which are significant for them."*
- Other habitats and species. Mr. O'Sullivan has concluded: *"The proposed development would not have an impact on other habitats or species of flora or fauna that would give rise to a significant injury to the natural heritage of the area."*

### **39.3 Mr. O'Sullivan's Overall Conclusion and Recommendations**

1. *"An appropriate assessment of the implications of the modified proposed project for the cSAC at the Glenamoy Bog Complex and the Special Protection Area at Blacksod Bay/Broadhaven in view of the conservation objectives of those sites can and should ascertain that the project would not adversely affect the integrity of those sites because the absence of adverse effects on the relevant conservation objectives has been demonstrated beyond reasonable scientific doubt by the information contained in the environmental impact statement and the other submissions made to the board and at the oral hearing on the modified proposed project."*
2. *"The project would not be likely to have a significant effect on any other Natura 2000 site and so an appropriate assessment is not required with regard to any other site."*
3. *"The project would not have significant adverse effects on other Annex I habitats or Annex II species, the maintenance of which is not a conservation objective of the above mentioned Natura 2000 sites but in which respect of which a general duty to conserve arises from the Habitats Directive."*
4. *"The project would not have an adverse effect on the proposed Special Protection Area that would justify a negative conclusion to an appropriate assessment carried out under article 6(3) of the Habitats directive or which would be significant with respect to the objectives stated in article 4 of the Birds Directive."*
5. *"Neither directive would therefore prohibit a grant of approval on foot of the current application under section 182C of the Planning and*

*Development Acts 2000-2010, regardless of whether the project was justified by an imperative reason of over-riding public importance.”*

6. *“The modified pipeline proposal would not cause an injury to natural heritage that would render it contrary to the proper planning and sustainable development of the area. The impact of the modified proposed development would not, therefore, require a refusal of approval or substantial alterations to the development.”*
7. *“As it has been concluded that the proposed development would not have an adverse impact on migrating salmon or overwintering or migrating birds, a condition which restricted the works required to carry it out to certain times if the year would be redundant at best.”*

### **39.4 Mr. O’Sullivan’s Recommendations**

*“All mitigation measures described in sections 12, 13 and 14 of main volume of the environmental impact statement submitted to the board on 31<sup>st</sup> May 2010, in the addendum to that statement and in the submissions from the applicant to the oral hearing convened at Belmullet on 24<sup>th</sup> August 2010, shall be carried out in full during the course of development.”*

Reason: In order to protect the natural heritage.

### **39.5 Inspector’s Conclusions on the Appropriate Assessment**

#### **Required by Article 6(3) of the Habitats Directive**

1. In light of the extent of the proposed development and in light of the extent of the site involved, the technology proposed for the construction, the duration of the proposed construction works, the Natura 2000 designated sites in that location, ABP need to carry out an appropriate assessment.
2. SEPIL have presented sufficient information in the E.I.S. and in the additional information provided to ABP to enable the appropriate assessment to be carried out.
3. Observers concerns that the proposed development is likely to have a significant impact on the integrity of Natura 2000 sites, in particular Blacksod/Broadhaven Bay SPA Glenamoy Bog Complex cSAC Broadhaven Bay cSAC is not accepted.
4. It is accepted that the proposed development has the potential threats which could cause negative impacts. However, the development as proposed in my view provides the construction technology and construction techniques required so that those potential threats of negative impacts can be managed, controlled and mitigated without significant impacts on the sites. In my view, as proposed, the development is not likely to have a significant impact on the integrity of the sites.

The potential threats include:

- The potential requirement for an intervention pit
- The potential risk of peat instability

- The potential for spillage and contamination arising from the construction works at Aghoos Compound
- The potential impact from Noise/lighting/air quality threats at Aghoos

### **39.6 Inspectors Recommendations**

1. I have examined the proposed development, the site proposed and I have considered Mr. Stephen O’Sullivan’s report on the issue of an appropriate assessment as required by Article 6(3) of the Habitats Directive. I recommend that ABP accept Mr. O’Sullivan’s Report
2. I have examined the proposed development and I have assessed the site, the observers submissions and the prescribed bodies submissions. I recommend that it would be in order for ABP to conclude following appropriate assessment that the proposed onshore pipeline development is not likely to have a significant impact on the integrity of the Natura 2000 sites in the area.
3. I also recommend that it would be in order for ABP to conclude that subject to conditions the proposed development in light particularly of the proposal to tunnel in one direction from Aghoos under the Bay will not cause any likely impacts that will affect the integrity of the Natura 2000 sites, Glenamoy Bog Complex cSAC and Blacksod/Broadhaven Bay pSPA, Broadhaven Bay cSAC.

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## Chapter 40 Peat Deposition Srahmore

### 40.1 Background

It is proposed to dispose of 75000m<sup>3</sup> peat from excavation works at Aghoos compound and from excess peat along the pipeline route from Aghoos to the terminal at Bellagelly South. In quantity this is similar to that proposed for disposal as part of the 2009 scheme. Bord na Mona who own and manage the rehabilitation of the site at Srahmore indicated that a number of changes arise in the 2010 works proposed at Srahmore as follows:

- The same methodology will apply but as the programme is now longer the deposition will be in two phases over 144 days (compared to one phase of 75 days as proposed in 2009 scheme).
- Manpower on site at Srahmore will be 35 (50 were included in 2009 scheme).
- There will be a reduced rate of deposition.
- There will be less materials drawn in to Srahmore for construction of roadways, etc there – 8000m<sup>3</sup> (2010) compared to 12000m<sup>3</sup> (2009).
- It is proposed that 20m<sup>3</sup> capacity trucks will be used to haul the peat. This differs from the 10m<sup>3</sup> capacity trucks proposed in 2009.
- As a result of the changes in truck capacity, 3700 truck loads will be required, compared to 7000 as proposed in the 2009 scheme.

As the rate of deposition is lower than proposed in 2009, there will be fewer truck movements per day – 26 vehicles per day compared to 100 vehicles per day in 2009 scheme.

In a further proposed adjustment SEPII indicated during the OH that it had now re-evaluated the amount of peat that would be transported and deposited at Srahmore. SEPII indicated that 58000m<sup>3</sup> of peat will actually need to be transported and deposited at Srahmore.

### 40.2 Mr. O'Sullivan's Report

Mr. O'Sullivan has examined the E.I.S. Volume 3 for the Srahmore Peat Deposition site. This is presented in Section 5 of his report. Mr. O'Sullivan had previously examined the peat deposition as proposed in the 2009 scheme.

Mr. O'Sullivan is of the view that the proposed deposition of peat at Srahmore is substantially the same as was proposed in the 2009 scheme. I agree with this.

Mr. O'Sullivan advises that in his view the proposed deposition of peat at Srahmore would be in keeping with the proper planning and sustainable development of the area. I accept this and I am satisfied the additional mitigation of reduction in the rate of deposition and reduction in the number of truck movements will reduce the impacts of traffic associated with these deposition works.

Concerns were expressed that revegetation of the peat at Srahmore was producing rushes and was not revegetating with typical peat vegetation species. Bord na M6na responded:

1. The initial focus after deposition of the peat is to stabilise the peat in position.

2. At an appropriate time the drainage system will be allowed to wet the stabilised peat.
3. It is natural initially that rushes are produced on newly deposited peat. In time, and following increased moisture content in the deposited peat, that typical peat vegetation will begin to regenerate.

### **40.3 Inspectors Conclusions**

1. The haulage of peat and the deposition at Srahmore is similar to that activity whereby 450,000m<sup>3</sup> of peat were moved and deposited from the terminal site.
2. The method used on the previous occasion was by general agreement successful and managed satisfactorily. This is also borne out by a lack of any negative comment or objections at both OH.

### **40.4 Inspectors Recommendations**

In the event that ABP decide to grant a permission for this development I recommend the following conditions.

1. "The deposition of peat at the site at Srahmore authorised by this permission shall be carried out in accordance with the description of development provided in volume 3 of the Environmental Impact Statement submitted with the application and all the mitigation measures described therein shall be carried out in full.

**Reason:** In order to clarify the scope of the authorised development and to protect the environment and amenities of the area".

2. Before peat haulage commences, the developer shall obtain the agreement of the planning authority, with regard to the following –
  - (a) Regular survey of the road surface along the haul route during the haulage and construction period. At minimum, a survey shall be carried out on a weekly basis during peat haulage during the remainder of the construction period.
  - (b) Target tolerances for the road surfaces and response times for repairs.
  - (c) Liaison with the Project Monitoring Committee.

In the event of target tolerances being exceeded and in the absence of necessary maintenance of the road surface, the planning authority (following consultation with the Project Monitoring Committee) may require the cessation of all haulage activities or construction traffic directly related to the development.

**Reason:** To ensure the proper maintenance of road surfaces during the construction and haulage periods in the interest of traffic safety.

3. (a) All vehicles leaving the construction areas of the sites shall pass through an appropriate wheel cleansing area. The details of wheel cleansing which shall include



full wheel wash where appropriate shall be set out and agreed with the roads authority in the EMP.

(b) The developer shall take all reasonable measures to ensure that no material shall leak or fall from vehicles transporting waste from the terminal site. Before haulage of waste commences, the developer shall obtain the agreement of the planning authority in relation to details of vehicles and methodologies to be used to ensure the prevention of such leakage.

**Reason:** In the interest of amenity, the proper planning and sustainable development of the area, and traffic safety.

4. The haul route and schedule of haulage for the construction phase of the development shall be clearly documented and published in a manner to be agreed with the planning authority. All HCV's and other commercial vehicles visiting the sites on a regular basis (twice a week or more), shall have a clear notice visible to the public identifying involvement with the development and the vehicle reference number identifying each such HGV.

**Reason:** In the interest of traffic management and to make provision for control and review of vehicles.

5. An independent safety audit on the upgraded haul route shall be carried out and agreed with the planning authority prior to the commencement of haulage of peat. The audit shall have regard to:
  - (a) The proposed 60 km/hr speed limit for HGV's.
  - (b) The spacing of HGV's in convoy.
  - (c) Pedestrian use of the haul route.
  - (d) School traffic at Pollatomais and the proposed stand down of haulage during pick-up and drop-off times at the school.
  - (e) The operational aspects of the Traffic Management Operatives.
  - (f) Vehicle break-down incident management.
  - (g) Emergencies and full access for emergency vehicles to the route at all times.

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

## Chapter 41 Other Relevant Considerations

### 41.1 Working Relationship SEPIL and Local Community

1. Notwithstanding the situation whereby on one side there are those who may continue to oppose and confront the proposed development, and on the other side that SEPIL have a determined plan to complete the Corrib Gas Field development, there is a need for the leadership in the local community and the management in SEPIL to have a system of contact in place whereby the many issues that have to be dealt with can (1) be communicated, (2) provide feedback and request suggestions, (3) be reviewed.
2. The Liaison officer for the proposed development is an essential position and I expect a busy post during any project as extensive as this proposed development. However, the Liaison Officer cannot provide either the time or the required level of communication, feedback and review required on his/her own.
3. A Project Monitoring Committee (PMC) similar to that established by Mayo County Council to oversee the terminal construction under one of the conditions of the planning permission is an essential part of the control of the project. Nevertheless, it seems to me there is room for a group which has representatives of the community and representatives of SEPIL which could usefully be established to act as a clearing house for communication, feedback and review of the ongoing issues as they arise.
4. Such a system of clearing house direct contact between SEPIL and the local community can work. Indeed, such a system works well on many difficult projects, and in my own experience such a system can avoid legal confrontation and can resolve difficult issues by discussion and agreement where the leadership exists on both sides to make the system work.
5. Regardless of whether such a system of “clearing house” is possible in the circumstances that pertain to the Corrib Gas Field Development, I believe that there is an obligation on the Applicant to provide good timely accurate information to the community on issues that will affect that community. I recommend that such a condition be attached to any permission that the Board may decide to grant for this development.
6. I accept that the community otherwise will find themselves being confronted with an activity unawares such as heavy slow moving equipment mobilisation etc.

#### 41.1.1 Inspectors Recommendation

In the event that ABP decide to grant permission for this development I therefore recommend that SEPIL be requested to establish a group within the Project Monitoring Committee structure and reporting to the PMC and subject to the agreement of Mayo County Council. The group would work to provide a local liaison function for communications feedback and review of ongoing issues on the construction site and haul route.

- (a) Representatives of the local community who are prepared to represent their community to the best of their ability.

(b) Management of SEPIL who will be prepared to be responsive to issues of concern locally.

**Reason:** To establish a direct system of local liaison between the applicant and the local community within the monitoring structure of any planning approval.

## 41.2 Monitoring Committee

There should be two representatives from Kilcommon Parish nominated by the local community on the Monitoring Committee. Mayo County Council should establish a process for doing this. The oral hearing witnessed how individuals have strong views about non-participation in consultation process and non engagement with SEPIL community liaison officers.

In the event that those nominated from Kilcommon either choose not to participate or choose in some way to frustrate the activity of the Monitoring Committee then procedures should be there to deal with such eventualities.

It is not in my view however acceptable to pre judge such matters. SEPIL have indicated that they are willing to hear and welcome positive suggestions as to mitigation measures proposed by members of the public. SEPIL are also of the view that no project monitoring or other committee should be left in a situation where it can be held to ransom or immobilised by parties opposed to the project.

The oral hearing has also seen the level of participation of the local community at an extraordinary level of attendance and diligence and the huge intensity with which the local observers have analysed the E.I.S. and the issues involved. The contribution of the observers while at times robust was a valuable contribution to ABP examination of the project and the application before the ABP for decision.

While such robust exchanges may at times have caused a small delay on the business this was manageable and overall was insignificant compared to the time devoted to examine the complexity of the project and the modifications in the proposed development.

In my view the work of monitoring the project can be enhanced by involvement of representatives of the local community. In my view the engagement by the local community in the oral hearing process actually worked (not without its difficulties but it did work). In my view it is preferable to provide the local community and its leaders with an opportunity to participate in monitoring the project than to monitor the project without the input, local concern, and local knowledge of the community directly affected by the development. Timescale for communication between the representatives on the monitoring group and the local community will need to be considered and will have to be workable and accepted as such. In that regard the 26 month programme provides more time than the 2009 programme.

### 41.2.1 Inspectors Recommendation

1. Mayo County Council should implement an appropriate project monitoring committee for the construction phase of this development.
2. The PMC should have two representatives from Kilcommon Parish elected in accordance with procedures and conditions to be decided by Mayo County Council. This should include procedures which will enable the PMS to operate effectively in

all foreseeable circumstances for the duration of the construction phase of the development.

3. Within the PMC structure a local liaison should be maintained between SEPIL management and the local community. The purpose of this local liaison group would be to provide (1) two-way communication locally on issues arising with construction and traffic such as local funerals, school events, or other community activities that may be impacted by construction and traffic (2) to provide feedback and input from the community on these issues (3) to enable review of the issues arising following the feedback to take place by SEPIL and SEPIL's contractors.

### 41.3 Emergency Response Planning

This was considered in some detail in the 2009 Report. The following Inspectors conclusion was set out in that report:

*“The National Framework for Major Emergencies has been put in place and sets a high standard for preparedness for emergencies. The fact that this is an up to date framework and that independent audit of the framework have taken place, provides confidence that is required in regard to how a major emergency on this proposed development will be responded to by all the agencies. I am satisfied that a comprehensive emergency planning regime will apply to the proposed development.”*

SEPIL have provided additional information in the 2010 E.I.S. regarding Emergency Response Planning Appendix Q6.6.

The following points are noted:

1. Prior to operating the pipeline, SEPIL liaison personnel for emergency planning will contact and brief all residents on the specific details and advise on what to do in an emergency.
2. Information packs will be made available.
3. An IT system for contact for all dwellings within a specified distance will be established and local residents will be invited to provide contact details into the system.
4. In emergency, the general public will be notified – type of incident, location and proximity of the incident, actions to be taken by the public, actions being taken by SEPIL and time period involved, contacts during the incident.

Appendix Q6.6 outlines how SEPIL's organisation for emergency management will be structured. SEPIL's Emergency Response Plan will be integrated with the major emergency response plan operated by HSE, Gardaí, Mayo County Council.

#### 41.3.1 Observers Submissions

- Lack of supportive infrastructure in the area to deal with construction and/or operational emergencies.

- No immediate availability of hospital/specialist medical services if a problem does arise.
- No emergency plan was prepared as part of the E.I.S.
- Irish Aviation Authority manual should be used as the basis for licensing standards for emergency services.
- Concern that Emergency Response Plan is not available for consideration now.
- The pipeline should be covered by the Sevesco Directives. APB and HSA are incorrect in the interpretation that the pipeline is excluded from the terms of the Sevesco Directives.

### 41.3.2 Discussion

The important issue in relation to the proposed development is the assessment of the safety aspects of the development. This is being carried out as part of the ABP overall assessment of the proposed development.

Planning for an emergency is a necessary part of the implementation of the proposed development. The potential use of the Licensing Standards for emergency services as contained in The Irish Aviation Authority Manual is a matter for the major emergency planning agencies.

It was made clear in 2009 at the OH that these agencies consider and develop an emergency response plan together with SEPIL after planning approval has been obtained. The emergency response plan is not a matter that requires the approval of ABP.

### 41.3.3 Sevesco Directives 96/82/EC and 2003/105/EC

Article 4 96/82/EC

*Exclusions* This Directive shall not apply to the following:

(d) The transport of dangerous substances in pipelines, including pumping stations, outside establishments covered by this Directive

Article 1 2003/105/EC

While this Article Amends Article 4 96/82/EC it does not change the exclusion of pipelines outside establishments from the terms of the Directive 96/82/EC

### 41.3.4 HSA

ABP by letter 21/04/2009 requested HSA to clarify their role and function in relation to the then proposed development (2009 scheme). HSA in response 18/05/2009 indicated that “...*offsite gas pipelines are not covered by the control of Major Accident Hazard Regulations (SI 74 of 2006) and therefore the Authority has no remit in this area...*”

SI 74/2006 EC (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2006.

Article 4(2) These regulations shall not apply to...(c)(v) “the transport of dangerous substances in pipelines and pumping stations”.

#### 41.3.5 Inspectors Conclusions Emergency Response Planning

1. The National Framework for Major Emergencies has been put in place and sets a high standard for preparedness for emergencies. The fact that this is an up to date framework and that independent audit of the framework have taken place, provides confidence that is required in regard to how a major emergency on this proposed development will be responded to by all the agencies. I am satisfied that a comprehensive emergency planning regime will apply to the proposed development.
2. It is clear that the Sevesco Directive does not apply to the onshore gas pipeline.
3. SEPIL have indicated that the Emergency Response Plan will be incorporated within the Corrib asset-wide documented emergency response planning and provisions – i.e. integrated with the Terminal Emergency Response Plan.
4. I note the requirement that in the case of Sevesco sites the internal emergency plans for an establishment site involve consultation with the workers there. The external emergency plans involve consultation with the public [Article 11(3) 96/82/EC].
5. It is clear that the Emergency Response Plan and the adoption and approval of that plan is not a matter for ABP approval as part of the consideration of these applications that are before the Board for decision.

#### 41.3.6 Inspector's Recommendation

In the event that ABP decide to approve these applications, I recommend the following condition:

1. The onshore upstream pipeline shall not be operated for the purpose of bringing gas onshore from the Corrib Gas Field until such time as an emergency response plan has been prepared for the area between Glengad, Rossport, Aghoos and Bellanaboy. The plan shall have been agreed by HSE, Mayo County Council and Gardaí and shall be in compliance with any requirements set down in the Major Emergency Plan for the area.
2. The preparation of the Corrib Pipeline Emergency Response Plan shall include consultation with the public on the details to be contained in the plan.

**Reason:** In order to ensure that a fully detailed emergency plan is in place in the interests of public health and safety in the area.



## 41.4 Development Potential of Lands

The E.I.S. in Section 11.3.3 sets out the following:

*“Potential impact from the proposed onshore pipeline on development potential can clearly only occur where such development potential actually exists. Having regard to designated conservation sites and habitats in this area, as well as the statutory policies and guidelines for development in rural areas, it is considered that such potential only occurs within the settlement areas of Gleann an Ghad (Glengad) / Poll on tSómais (Pollatomish) and na hEachú (Aghoos), along the L1202, rather than directly along the alignment of the proposed onshore pipeline, which is set adjacent to the coastline some distance from the public road. It is not considered that the proposed development will have any impact upon the existing development potential – primarily infill development – along the linear extent of the existing settlements.”*

SEPIL also consider that there will be a moderate, temporary negative effect on the saleability of residential properties if they were to be offered for sale during the course of construction of the development. It is considered that those properties within sight of the construction works and along roads which have construction traffic passing back and forth on a daily basis will be affected. SEPIL consider that once construction is completed that property market will gradually return to normal trends.

SEPIL considered property values and drew a number of conclusions from its own examination of the market.

- The market for housing properties has softened in 2007 – 2008,
- Values in Mayo are similar to West of Ireland values.
- Values in the area of the proposed development are deemed of similar order. SEPIL believe this to be because while more remote locations tend to have lower values, the area of the proposed development has high amenity value with scenic views, sea views and proximity to the sea which increases the value back up to the levels of values in County Mayo generally.
- Sales of sites for houses are restricted because of planning policy.
- Throughout 2007 – 2008 sale trends in the area of the proposed development show a number of properties remained unsold. This may have been as a result of the national trend, and in slowdown in property prices or because unrealistic price guides were set.
- SEPIL have indicated that the land use loss due to construction activities will be part of the compensation payable.

### 41.4.1 Observers Submissions

1. Observers expressed concerns that the proposed development would impact on the community and on individual property values as follows:
  - Because of a fear for safety in the vicinity of the pipe, family members who traditionally have come home on holiday to visit the area will be less inclined to do so.

- The market for houses in the area will be depressed because of the proximity of the proposed pipeline to them.
- Family members in particular will not wish to obtain sites on the parents holdings to build, and there is a concern that where such a site is put forward for planning permission, that the planning authority will tend to refuse the site because of the pipeline.

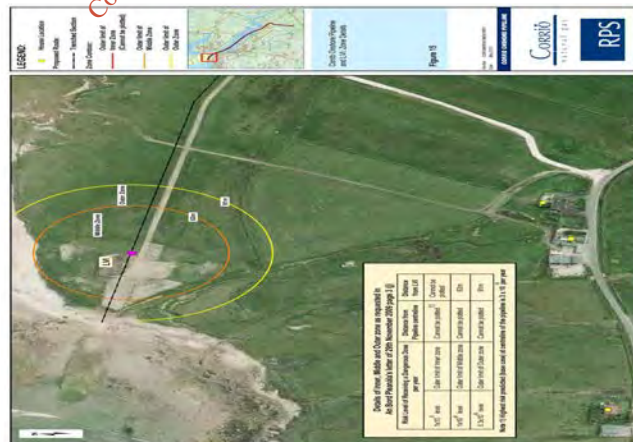
Observers have expressed concern at the impact of the proposed development on the value of their existing property, impact on the development potential of lands, impact on members of their families who will not want to move back or live in the area.

#### 41.4.2 Discussion

The 2010 modified scheme is very different in impact on development potential and lands than the 2009 scheme.

The route of the 2010 scheme does not in my view impact on any development potential of lands in the area.

1. Mayo County Council indicated in evidence that there is not planning policy of restriction on development along the pipeline routes. It is the practice to notify BGE at present of such development along the BGE pipeline route on an informal basis. It would be proposed that a similar practice would pertain for the SEPIL onshore pipeline.
2. Mayo County Council also indicated that there was no specific planning policy restricting development at Dooncarton where landslides occurred in 2003. Each case is considered on its merits under the policies set out in the County Development Plan 2008 – 2014.



SEPIL have indicated that they will have no objection to such development and the only restriction that exists as far as SEPIL is concerned is in the area of relevant lands as set out in the Acquisition Order, 14m wide or 20m wide in peatlands. SEPIL have indicated that compensation will be made to those landowners affected by those restrictions.

SEPIL have provided details of risk levels that apply at LVI and along the pipeline. These are presented in Figure 15 above.

1. One of the major issues relevant there is the safety of public. This is dealt with fully in Chapter 27-30 and in Mr. Wright's Report Appendix 2.
2. Devaluation of property is a difficult issue to pin down. There are many other factors which affect the valuation of property at any one time such as general economic conditions, the price range being targeted, [this affects the size of the market demand], the age of the property and its condition and the potential for development, planning policy etc where new proposed development will be properly finished and will comply with relevant standards and condition. Taking all these factors into consideration it is very difficult in my view to establish that property will be devalued merely because or as a direct result of the proposed development. Accordingly, I do not accept that as a general principle property will be devalued in the area because of this proposed development. In fact, the economic impact of the development, the investment initially, the employment provided will inevitably in my view provide a better market and more demand for property in the area than if this development did not take place.
3. I also note that the area through the forestry will be impacted, but compensation is the appropriate way to deal with that impact.
4. I do not accept that the proposed development will impact the property value or the development potential of lands at Glengad. The lands along the L1202 Glengad are sufficiently removed from the pipeline. I do not believe there will an impact on whether family members will decide to build or not on lands there. It is more likely that planning policy as contained in the CDP 2008-2014 will be the limiting factor on development potential of these lands.
5. In my view there is little development potential in the roadside area on the south of the bay at Aghoos where the pipeline crosses L1202 because there is peat lands on one side, and forestry on the other three sides of this crossing.

The outer zone boundary is shown at 91m at LVI (land use planning consultation per UK HSE LUP Guidelines). A sensitivity study analysis has also been carried out that represents a large failure of valves at LVI and this increases the outer zone boundary to 132m. The highest risk predicted at centerline of pipeline is  $2.9 \times 10^{-9}$  per year, as a result inner ( $1 \times 10^{-5}$ ), middle ( $1 \times 10^{-6}$ ) and outer ( $0.3 \times 10^{-6}$ ) zone boundaries cannot be plotted for the pipeline. What this means is that the risk levels to the public are low and are such that restrictions on development potential would not apply other than in the immediate vicinity (91m) of LVI.

#### **41.4.3 Inspectors Conclusions**

1. The 2010 scheme is very different in impact as regards development potential of lands to the 2009 scheme. In my view there is very little impact.
2. I do not accept the argument that this development will lead to an exodus of local people. I see no reason for this to be the case.

3. The development potential of lands in Glengad, Pollathomais and Aghoos will not in my view be diminished or impacted by the proposed development.
4. I expect that family members wishing to locate near to their family owned land/residence will be able to do so subject to the normal planning criteria that will apply to such development.
5. I am not convinced by arguments that the proposed development will affect the insurability of dwellings at Glengad. I expect this may have more to do with the landslides in 2003. Insurance companies understand risk and risk levels and can factor these into their evaluation of the insurable risk. I accept SEPIL's position on this issue.

### **41.5 Decommissioning of the Proposed Pipeline**

SEPIL confirmed that there is no decommissioning plan at this time for the pipeline but that such plan will be developed in the later stage of the life of the field.

The CER functions as provided in the Petroleum (Exploration and Extraction) Safety Act 2010 cover the control of decommissioning.

Observers argument that the E.I.S. is incomplete because the decommissioning plan is not yet prepared is not accepted.

I accept that it would not be realistic at this early stage to prepare a detail decommissioning plan for the pipeline. The E.I.S. provides an outline of SEPIL's proposals for decommissioning. I believe that is satisfactory at this stage.

### **41.6 Consistency of Planning Policy**

Observers have argued that planning policy should be applied the same for all development. It is argued that the 2009 scheme should have been refused not provided with an invitation to modify the scheme.

The legislation provides the basis for consideration of development that requires a planning permission or an approval under the Strategic Infrastructure Act. The issue of importance in my view is that the assessment of proposed development is carried out properly and that the correct standards are applied. I believe that is the basis on which these applications are being assessed.

In my view it would not have been correct to refuse the 2009 scheme without providing SEPIL with an invitation to consider a modification to that scheme. The legislation provides for that procedure and ABP were in my view using the legislation to facilitate the assessment process which is still ongoing. I do not accept that there is inconsistency in the process adopted by the Board.

### **41.7 Support for the Project**

A number of observers in written submissions and in oral submissions were supportive of the proposed development and these requested that ABP should decide to approve the

applications. This support for the project is not discussed in any detail however the actual submissions are summarised in Chapter 3 (Written Submissions) and in Chapter 15 (Submissions to the OH).

#### **41.8 Offshore Pipeline Stability**

On the question of stability of offshore pipeline and the potential risk that sea currents could move that pipeline and hence damage the onshore pipeline.

SEPIL indicated that a worst case environmental load was used in the analysis. 10 years of current data was available. Factors involved were wall thickness, concrete lining and trenching. The trench was 2m deep 1km from landfall becoming less deep on gradual basis and 60cm after 1.5km. SEPIL sea bed surveys have confirmed the stability of the offshore pipeline, the route and the depth of embedment of the pipeline will be monitored.

#### **41.9 Time to Depressurize Pipelines**

On the question of how long it takes to blow down the pipelines: 19 hours-whole pipeline, 4 hours to 4½ hours – onshore pipeline.

#### **41.10 Inventory of Pipeline**

On the question of the quantity of gas involved in the pipeline – This was clarified offshore and onshore pipeline total 1370 tons @ inlet pressure to terminal of 85 barg onshore pipeline from LVI to Terminal 114 tons @ inlet pressure to terminal of 85 barg.

#### **41.11 Mr. Keane's Closing Remarks**

These points are extracts considered relevant from closing remarks Mr. Keane Senior Counsel on behalf of SEPIL:

1. It is without realistic foundation to suggest that Corrib Gas will be supplied for export. The flow is inward and neither connection is engineered for reverse flow.
2. The proposal to tunnel is one direction under the Bay is a response to ABP request but also responds to community and environmental concerns.
3. The pipeline route has been defined to comply with ABP hazard distance criteria.
4. The individual risk levels have been clearly demonstrated to be below  $1 \times 10^{-6}$  in all directions save within 63 of the LVI and there the risks are below  $1 \times 10^{-5}$  and have been clearly demonstrated to be as low as reasonably practicable ALARP.
5. The routing distance has been clearly demonstrated to be not less than the appropriate hazard distance.

6. The QRA has been provided and all failure modes have been considered as requested by ABP.
7. The risk from the proposed pipeline is no greater than that posed by existing transmission pipelines across Ireland and the localised risk from the LVI is no greater than that posed by AGI installations on existing pipelines throughout Ireland.
8. The permanent way leave 14 metres and 20 metres within the bog areas allows for further mitigation should any unknown archaeology or environmental features be discovered which might require mitigation by avoidance.
9. Clearly the route through the Bay is in the common good as ABP have requested the route out of concerns for safety of public.
10. Clarity has been provided at the OH by virtue of the maps produced which further reduce the area within which pipeline will be laid.
11. The Hydrocarbon Licencing Directive 94/22/EEC (HLD) established common rules for procedures for granting authorisation for prospecting for exploration and production of hydrocarbons.
12. Ireland has ratified the Energy Charter Treaty in The Energy Charter Protocol.
13. Ireland repealed Section 37(1) of the Gas Act 1976 which required all natural gas landed in the state to be offered for sale to BGE. This section was incompatible with the HLD.
14. On the basis of these facts the suggestion by some parties that the public good requires a guarantee of sale of gas to the Irish state is clearly neither possible nor necessary.
15. Alternatives were considered in the 2009 E.I.S. In the present case substantial information has been furnished in the E.I.S. supplemented by additional information furnished during the course of the hearing which has assessed in detail the impacts and constraints of the possible alternatives and demonstrated the significant difficulties with the potential alternatives.
16. SEPIL have carried out extensive flow analysis to arrive at the proposed MAOP pressures in the offshore and onshore pipelines.
17. The LVI has been considered and comparison of the risk associated with LVI and the straight pipe configuration has been provided in Q4.4.
18. The risks associated with LVI are set out in the QRA Appendix Q6.4 Section 8.2 and Figure 12 deals with the assessment of risks associated with same in comparison with the pipeline.
19. The QRA has been prepared in accordance with PD 8010 Part 3.
20. The QRA was not restricted only to third party interference and considered all potential failure modes and other factors were listed with different leak scenarios including construction defect material failure and corrosion (see Q6.4 and Report of PIE Ltd.)
21. The recommendations of Advantica contained in Chapter 5 of that report have been fully complied with contrary to suggestions made (these relate to hazard identification and risk assessment).



22. It is the view of SEPIL that all relevant legislative requirements have been and are being complied with in relation to the preparation of the E.I.S. and the publication of same and a compulsory acquisition order in relation to same.
23. In relation to legal questions regarding the implementation of the Aarhus Convention and EC Directives and transposition into law of same these are legal issues outside the scope of this oral hearing and indeed outside the scope of ABP.
24. Mr. Keane emphasised the extent of the surveys and level of detail provided in connection with this EIA process. The applicant SEPIL is of the view that an extremely robust assessment has been carried out and that the level of design submitted has been more than adequate to allow for a fully informed assessment of the environmental impacts of the project.
25. The design of the pipeline in the tunnel has been based upon the investigations carried out up to 2009 and has been verified on foot of the additional data obtained as part of the ground investigations carried out in Sruth Fada Conn during the course of 2010.
26. SEPIL have proposed the development on the basis of detailed assessment investigations carried out including geophysical surveying of the Bay, survey of bedrock geology of Mayo and ground investigations along the terrestrial section of the route.
27. The geotechnical investigation carried out following the granting of the foreshore licence consisted of 37 locations at regular intervals across the Bay as at 31/08/2010. The maximum distance between investigations is 200m.
28. The production of information (investigations data) is in accordance with requirements of facilitating public discussion. An Taisce's position that each piece of new information should require adjournment of the OH and a formal round of consultation is an untenable position and contrary to case law.
29. SEPIL consider that any irregularity such as the figures omitted from Appendix J, the minor errata, or the additional information in the addenda do not detract from the comprehensive EIS submitted in compliance with the EIA Directive.
30. The EIS has assessed the likely significant impacts in relation to waste and the disposal of same, as well as assessing the likely waste reduction measures, including the proposed reuse of tunnel arisings.
31. Mr. Keane SEPIL states that it would be wrong to incorporate an entire re-hearing of the impacts of the scheme into the scheme.
32. The EMP will not conflict with the EIA or the planning consent which might issue. The EMP will take into account any conditions to which the planning consent may be subject to. It will also take into account any changes to movements of wildlife or other environmental factors that may alter in the interim between the grant of any permission and the period immediately prior to commencement of construction.
33. The conservation objectives of the cSAC and pSPA have as supplied by NPWS (Appendix P) been taken into account during the design of the development of the overall Corrib Gas Field project.
34. The absence of impact on cetaceans from the proposed development has been confirmed by Ian Wilson and Dr. Eamon Kelly Marine Biologist NPWS to the OH.

35. The fully likely significant impacts of the proposed development has been assessed and included in E.I.S. Any further monitoring or survey work is in order to monitor for changes in the environment and to confirm the effectiveness of mitigation measures proposed.
36. Mr. Keane takes issue with An Taisce on a number of points
- No site specific conservation objectives for cSAC/pSPA – he says there are and these are contained in Appendix P1.
  - Salt march at Leenamore Estuary crossing – these are not a qualifying interest for Glenamoy Bog Complex cSAC.
  - He contends that breeding birds surveys have been comprehensively listed in E.I.S.
  - He states that SEPIL have been mindful of EU legislative principles in designing the proposed development. The design avoids any serious compromise of ecological characteristics of the site. It has been clearly established that there will not be a significant effect on the sites (Natura 2000 sites) It is ABP that should decide whether the projects would have an adverse effect on the integrity of the site.
  - On the Machair issue at Glengad, Mr. Keane outlined that it had been clearly demonstrated beyond scientific doubt that the areas through which the pipeline and LVI have been proposed do not contain Machair.
  - It is unsustainable that all decisions by competent authorities should be held up pending the outcome of the Galway Outer Ring Road case in ECJ. In any case there are factual and legal differences between the Galway case and the proposed development.
37. There is no likelihood of any disturbance being detrimental to otters. In the event that pre-construction surveys studies show that any disturbance of otters appears likely then a derogation will be sought.
38. SEPIL do not accept that the 190m of blanket bog is active. This has been confirmed by the evidence of Ms. Neff and can be confirmed by reference to the guidance document and definition of active bog.
39. Mr. Keane set out that in E.I.S. SEPIL had provided additional analysis as required and had demonstrated that peat stability would be safeguarded and that possible landslides in the area of Dooncarton did not in any way threaten the pipeline or the tunnel.
40. He stated that it had been demonstrated that the proposed tunnel design is safe, robust and secure and will be stable within the consolidated materials and rock through which it is to be bored.
41. By proposing to tunnel in one direction the impacts at Glengad have been reduced. It is essential that the tunnelling operation is continuous over 24 hours, 7 days. Extensive noise and light mitigation measures are proposed including additional acoustic cladding sheds.
42. A comprehensive surface water management system has been design for the Aghoos site in accordance with best practice and guidelines.

43. The Glengad L1202 traffic proposed shows a 30% reduction over the peak daily traffic associated with the 2009 landfall works. The maximum level will be 24 two way HCV trips per day in the peak months. The scheme has been designed bearing in mind the size and condition of this road.
44. Mr. Keane presented a reduced calculation at 53000m<sup>3</sup> of peat (not 75000m<sup>3</sup>) to be removed to Srahmore.
45. Mr. Keane confirmed that an extension of a water main from R314 along the L1202 to the Aghoos compound is planned and that this will further reduce traffic impacts. 76000m<sup>3</sup> of water will not now have to be hauled – 3400 two way movements over the lifetime of the construction.
46. Mr. Keane confirmed that tunnel arisings that would require to be exported would be limited to 34000m<sup>3</sup> reducing further the impacts of traffic by some 3400 two way HGV movements.
47. 100 days storage of tunnel arisings has been included for in the design of the compound. This will accommodate any increase in arisings if progress on the tunnel improves over the 11 metres/day anticipated.
48. Mr. Keane contends that the noise levels contained in the E.I.S. (and that were contested) are correctly stated and the wind speeds recorded are correct.
49. Mr. Keane again in his closing remarks (Page 87/88 of the stenography 01/10/2010) again referred the Board to the issue of possible slabbing to protect the umbilicals. Mr. Keane said that the Board had an express power to apply such modification in accordance with Section 182c 5 (b) and that the assessment of the potential impacts of the possible modification has been carried out and is dealt with in the evidence of the relevant experts at the resumed hearing.
50. Mr. Keane said that the Emergency Response Plan does not require E.I.S. as suggested by some observers. The Emergency Response Plan will be in place prior to commissioning of the gas pipeline.
51. Mr. Keane outlined that 55 jobs will be generated directly and a further 76 service jobs indirectly and that these jobs in the area are important in Cill Comáin where population decline has been going on for many years.
52. Mr. Keane stated that it was wholly appropriate and in accordance with proper planning and sustainable development that job opportunities should be created and offered to people including people from the community. In further reference to the social investment fund, the scholarship fund and significant small enterprise funding he outlined that these funds are allocated by independent committees and allocations of these grants are open and not contingent on support for the development in question.
53. Mr. Keane outlined that the proposed development is in accordance with Mayo Co Development Plan and also in compliance with National Development Plan, National Spatial Strategy and West Regional Planning Guidelines.
54. Mr. Keane referred to the pipe at Glengad and stated that it is exempt development and he referred to the decision of the High Court in this regard. He drew the Board's attention to this decision in view of the objections by observers, i.e. to the unauthorised development being conducted at Glengad.

55. Mr. Keane outlined that SEPIL had extended the red line to HWM as requested by ABP. This was done without prejudice to its view that same was exempt development as has since been found by the High Court. He outlined that there will be an overlap between this development and the exempt development but that in no way affects the exempt status of the work at Glengad.
56. It is not correct to say that SEPIL has relinquished the previous section 40 consent.
57. Mr. Keane stated that the development is sustainable and that such an energy source can only be used by one generation.
58. Mr. Keane drew attention to SEPIL's original submission regarding conditions that might be applied to any permission proposed to be granted for the development. He also drew attention to conditions referred to in Mayo County Council submission.
59. In reference to objections that the written consent of the owner of lands was required refer subsection 22 of 2001 Planning and Development Regulations. Mr. Keane stated that such was required for applications made under Section 34 of the Act but not for applications made under Section 182c of the Act.
60. The bona fides interests of the applicant, SEPIL, in making the application for the acquisition order are as a holder of a petroleum exploration licence, the holder of a previous Section 40 consent as well as the holder of a planning permission for the construction of the terminal all clearly demonstrated.
61. In reference to an objection regarding previous development and compound SC4 and an issue regarding exemption of same, Mr. Keane stated the development proposed does not utilize or comprise the existing entrances.
62. In reference to the objection regarding the roadway parallel to the pipeline at Glengad, that was created as part of the 2002 consent and was exempt under Class 16 in Article 6 of the Second Schedule of Planning and Development Regulations 2001. This has been fully reinstated, accordingly there is no application for any unauthorised structure in this area.
63. In further reference to objections regarding welfare facilities at Aghoos compound (these are exempt under Class 17 and Class 16 for the Bog Road Part 1 Schedule 2 and Article 6 of the Planning and Development Regulations 2001) and in reference to the Bog Mat Road this was removed following site investigations and was exempt under Article 6 Class 45. Also archaeological investigations (exempt Article 6 Class 43) and temporary facilities were reinstated after 10 days in April 2010. The Bog Mat Road and fencing there at present in connection with and post dates the foreshore licence is not part of this application is exempt development in Class 45 and 16 of Planning and Development Regulations 2001.
64. In relation to conditions that ABP may attach to any permission Mr. Keane stated the Board should limit such conditions to the construction and should not limit or restrict the ambit of DCENR or CER to apply conditions and regulate the operation of the pipeline in accordance with the standards including IS EN 14161, ES PD 8010, IS 328.
65. Mr. Keane further stated that operating pressure limited to 99 barg at LVI and a limit of 350 mscfd should not be interfered with by ABP. These should be left with

- DCENR/CER to regulate, to interfere with these could adversely impact upon the strategic importance of the gas field.
66. The pipeline design incorporates a wall thickness of 27.1mm, a design factor of 0.3 has been adopted even though the pipeline is in a rural area, the minimum distance to normally occupied dwellings is 234m. IN addition to the QRA and a highly comprehensive and thorough bow tie analysis have been submitted. Hydrotesting of the pipeline to 504barg will be carried out.
  67. SEPIL state that the pipeline is expressly excluded under the terms of the Directive itself (SEVESCO 2).
  68. The question has arisen that article 6(4) of the Habitats Directive automatically applies is incorrect and there is no evidence of significant impact on a Natura 2000 site arising from this proposed development. The scientific evidence agreed to by NPWS is that there can be no question that the integrity of the site is called into question. The scientific evidence has established that Machair is not affected at Glengad. The studies of vegetation at Glengad predated the stripping for the landfill works in 2008.
  69. Mr. Keane confirmed that SEPIL believe the PMC is an effective vehicle for project monitoring and he confirmed that SEPIL will be open to ideas that the Board may wish to pursue that may improve the effectiveness of community representation.
  70. SEPIL are happy to continue the investment in the future of the community via SEPIL independently managed social investment and scholarship programmes.
  71. SEPIL have demonstrated in evidence that their enquiries show that insurance of properties in the area has not been affected by the proposed pipeline.
  72. SEPIL's view is that no project monitoring committee or other committee should be left in a situation where it can be held to ransom or immobilized by parties opposed to the project if same has been permitted by the appropriate relevant authorities.
  73. Mr. Keane confirmed that the wall thickness of the 16" pipe on the LVI loop is 27mm.
  74. Mr. Keane stated that no community concerns have been subject to dismissal by the applicant. The applicant has sought to listen and take on board the view of the community in its design and routing of this development.
  75. SEPIL suggest that the board might consider applying a condition that there should be no significant impact by construction traffic on bus services along that portion of the route. Refer DCENR submission by ENVIRON Section 4 second bullet point [DRN OH 174]  
*"Impacts on public transport. The Addenda provide further information that outlines the aspects of the Driver Code of Conduct that will increase driver awareness of bus passenger safety. The Addenda also emphasize that most local buses only share 2.4km of their route (along the R313) with the HCV construction vehicles, hence reducing the potential for impact on bus services. Nonetheless, we recommend that the potential impact on bus journey times be included in the monitoring process."* [Refer ENVIRON statement part of DCENR Closing Remarks]

## Chapter 42 **Landscape and Visual Impact**

### **42.1 Landscape Appraisal of County Mayo**

The site of the onshore pipeline falls within the Area C North West Coastal Bog in the Mayo County Development Landscape appraisal of County Mayo.

In the landscape appraisal it is considered that development can have a disproportionate visual impact in such low vegetation terrain due to the inherent inability to be absorbed physically and visually.

The critical landscape factors are identified as smooth terrain and low vegetation.

#### **42.1.1 Policy with Regard to Areas Designated as Sensitive**

These areas have a distinctive, homogenous character, dominated by natural processes. Development in these areas has the potential to create impacts on the appearance and character of an extensive part of the landscape. Application for development in these areas must demonstrate an awareness of these inherent limitations by having a very high standard of site selection, siting layout, selection of materials and finishes. Applications in these areas may also be required to consider ecological, archaeological, water quality and noise factors insofar as it affects the preservation of the amenities of the area.

#### **42.1.2 Areas Designated as Scenic Routes**

- R314 from Belderrig to Bunatrahir Bay and from Glenamoy to Barnatra
- Local road from south of Pollatomish to Barnatra

#### **42.1.3 Policy with Regard to Scenic Routes**

Scenic routes indicate public roads from which view and prospects of areas of natural beauty and interest can be enjoyed. Sightseeing visitors are more likely to be concentrated along these routes.

The onus should be on the applicant when applying for permission to develop in the environs of a scenic route, to demonstrate that there will be no obstruction or degradation of the views towards visually vulnerable features nor significant alterations to the appearance or character of sensitive areas.

#### **42.1.4 Areas Designated as Highly Scenic Vistas**

- Local road north of Pollatomish (looking towards Broad Haven)



#### 42.1.5 Policy with Regard to Protected Views

Highly scenic views or vistas indicate areas along public roads from which views and prospects of areas of high natural beauty and interest can be enjoyed. Sightseeing visitors are more likely to be concentrated along these areas.

Development located between the public road and the seashore, lakeshore or riverside should be subject to strict visual criteria. New development should only be considered where it can be demonstrated that it does not obstruct designated highly scenic vistas nor alters or degrades the character of the surrounding landscape.

#### 42.1.6 Indicative Policies Montain Coastal Zone Policy Area 1

- **Policy 1**  
Recognise the substantial residential development existing in some locations and the further pressures for residential development in this policy area.
- **Policy 2**  
Facilitate appropriate tourism and amenity development in a progressive and clustered manner, where feasible, that reflects the scale, character and sensitivities of the landscape.
- **Policy 3**  
Encourage development that will not have a disproportionate effect on the existing character of the coastal environment in terms of location, design, and visual prominence.
- **Policy 4**  
Consider development that does not significantly interfere or detract from scenic coastal vistas, as identified in the Development Plan, when viewed from areas of the public realm.
- **Policy 5**  
Encourage development that will not interrupt or penetrate distinct linear sections of primary ridge lines and coastlines when viewed from areas of the public realm.
- **Policy 6**  
Preserve any areas that have not been subject to recent or prior development and have retained a dominantly undisturbed coastal character.
- **Policy 7**  
Consider development on steep slopes, ensuring that it will not have a disproportionate or dominating visual impact on the surrounding environment as seen from areas of the public realm.



## 42.2 SEPIL's Proposals Where They Impact on Landscape

### 42.2.1 Permanent Impact:

- (1) The LVI and the equipment and fencing there will be a new feature in that landscape. SEPIL stated in the E.I.S.:  
The LVI will not be a prominent feature in the landscape at the headland at Glengad due to its low lying nature and design mitigation measures. No significant visual impacts are predicted for properties with a potential view across the location of the restored LVI.
- (2) The access roadway into the LVI will be a permanent feature in that landscape. It is recommended that the natural regeneration of the laneway is hastened by a use of a mixture of gravel and peaty material with locally collected seeds of native species found at this site under the guidance of a landscape architect and project ecologist.
- (3) The reinstated pipeline route will re-vegetate but has the potential to be different looking linear vegetation. SEPIL state in the E.I.S.:  
After reinstatement and establishment of the previous vegetation cover the buried pipeline and areas of excavation will blend in with the existing landscape. Satisfactory reinstatement of disturbed landscapes will result in no residual landscape impacts.
- (4) The line of the pipeline through forestry will be a permanent feature in the visual appearance of the forestry plantation. SEPIL state in the E.I.S.:  
Clearings within commercial forestry will remain but these are common features in such plantations and no significant landscape or visual impacts will result.

### 42.2.2 Temporary Impact:

- (1) Compound SC1 and SC2 at Glengad will be highly visual and intrusive consisting of 3m high fenced in construction site with associated construction equipment, crains, etc. in that landscape.
- (2) The compound at Aghoos is the area where the more significant impact on the landscape will occur over 26 months and with night lighting intrusion through much of this period.
- (3) Impact of linear construction site from Aghoos to the terminal at Ballinaboy Bridge in Bellagelley South. SEPIL have set out the position as follows:  
The temporary magnitude of the visual impact is high. The predicted significance of construction stage visual impact for the "Highly Scenic View" and "Scenic View" from L1202 is substantial negative reducing to no significant impact during the operational phase. The visual impacts will be temporary to short term in nature.  
Night time lighting mitigation measures are proposed.



## 42.3 Observers Position

### 42.3.1 Visual Impact: Impact on pristine local natural environment

- Visual impact on landscape not in conformity with Mayo CDP
- SEPIL have not used the landscape character assessment from Mayo County Development Plan
- Mayo County Landscape Policy indicated industrial development has high impact potential for the area
- It is not accepted that overall the visual impact and encroachment on the highly scenic landscape will be one of little or no residual impact.
- The contract period of 26 months is considered to extend beyond what can be described as temporary and will, it is contended, affect three tourist seasons.
- It is considered that the traffic associated with the proposed development will itself constitute a visual negative impact along the L1202 scenic route.

### 42.4 Mr. O'Sullivan's Report

Mr. O'Sullivan has examined the visual impact of the project on the landscape and on the amenity of the area for both the 2009 scheme and the 2010 modified proposed development.

Mr. O'Sullivan's 2009 conclusions were as follows:

*"Having regard to the temporary nature of the visual impacts arising from the proposed works to construct the onshore pipeline, and the small extent of the visual impact arising from the permanent above ground structures which are proposed, it is concluded that the visual impact of the proposed development, while negative, would not seriously injure the visual amenity or the landscape character of the area, nor would they contravene the above policies of the development plan. It would not, therefore, render the development contrary to the proper planning or sustainable development of the area."*

In Section 4 of his 2010 Report, Mr. O'Sullivan sets out the considerations of the proposed development that I have summarised above.

I accept all Mr. O'Sullivan's conclusions and I recommend that ABP accept his conclusions which I have summarised as follows;

1. **Glengad:** Mr. O'Sullivan makes little distinction between the 2009 scheme and the 2010 modified proposed development in respect of visual impact on landscape at Glengad.

I fully agree in relation to the operational phase of the development. I agree that the above ground LVI at Glengad would not have a significant adverse impact on the quality of the landscape or the area's visual amenity. I accept the mitigation measures proposed by SEPIL setting the LVI down in a ditched area and using gravel peat mix seeded to limit the visual impact of the access road.

In relation to the construction phase at Glengad there are different visual amenity and landscape impacts related to the 2010 proposed development

Tunnel boring is not proposed from the Glengad site in the 2010 scheme and this will reduce visual impact and construction activity in the landscape significantly over that envisaged with the 2009 scheme. The level of visual impacts from traffic to and from Glengad will be reduced because of reduced vehicle trips per day.

On the negative side the construction works will extend over a much longer period and while temporary in the overall sense the fencing and barriers and the construction activity will be in place and will constitute a visual intrusion on the landscape over at least two full tourist seasons. In my view this needs to be mitigated by design and colour chosen for the barriers and fencing on this site.

I am satisfied that the construction spread for the pipeline and the compounds SC1 and SC2 are at sufficient distance from residential properties that the visual amenity impacts on those residents of the fencing compounds and construction activity while negative they are acceptable. They are temporary and will have no impact during the operation phase of the project.

2. Aghoos: I accept Mr. O'Sullivan's assessment that the works at Aghoos are likely to have a very substantial negative effect on the character of the surrounding area.

I note the photomontage (viewpoint 5) and I think Mr. O'Sullivan is correct that the photomontage is not a definitive illustration of how the Aghoos compound will impact that landscape. It is useful nonetheless.

Mr. O'Sullivan's considered view is that the visual impact of construction would not materially contravene the provisions of the County Development Plan with regard to the protection of the character of the landscape and designated views including those across Sruth Fada Conn Bay, nor should the visual impacts of construction render the project contrary to proper planning and sustainable development of the area.

I fully agree and I recommend to ABP that Mr. O'Sullivan's advice is accepted.

I would also make the following points:

1. While the location of the Aghoos compound may have chosen itself practically, if one were to go out and select a site in the Sruth Fada Conn Bay area from which to locate a major construction site and from which to construct a tunnel under the Bay, one could not, in my view, find a better site than that chosen at Aghoos from the specific point of view of visual impact, visual impact on residential amenity and impact on the landscape in the area. The road fronting the site, L1202, is of much higher elevation than the compound. The ground falls from the road towards the bay sufficiently that the compound can and is proposed set down into that landscape. The residential properties are a considerable distance from the compound and while impacted negatively in my view such impacts will be slight.

I am satisfied that the mitigation measures for night lighting at the compound will manage and control the impacts of night time lighting to an acceptable level at residential properties. The lights will be seen in the landscape but they will not be an intrusive element on the residential amenity in the area.

2. The 2010 proposal to tunnel under Sruth Fada Conn Bay is in my view the better mitigation than the alternatives as presented in the 2009 scheme which would have seen tunnelling at at least two locations and open cut for approx 4.2km of pipeline through Rossport. The visual impacts associated with the 2010 tunnel proposal are much reduced over the 2009 scheme.
3. The restoration works at Aghoos will achieve low vegetation and smooth terrain, the two landscape characteristics of importance identified in the County Development Plan.

For these reasons, I fully endorse the advice received from Mr. O'Sullivan and I recommend as follows to ABP in the event that ABP decide to grant an approval to this application:

## 42.5 Inspector's Recommendations

1. The perimeter fence proposed at the site in Aghoos shall be carefully planned, detailed and constructed such that a regular even line in height, texture and alignment shall be achieved.

**Reason:** To mitigate the appearance of the fence in this landscape.

2. All boundary fencing at Aghoos and at the Glengad compound sites shall be coloured (dark green or brown is suggested) and shall be subject to approval of Mayo County Council.

**Reason:** To mitigate the visual impact of the fencing in the landscape.

3. The lighting control within the compound at Aghoos and the compounds in Glengad shall be designed such that lighting can be switched off at night in those areas of the compound where lighting is not required at night.

**Reason:** To mitigate the impact of lighting in the landscape at night.

4. The measures to mitigate the visual impact of the proposed development set out in section 10 of the environmental impact statement submitted to the board on the 31<sup>st</sup> May 2010 and in the submissions made by the applicant to the oral hearing which convened at Belmullet on 24<sup>th</sup> August shall be implemented in full in the course of the development.

**Reason:** To protect the visual amenity and character of the area.



## Chapter 43 Hydrology and Eco-Hydrology

### 43.1 Introduction

The E.I.S. in Chapter 15 presents the potential impacts of the 2010 proposed scheme on soils, geology, hydrology and hydrogeology. This is supported by data and further analysis on Hydrological Impact in Appendix M5, Peatland Hydrological Character Report in Appendix M6, Surface Water Drainage Systems at Tunnelling Compounds in Appendix M7.

### 43.2 Soils and Geology

The ground conditions and bedrock geology are described in the E.I.S. and in the detail assessments which are presented in Appendices (M1) – Geotechnical Assessment (non peat areas) and (M2 and M3) Ground Stability (peat areas).

### 43.3 Changes in the 2010 Modified Development

The 2010 modified proposed development consists of three parts as follows:

1. Onshore pipeline at Glengad - this is similar in extent and site to that proposed in 2009. The hydrology considerations were dealt with in the Inspectors 2009 Report.
2. The tunnel section under Sruth Fada Conn – this is new and involves a large tunnel construction compound at Aghoos. The tunnel is considered in Chapter 35 above.
3. The pipeline from Aghoos to Bellagelly South into the terminal site – this is similar in extent and site to that proposed in 2009. The hydrology considerations were dealt with in the Inspectors 2009 Report.

#### 43.3.1 Additional Considerations 2010 Flood Risk Assessment

There are additional considerations to those dealt with in the Inspectors 2009 Report as follows:

##### 1. Flood Risk Assessment

The E.I.S. Chapter 15.2.1.1. and Appendix M5 indicate that OPW flood hazard map does not show any areas prone to flooding in the vicinity of the proposed pipeline route.

The implementation of EU Directive 2007/60/EC has been carried out through S.I. 122/2010 of 15<sup>th</sup> March 2010.

DEHLG and OPW have jointly issued guidelines (2009): “The Planning System and Flood Risk Management Guidelines for Planning Authorities” for implementing the risk assessment process required by the EU Directive 2007/60/EC.

## **2. The Planning System and Flood Risk Management Guidelines for Planning Authorities**

This guidelines document published by OPW and DEHLG jointly outlines how to identify and assess flood risk.

The guidelines outline how regional and local authorities and those proposing development will be involved in flood risk assessment. The guidelines provide examples of how development proposed can be adapted in a manner that will separate vulnerable residential development from flood plains at risk.

SEPIL have provided a Detail Flood Risk Assessment as part of an addendum to the E.I.S. The addendum was submitted at the 2010 OH (DRN OH 8).

The EC (Assessment and Management of Flood Risks) Regulations 2010 S.I. 122 require assessments of low, medium and high probability flooding for coastal waters and for river basin waters. The OPW will prepare the Flood Risk Assessment Framework and will produce preliminary flood risk assessment by December 2011, flood hazard maps by December 2013, and flood risk management plans at river basin level by December 2015.

The Western Regional Authority have provided a Draft Regional Flood Risk Appraisal (Jan 2010) for the west region 2010-2022.

## **3. Draft Regional Flood Risk Appraisal**

This appraisal follows from the guidelines issued to planning authorities on Flood Risk Management which recommended that Regional Flood Risk Appraisal and Management Policy Recommendations are necessary.

- The precautionary principle to Flood Risk Assessments is recommended.
- The framework for the National Preliminary Flood Risk Assessments by OPW is outlined.
- Information on where data for flood risk assessment may be sourced is provided.
- The focus on Regional Flood Risk Appraisal in the RPG's will concern key settlements Galway City, Tuam, Ballina-Castlebar, Roscommon town, Monksland (Athlone Region).
- In recommendation of Best Practice for Local Authorities are the following:
  1. It is essential that development does not create significant problems for long term flood management in coastal areas subject to erosion, deposition.
  2. Where coastal areas are bounded by Natura 2000 sites there is a need to mitigate the effects of coastal squeeze on these sites.
  3. It is advised that key infrastructure suppliers should assess current elements and stress test future projects against flood risk.

Policy objections for flood risk management include the following:

- New development should be avoided in areas at risk of flooding.
- A number of objectives deal with sequential approach and justification test for zoning of lands particularly when flood plain lands are being considered for zoning as development land.
- Measures such as flood compensation works or new hard-engineered flood defences will not be acceptable as justification for development in a flood plain. Such measures will only be considered as part of a proposal if development/zoning is warranted by justification of these on planning and sustainability grounds in the first instance and no alternative site is available.

### 43.3.2 Coastal Flood Risk Assessment

SEPIL have provided data based on analysis as part of the Irish Coastal Protection Strategy Study to predict extreme water levels for Glengad and Aghoos as follows:

Location	Return period event	Water level to OD Malin
Entrance to Sruwaddacon Bay	1 in 200	+3.029m
Head of Sruwaddacon Bay	1 in 200	+3.289m
Entrance to Sruwaddacon Bay	1 in 1000	+3.247m
Head of Sruwaddacon Bay	1 in 1000	+3.429m

On the basis of this data the finished ground level for the LVI is 3.08m above the estimated 1:1000 year return period event. At the tunnel reception compound at Glengad the lowest existing ground level is 3.68m above the estimated 1:1000 year return period event.

On the basis of the data the proposed finished ground level for SC3 at the tunnel access pit construction site at Aghoos is 2m above the estimated 1:1000 year return period event.

### 43.3.3 Fluvial Flooding

Leenamore River and the Aghoos Compound SC3 – SEPIL consider that because of the elevation difference (5m) between the two sites that there is not any risk of watercourse flooding impacting SC3.

### 43.3.4 Drainage Channels in Vicinity of LVI

Three such channels are considered and in the case of one channel, Channel 2 which runs near SC2 the tunnel reception compound, it is the estimated 1:1000 year return event (1.91 m<sup>3</sup>/sec) is greater than the flow capacity of that channel (capacity 1.30m<sup>3</sup>/sec). SEPIL consider the site is classified as “Less Vulnerable Development”

in accordance with the guidelines and SEPIL conclude that the risk of fluvial flooding to the LVI and to the tunnel reception pit SC2 is minimal.

#### 43.3.5 Groundwater Flooding LVI

SEPIL have measured groundwater levels at the LVI which the highest level recorded was 600mm below the proposed finished ground level. SEPIL also indicate that a drainage system for the LVI site which will discharge to a concealed outfall in the cliff face will intercept groundwater and surface water. SEPIL conclude that the risk of groundwater levels rising above the finished LVI ground level is very low.

#### 43.3.6 Overland flow flooding

SEPIL considers that the use of open channel interceptor drains as mitigation measure on the construction site reduces the risk of overland flows causing flooding.

### 43.4 SEPIL's Conclusions

1. A flood risk assessment has been carried out in accordance with the "Guidelines for Planning Authorities".
2. The flood zone categorisation and type of development involved does not require a justification test for planning purposes for the Corrib Onshore Pipeline.
3. In accordance with Table 3.2 of the guidelines all development within the Corrib Onshore Pipeline Project is classified as 'appropriate'.

### 43.5 Observers Submissions

#### Pollution

- Risk to bay from bentonite from grout and from surface water discharges, peat run off
- Potential oil spills, umbilical leak, diesel spillage, etc. in the area
- Oil spills will decimate local shell fish industry

The control of spillages and pollution from the Aghoos Compound has been assessed as part of the tunnel in Chapter 35.

### 43.6 Discussion

1. On the face of it the proposed development (i.e. the onshore pipeline will be buried) will not be affected by hydrological events.
2. There are however a series of issues relating to the hydrology of the site which need to be addressed in relation to the construction of the pipeline.

- (a) Surface water management during construction and the system designed for that purpose.
- (b) Stone road construction acting as a drain.
- (c) Potential environmental impact from discharges of surface water and/or spillages from the construction site.
- (d) Compliance with the flood risk assessment guidelines for planning authorities.
- (e) Use of tunnel arisings in the stone road.

#### **43.6.1 Surface Water Management During Construction**

This issue was considered in the 2009 Inspectors Report. I have the same concerns regarding the 2010 proposed development. The drainage system is designed for a 1:10 year storm, i.e. a normal requirement on a linear infrastructure project. However, the geotechnical risk register recognises that the following risk control measures:

- Plan/program for high rainfall events
- Use conservative design parameters for the design storm event
- Detailed method statement to be proposed with regard to dewatering and protection of the works.

The site, particularly through the peat lands is not a normal linear infrastructure development site. The west coast of Mayo has very high relative rainfall levels. SEPIL have provided a S.W. drainage system for the Aghoos compound capable of handling a 1:20 year 60 minute storm and while that system can be extended so that storage in the swales can be extended to approximately 1:100 year 60 minute storm event, I am not satisfied that a conservative enough approach has been taken in the design of the proposed surface water management system for construction works. I am recommending that the system be designed for a larger rainfall event.

#### **43.6.2 Stone Road Construction Acting as a Drain**

This was dealt with in the 2009 Report. Mr. O'Donnell Geotechnical Consultant appointed to advise ABP also dealt with this issue in his 2009 Report. I expect there will be an adverse impact on the peat lands hydrology from the stone road. I expect that the mitigation measures proposed will work to reduce that impact. Mr. O'Sullivan in his report (Appendix 1) has considered in detail the impact on the natural environment and he has concluded that there will be an adverse impact on the peat lands from the proposed development, that the impact will be local and that the impact does not have an adverse affect on the integrity of the cSAC Glenamoy Bog Complex (No. 500). I am satisfied that the detailing proposed for construction and restoration and reinstatement on top of the stone road will mitigate the impact of construction of the stone road on the environment.

### 43.6.3 Environmental Impact from Discharges of Surface Water

#### Potential Environmental Impact from Discharges of Surface Water from the Construction Site and/or from Spillages along the Site

The surface water discharge locations have been detailed (DRN OH 2009 97) on DRG 001 and a revised schedule of renumbered discharge locations was presented (DRN OH 2010 140).

Once the design of the surface water management system is adequate to cope with an extreme rainfall event as (outlined in 43.6.1) above then in my view the control of discharges can best be handled by way of condition.

### 43.6.4 Flood Risk Assessment

The flood risk assessment provided by SEPIL in the addendum to the E.I.S. as submitted at the OH is generally in accordance with the requirements of the guidelines for planning authorities while the Channel 2 as shown on Figure 1.0 of the addendum \appendix F (DRN OH 8) may be at risk of flooding during an extreme storm event [estimated by SEPIL as 1:300 year event]. The risk will be to the construction shaft for the reception pit of the tunnel at Glengad, and will only apply while that pit is in use. On completion of the proposed development the tunnel reception pit will be removed. The pipeline at that location will be deep due to connection with the tunnel and once the area is backfilled I am satisfied there will be adequate protection for the pipeline in:

- (1) Depth of pipeline.
- (2) Method of construction will provide concrete slab protection over the pipeline at Channel 2.

I am also satisfied that the flood risk assessment provided by SEPIL does not conflict with the Draft Regional Flood Risk Appraisal for West Region as set out by West Regional Authority in the RPG's 2010 – 2022.

### 43.6.5 Tunnel Arisings

It is proposed to use tunnel arisings (34000m<sup>3</sup>) as materials for the stone road construction and other on site construction.

In principle there is no problem with this use of the tunnel arisings. The issue of importance is a construction materials specification issue. Materials from the tunnel arisings that are suitable for construction of the stone road will be controlled by that specification. I am satisfied that an appropriate condition can be used to ensure that environmental impacts do not arise from the use of tunnel arisings with the stone road.



### 43.7 Ecohydrology

This aspect of the proposals in respect of the pipeline have not changed in the 2010 modified proposed development. As this matter was considered and assessed in the 2009 report it is not proposed to repeat that consideration here.

### 43.8 Inspector's Recommendation

1. The SC2 reception pit construction shall be protected from inundation by a severe storm event and from any overflow of Channel 2.

**Reason:** To prevent any damage to the Environment that may result from an overflow of this channel.

2. The mitigation measures proposed for the construction of the stone road in peat lands as set out in the E.I.S. Section 15.4.3 and in Tables 15.4 and 15.5 shall be implemented in full.

3. That particular attention be taken in the final detailing of the stone road where it approaches the Leenamore river and the two streams and ditches to ensure that permeability barriers to restrict free drainage through the stone road itself are installed at those locations.

4. The construction detail for the compounds regarding drainage and restoration in the peat lands shall be similar to that used for the stone road.

**Reason:** To ensure that the impact of the stone road on hydrology of the peat lands is minimised.

5. That a conservative approach be taken to the S.W. drainage system which should be redesigned to cater for a 1/100 year event.

**Reason:** This will reduce the risk of surface water contributing to any peat instability. This will also reduce the risk of potential pollution arising in Sruwaddacon Bay or in the freshwater river and stream systems where the surface water will discharge.

6. All the construction work in the peat land shall be supervised by an experienced geotechnical engineer who should liaise with the eco-hydro geologist to ensure that hydraulic paths in the peat are identified, marked and reinstated satisfactorily.

**Reason:** To ensure that the impact of the stone road on hydrology and eco hydrogeology of the peat lands is minimised.

## Chapter 44 Haul Routes and Traffic Plan

### 44.1 SEPIL Proposals

SEPIL has identified a Haul Route for the proposed development. These access/haulage routes are shown on Figure 7.7. They have also assessed the traffic on the existing network and they have estimated the traffic flows and peak period traffic flows at the junctions on the haul roads. The details are contained in Chapter 7 Traffic of the revised E.I.S. together with Appendix E which contains the Traffic Management Plan and Appendix F which contains the Traffic Impact Assessment. In Appendix R the quantities of peat and stone that will be hauled are estimated and set out in a materials balance table. The master plan for traffic on a monthly basis bringing together the predictions for haulage of materials and equipment inwards to the site and the personnel trips to and from the site and the predictions for haulage of materials and equipment outwards from the site are presented for (i) Glengad site, (ii) Aghoos site, (iii) Srahmore site, (iv) Bellanaboy Terminal site along the route in Appendix E. These are contained in Appendix 1 and Appendix 3 at the back of Appendix E. The E.I.S. also contains detailed traffic management proposals along the route. Consideration is given in the traffic assessment to combinations of traffic from the onshore pipeline and from other works on the overall scheme the Terminal construction and the support works onshore for the offshore pipe laying. It is noted that construction work on the terminal is almost complete and that works on laying the offshore pipeline are completed. There are still works to be carried out at Glengad associated with the umbilical offshore construction and pull in and work to commission the offshore pipeline.

SEPIL propose that two access/exits will be established for the tunneling compound at Aghoos and details of the sight lines for these access points are provided together with details of the sight lines at junctions at the terminal entrances at Gate 1 and Gate 2, at the Glengad site entrance, and at Srahmore peat deposition site entrance in reference to Appendix Drawings 6013-1016 to 6013-1021 and refer also to Appendix F see Diagrams 6.1 to 6.6.

SEPIL have indicated that the traffic flows to and from Glengad for the onshore pipeline will be less than the traffic flows that arose and that SEPIL say were accommodated satisfactorily using the HCVs convoy system during the construction of the offshore pipe pull in Glengad (2009).

#### 44.1.1 SEPIL proposed changes from 2009 proposals

In Chapter 7 of the E.I.S. for the modified proposed development SEPIL have set out the traffic information for the modified proposed development. This differs from that set out in the 2009 E.I.S. in a number of important aspects.

1. Rossport – there will now be no traffic/transportation of HCVs or any construction related traffic through the Rossport local road network north of Sruth Fada Conn Bay.  
The only traffic that is envisaged making occasional visits to Rossport are personal vehicles required for compliance monitoring such as noise surveys. There may also be use related to Rossport pier in the unlikely event that boats are caught out in severe weather

conditions. Rossport pier would then be used for temporary mooring and crew access. This was confirmed at Oral Hearing 2010 [DRN 138]. I am satisfied that there are therefore no issues of significance related to the local road network at Rossport or on the bog rampart roads there.

2. Glengad – The L1202 will be the Haul Route for construction of the 500 metre length of pipeline there chainage 83+380 to chainage 83+880 of the proposed pipeline from that landfall to the tunnel reception pit and for the construction works associated with the tunnel reception pit itself and for removal of the tunnel boring machinery on completion of the tunnel.

The L1202 will also be used in connection with the offshore installation of the offshore umbilical and for such works associated with the commissioning of the offshore pipeline as are located at Glengad.

3. Aghoos – The L1202 from Aghoos to R314 at Bellagelley will be the Haul Route for construction of 7.12 km (chainage 83+880 to chainage 90+000) of the proposed pipeline. The L1202 from Aghoos to R314 will also be the haul route for part of the construction of 1.720Km (chainage 90+000 to 91+720). The construction traffic for this latter section will also use the existing terminal entrance on the R314 as the access to the construction site.

4. Traffic Management Plan. A draft Traffic Management Plan has been provided in Appendix E of the E.I.S. The Traffic Management Plan is an updated version of the Traffic Management Plan proposed in 2009. Mitigation measures are proposed to improve the performance of the TMP and to reduce the impacts. SEPIL are proposing to manage the process with a transport Manager and a Project Logistics Management Group. A code of conduct for driver behaviour has been established and the longer programme is identified as providing opportunities to carry out transport of materials at times which will not conflict with local road user needs – school pick-up times, funerals, etc. The longer programme also provides the opportunity to transport materials when the weather conditions and the haul route is safe for that transportation.

## 44.2 Observers Submissions

### Traffic:

- The needs of other road users are only marginally considered in the TMP
- The TMP is indefinite: People do not know the time or duration of works
- Past experience of TMP was bad : no information was available, the actual written plan was out of date

### L1202 Road Traffic Haul Route Issues

- The route is dangerous because overrun with heavy traffic and because part of the road is widened and part is not widened. This is dangerous practice for residents and school goers, speed sensors are off at night.
- Appearance of Gardaí/security on local road all the time is unsettling
- Houses and walls are being damaged in process of construction.
- Health and Safety Authority should be monitoring it.

- No hydrologist was available from NPWS for questioning at the OH regarding drainage affect on local area due to road construction
- People on L1202 deserve same consideration as Rossport received from ABP – Rossport route deemed unacceptable.
- The traffic plan was not followed during Glengad works 2009

## 44.3 Traffic Management Plan

### 44.3.1 Traffic Demand

Figure 7.7 (attached) shows the haul routes proposed. Appendix E Section 3 details the Route lengths involved.

An assessment is presented in Appendix E of the existing Network traffic loading and an estimate is presented of network link loadings and peak period traffic loadings for junctions as a result of the proposed traffic from the construction works. Scenarios are presented for

(1) Daily construction traffic during the predicted peak month for HCV movement i.e. month 2 of the 26 month programme.

(2) Daily construction traffic flows if all construction activities were to peak simultaneously. L1202 approximately 1.6 km of this road west of Pollathomais is limited to 4.0 m wide and therefore insufficient width to allow two HCV's to pass each other. The remainder of the L1202 has been widened strengthened and is considered to have adequate link capacity to cater for the peak traffic loads. The peak traffic load on the narrow part of the L1202 is estimated to be 48 two way daily HCV trips during the peak month and this will continue for 3 months in all.

It is proposed to use the convoy system (5 HCVs) as was used when the landfall pull in works were carried out in 2009. The peak daily HCV movement to the landfall site (2009) was more than that estimated for the onshore pipeline as now proposed [E.I.S. Section 7.5.4.1].

The addendum provides information that traffic at Glengad site in 2008 amounted to 1000 HCVs over 6 months (during preparation as I understand it for offshore pipeline). In daily flow terms in 2008, the HCVs peaked at 93 HCVs per day (2008), in 2009 activities peaked at 42 HCVs per day, in the 2010 proposal the level will be 24 HCVs per day for month 2 (peak month).

### 44.3.2 Junctions

The junctions are shown on the attached Figure 7.1.

The four junctions site 4, site 5, site 7, site 8 have been identified as the key junctions along the route. The results of analysis carried out are shown in the E.I.S. as follows.

Site 4: R314, L1204, L5244.

The results indicate that the cross roads junction will operate below capacity and that queuing and delay will not occur at this junction during two am and pm peak hours in the peak construction period for HGV movements.

Site 5: L1202 and R314 Junction

The results indicate that the cross roads junction will operate significantly below capacity during two am and pm peak hours in the peak construction period for HGV movements. Queuing and delay will not occur at this junction.

Site 7: L1202/L5243 in Pollathomais

This junction will operate below capacity during two am and pm peak hours in the peak construction period for HGV movements. Queuing and delay will not occur at this junction.

Site 8: R313/L1204 An tSrath Mór

This junction will operate below capacity during two am and pm peak hours in the peak construction period for HGV movements. Queuing and delay will not occur at this junction.

It was concluded in the E.I.S. that link capacity and junction capacity can cater satisfactorily for the predicted traffic generated by the proposed construction of the development.

#### 44.3.3 **Traffic in Belmullet**

The impact of potential traffic movement through Belmullet carrying tunneling material to the landfill at Tallaght Belmullet was assessed and considered to be negligible in relation to existing traffic in the town.

Appendix F Section 6.3.3

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**LEGEND:**  
Proposed Access/Haulage Route

Proposed Access/Haulage Routes

**Figure 7.7**

File Ref: M8641/07/0004 - 2010  
Date: May 2010

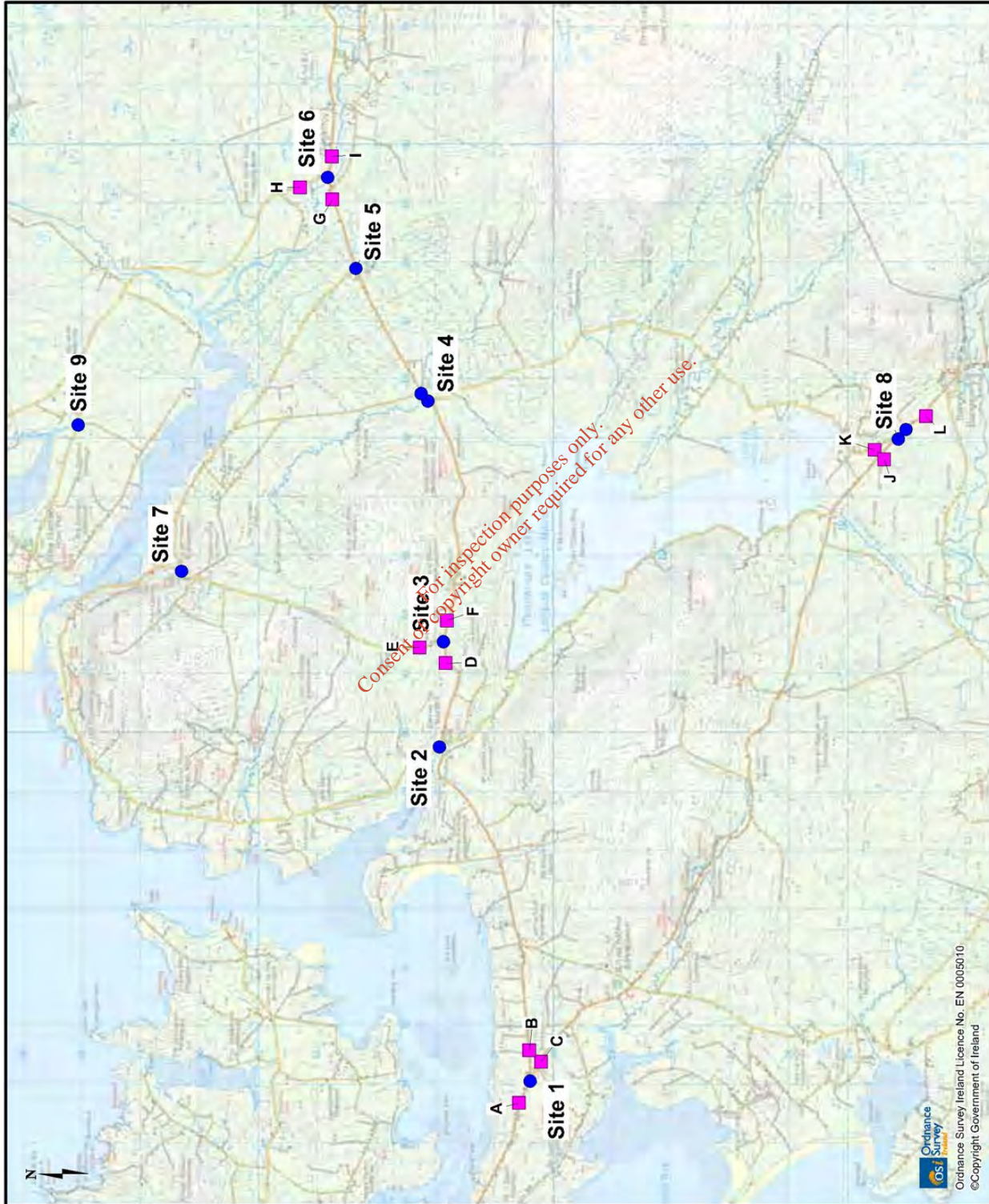
**CORRIB ONSHORE PIPELINE**

**CORRIB**  
natural gas

**RPS**







**LEGEND:**

- Link Surveys
- Junction Surveys

Traffic Survey Locations

**Figure 7.1**

File Ref: COR25NDR0472M0119A03  
 Date: May 2010

**CORRIB ONSHORE PIPELINE**



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#### 44.3.4 Additional material provided by SEPIL at OH 2010

[DRN OH 3] BOE Mr. Eamon Kelly Senior Engineer responsible for construction.

This document deals with construction details. The programme is confirmed at 26 months 2011-2013 and normal working hours 7am – 7pm Monday to Friday 7am to 4pm Saturdays, Tunnelling will be 24 hour, 7 days per week continuous construction.

[DRN OH 8] Addendum to E.I.S. provided by SEPIL. This document presents additional details of the Traffic Management Plan proposed related to Chapter 7 of the E.I.S. and provides an Appendix B with additional Traffic Drawings.

The details focus on

- (1) Road Safety and the impact of traffic from construction on shared use of the L1202 school buses, waste collection services, pedestrians, cyclists, and Corrib Driver Code of Conduct are added to the driver code of behaviour.
- (2) Amended estimated traffic generated on the road links of the Haul Route.
- (3) Analysis for personnel related traffic on 4 junctions not located on the Haul Route.
- (4) Analysis of junction visibility at Srahmore/R313/L1204 junction, at R314/L1204 junction, at R314/L1202 junction, at L1202 Aghoos site junctions, L1202 Glengad access junction.
- (5) Supplementary information on proposed HGV's speed limits on L1202.
- (6) Supplementary information on the operation of the convoy system, the emergency breakdown response for HGV's, information on emergency diversion routes, a one way traffic system for the duration of works at the road crossing point, on the use of Aghoos entrance.
- (7) Information and graphical presentation of peak traffic data including consideration of alternative scenarios for waste materials disposal and alternative sourcing of water (by tanker) for Aghoos.
- (8) Supplementary information defining the extent of traffic impact assessment for waste disposal.
- (9) The proposals for a traffic monitoring and project monitoring committee stating that proposed onshore pipeline construction will be subject to the monitoring regimes similar to that established for existing Corrib project elements i.e. Mayo County Council Project Monitoring Committee (PMC), Environmental Monitoring Group (EMG).
- (10) Supplementary information regarding quantity estimation for peat disposal, tunnel arisings, an error in overestimation of quantity of stone required for the stone road (error 10000m<sup>3</sup>). In overall terms the Traffic Impact Assessment is stated to have been carried out on the basis of movement of an additional 25000m<sup>3</sup> of materials over and above the actual likely movement of materials. A review of the deposition licence W0199-01 by EPA was granted on 27<sup>th</sup> July 2010 for 75000m<sup>3</sup> peat.

[DRN OH 23] Brief of Evidence Michael Noonan Traffic.

This document provides summary details of the Traffic Management Plan and Traffic Impact Assessment.

- A procedure for operation of the convoy system is provided in Appendix and four scenarios are considered.
- A driver code of conduct has been provided in Appendix
- It is considered that the transportation of additional slabs that may be required for protection of the umbilical services will not be significant should it arise.
- This document provides a response by SEPIL to submissions received by the Board in relation to traffic impact. SEPIL point out in this response that the 2010 proposed development has reduced the intensity and significance of traffic on L1202 over that proposed in the 2009 E.I.S.

[DRN OH 80] A Response by SEPIL to DCENR

This document was prepared by SEPIL as a response to DCENR who had raised a number of queries with SEPIL. (Section 40 Consent DCENR Process)

The document provides results from vibration monitoring of the impact from a truck convoy on L1202 and L1204 as tested by SEPIL. This test shows that for the nearest houses to the haul route that vibrations are in the range of 0.14 to 0.38mm/s (PPV) and is acceptable.

[DRN OH 131] Vibration Monitoring

This document, provides in response to questions regarding monitoring of vibration, sets out a monitoring procedure for vibrations emanating from the TBM (tunnelling) and sets out that the vibration modeling will be used to verify the vibration predictions for haulage traffic.

[DRN OH 133] Sight Visibility at Srahmore/Aghoos Junctions

This document was produced in response to questions from Inspector and corrects and updates information regarding sight visibility at these junctions as contained originally in E.I.S. and then as submitted in the Addendum [DRN OH 8].

SEPIL now propose some additional works with the co-operation of Mayo County Council such that the margins at Aghoos and fencelines proposed at Aghoos will be constructed to ensure the NRA up to date standards for junction visibility NRA TD 41-42/09 “Geometric design of major/minor priority junctions and vehicular access to national roads”, will be achieved 160m x 3.0m splays.

The document also updates SEPIL’s proposed junction and entrance details for Srahmore deposition site where existing signs will now be relocated with the co-operation of Mayo Co Co to achieve visibility splays of 160m x 3m at this junction/entrance to the Srahmore site.

[DRN OH 138] Use of Roads in Rossport

No HCV’s will be required to use roads in Rossport in any foreseen circumstances. Occasional visits by personal vehicles will be required for compliance monitoring such as noise survey.

[DRN OH 145A], [DRN OH 147], Pavement Condition

McEleney’s House Aghoos, McGrath’s Bar.

These documents present summary of pavement conditions at these specific locations where questions were raised by observers. Mayo County Council confirmed it is intended to reconstruct the road L1202 at McGrath’s Bar.

#### **44.4 Routes: R313, R314, L1204**

These routes will be used for bringing materials and personnel to the site and for stone haulage and peat haulage for disposal at Srahmore and for haulage of waste material from tunnel arisings. These routes have been improved, widened and strengthened to support haulage on previous phases of the overall project – Terminal construction, including peat disposal (450,000 m<sup>3</sup> which was deposited at Srahmore) and works connected with the offshore pipeline at Glengad. In my view these routes are satisfactory for use as haul route.

#### **44.5 L1202**

The local haul route to the Landfall at Glengad is L1202 from its junction with R314 to the landfall valve site [L1202 -116 and L1202-45 Refer Drawing 6013-1011 Appendix E]. Mayo County Council has confirmed (2009) that strengthening (9.2km) and widening [5km part only] of this road is complete. The issue on this road is that due to difficulties in negotiating land acquisition for road widening, part of this road will not now be widened as was originally intended. Further strengthening works on the unwidened sections of this road have been carried out since 2009.

SEPIL propose to implement a convoy system for HGV's, consisting of a maximum of 5 HGV's controlled by traffic management operatives located at Glengad Entrance to LVI site, at Gate No.1 of terminal on R314, and at Aghoos entrance to tunneling compound site. This system will operate to control the traffic to and from the Glengad construction site and to mitigate the impact of the HGV traffic on the shared use part of the haul route by the local community and other traffic.

##### **44.5.1 Observers Submissions L1202**

Evidence by observers was given at the OH of problems experienced by local users of this road due to the construction traffic associated with the offshore pipe construction at Glengad site. The issues raised are set out below. While the works associated with the 2008 road improvements by Mayo County Council [L1202] and the 2008/2009 offshore pipe pull in at Glengad by SEPIL {itself part of the 2002 consented scheme} have no direct bearing on this {GA0004} application, I am satisfied that a review of the issues raised by the local community does provide a relevant input to the assessment of the likely impacts of the proposed traffic haul route [L1202] on the environment and on the area.

##### **44.5.2 Environment**

Removal of hedge rows and alleged inadequate handling of local ecology during the road improvement works by Mayo County Council. Evidence by Mayo County Council was that an environmental assessment of the road improvement had been carried out and that an ecologist had been employed to manage the ecological issues that arose and that ecology was handled adequately. Road improvement and road maintenance are not directly included in these applications. However the necessity to maintain and improve roads as may be required



by Mayo County Council is an indirect impact of the project proposed. I am satisfied that proper arrangements are in place by agreement with Mayo County Council to improve the road (McGrath's), the sight lines proposed in the revised access/junction details for Aghoos and Srahmore and maintain the roads as may be required.

#### 44.5.3 Damage to Environment / Local Services

A road trench excavation (20m) collapsed causing bog slip which affected an ESB pole and caused loss of ESB services in the area. <sup>1</sup> This was discussed in 2009 Report.

#### 44.5.4 Traffic conflict at school pick up times

The convoy system whereby up to 5 HCV's will move together to or from the landfall site has been used (for landfall, pull in works) and is proposed to be used again for the onshore pipeline. Evidence was given of conflicts when parents drop off and pick up children at school. Evidence was given of difficulties getting an agreed arrangement with SEPIL. SEPIL in the E.I.S. proposes managing traffic by arranging that operatives are on site before 8am, a maximum speed limit of 60km/hour on HCVs and lower specific speed limits at locations along the L1202, a school warden system will be operated by SEPIL in co-operation with local school transport providers. SEPIL in evidence indicated that they were prepared to "stand by" the convoy system during pick up/drop off times.

SEPIL have modified traffic management proposals in the revised E.I.S. and now propose to avoid HCV's convoys at school pick up drop off times and to facilitate funerals at the church/graveyard.

#### 44.5.5 Speed of HCV's

60km/ hour is considered too fast by local people.

A reduction in speed limit will also apply on L1202 at Pollathomais to Glengad and where the road is not 5.5 m in width.

SEPIL have set out the project specific speed limits for HCVs on Drawing 6013-1015. SEPIL have also subsequently proposed that in the vicinity of McGrath's Bar, HCVs will also in addition reduce speed to 20km/hour. Most of the speed reductions take place between Pollathomais and Glengad. SEPIL now propose 6 speed limit zones in that 2.5km stretch of road. At the higher speed of 50km/hour this journey will take 3 minutes, at the lower speed of 30km/hour this journey will take 5 minutes. So on average, I expect the HCV convoy will take about 4 minutes to cover this journey.

In my view the maximum speed in this section should be 50km/hour. On the basis that SEPIL are implementing driver training, a driver code of practice for safe driving, and that TMO's are proposed and that project specific signage is proposed, on all that basis I am satisfied that SEPIL be given approval to proceed with the different speed zones in the stretch of L1202 and that those speed zone restrictions can be made work effectively.

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<sup>1</sup> [DRN OH52 page 3 Bog Slip].

#### 44.5.6 Lack of confidence in Traffic Management Plan

Observers expressed that there was a lack of information about large/heavy loads/difficulty in communicating problems with SEPIL regarding traffic problems. Evidence was given that the local community is not confident that the plan as set out will be adhered to, that the dates of heavy load movements are not available, that when a complaint needs to be made that SEPIL want a lot of detail about the incident which may not always be available [number of HGV vehicle(s) etc]. SEPIL indicated in E.I.S. that an Environment Management Plan will be put in place, covering detailed aspects of all construction activity including the Traffic Management Plan. In evidence SEPIL indicated that an environmental liaison officer is proposed for communication with local community. As regards movement of heavy loads, SEPIL indicated that problems had arisen in the past when notice had been given of such heavy load movements [the movement had been disrupted]. As a result it was not now proposed to give notice. SEPIL in the modified E.I.S. propose a series of mitigations to reduce the traffic risks present. This includes the establishment of a project logistics management group and the extensive use of communication through the community liaison officer and local media to outline the construction sequence and anticipated HCV local infrastructure loading.

#### 44.5.7 Noise / vibration / structural damage to buildings.

Evidence was given of vibration, damage, noise and problems for buildings [along the L1202] caused by the HCV traffic. Evidence in photos of minor cracks to a wall pier joint were provided. Local concerns are that this will be more significant during the onshore pipeline construction works. SEPIL indicate in E.I.S. Section 9.5.2. that a structural survey would be carried out on any receptors deemed susceptible to vibration impacts. In evidence, SEPIL indicated<sup>2</sup> that vibration monitoring can be undertaken and that further mitigation measures in reduction in speed of HCV vehicles may be implemented on specific sections of the haul routes as appropriate. This latter vibration monitoring has been discussed above.

#### 44.5.8 Assessment L1202

The central issue here as presented by local community evidence, is the suitability of a local road, much of which is built on a peat sub soil, to act as a haul route for the onshore pipeline. The L1202 serves the Aghoos, Pollatomais and Glengad communities who now [due to the landfall offshore pull-in works] share the road with haulage convoys and some specially permitted larger loads from time to time. The onshore pipeline will place stress on this shared road. SEPIL have indicated that traffic and haulage in the modified scheme will not be as significant as that which was generated by the works carried out at Glengad in constructing the offshore pipe pull in there. I am satisfied that the traffic proposed will be lower in impact as less vehicle movements are involved (much less) and as a longer timescale is proposed which spreads out the overall traffic and reduces the number of vehicle movements per day.

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<sup>2</sup> [DRN OH111]



Mayo County Council have confirmed that 5km of this road has been both strengthened and widened to a width of 6 – 7m. Where agreement could not be reached, [4.24 km approx (2009)] then the existing width [4.5m] of road has been strengthened.

I have inspected the road. I have seen the narrow sections of road and the proximity of existing buildings to the road. I have also seen the large construction machinery on the site at Glengad used during the construction of the offshore pipeline and which was moved in along L1202. I am impressed by the evidence of the observers on the significance of the impact of the use of this road as a haul route already during the landfall construction works as commenced in 2008 and as continued in 2009 when the offshore pipe was brought onshore at Glengad.

In the modified E.I.S. significant mitigation measures are proposed. I am particularly impressed with the additional management of HCV impacts now proposed and with the recognition by SEPIL in 2010 that community needs should be accommodated in any traffic plan – in reality this just means programming transport in a better way than was proposed in the 2009 scheme. This is possible now because of the longer construction programme.

#### **44.6 Ballyglass Pier Traffic Management Plan (TMP)**

This TMP was raised by observers at the OH and some discussion took place regarding impacts from use of the pier by SEPIL.

The issues (delays to local people living on the road, potential delay to lifeboat personnel accessing the pier, parking or concern that parking of SEPIL personnel vehicles could obstruct traffic) were outlined but the inspector ruled that as the modified proposed 2010 development of the onshore pipeline did not involve a traffic plan for Ballyglass pier that consideration of the Ballyglass pier Traffic Management Plan was not a relevant matter to the applications being considered at the Oral Hearing. The following considerations were identified to justify the ruling.

1. The road to Ballyglass pier is not included in the E.I.S. and is not included in the Haul Route.
2. Works relate to mobilization of rigs, personnel vehicles for foreshore licence related works and works related to Geotechnical Investigation for which a foreshore licence was granted in 11<sup>th</sup> June 2010.
3. Reference to Rossport, Rinroe, Blacksod piers – no works contained in E.I.S. relate to these.
4. Contractors information, contact details not required, not prepared to seek these.
5. Conscious that observers have a wish to use these proceedings to access info and question data related to other parts of Corrib – development not relevant to my brief at this OH
6. Direction of ABP my guidance on what matters are relevant to the OH.
7. Note that separate examination of detail of use of Ballyglass pier may be required by others/other processes

8. Note that the applicant does not envisage and does not propose vessels mobilization as part of the onshore works. Any related vessels are associated with monitoring activities/ intervention pits etc. Mobilization not proposed for intervention pit. If it does become an issue – mobilization for same is at Aghoos.
9. In the circumstance I rule the detail examination of two Traffic Management Plans relating to other parts of the project are not relevant to the onshore pipeline and I won't take further questions related to that.
10. It is open to observers to include any final argument they may wish to put to ABP on this matter.
11. I want to bring this matter to the attention of ABP. In my view it would not have been correct to have allowed a detail examination of the Ballyglass Traffic Management Plan to take place at the oral hearing. Nevertheless the use of Ballyglass pier by SEPIL and which use has related to either the offshore pipeline construction or the foreshore licence work in Sruth Fada Conn is part of the overall Corrib Gas Field development. My position on this is that the process whereby the offshore pipeline is being consented and the process whereby the foreshore licence is being granted are the appropriate processes where matter relating to this traffic should be considered.

## 44.7 Inspectors Assessment

### 44.7.1 R313 R314 L1204

I am satisfied that these routes are adequate for the traffic associated with the construction of the onshore pipeline. I am also satisfied that the junctions on these routes can adequately cope with the traffic associated with the onshore pipeline. I am also satisfied that the road widening and road strengthening that has been carried out on these roads provides a satisfactory road structure for the haulage and traffic associated with the proposed development.

### 44.7.2 L1202

- i. The widening and strengthening works that have been carried out are constructed to a satisfactory standard. The convoy system proposed for HGV's is a workable system.
- ii. The proposed traffic management plan as set out in the revised E.I.S. is an acceptable plan and the final plan will be subject to the approval of Mayo County Council and the Gardaí.
- iii. The Traffic Management Plan should remain [as was presented in evidence by SEPIL] as a live plan being improved and updated in light of use of the plan, feedback from other users and to meet the requirements of SEPIL, Mayo County Council, the Gardai and the local community.
- iv. SEPIL should in co-operation with Mayo County Council prepare and implement, as part of the Environmental Management Plan, an

environmental monitoring and restoration plan to mitigate the impacts caused by the use of the L1202 as a haul route.

- v. I am satisfied that the modified E.I.S. contains additional mitigation measures as a response to concerns raised by the local community in their submissions to ABP. I am satisfied that these mitigation measures together with the improved communication and response to problems as proposed provides a reasonable assurance that the traffic problems that have arisen on L1202 in the past can be satisfactorily managed as part of the proposed development.
- vi. SEPIL should provide full information to the local community regarding the use of the L1202 as a haul road, this should include hours working, arrangements and times for “standing by” at school drop off pick up times, information when large loads are being moved, details of contact liaison and details of how the liaison officer process for complaints will work.
- vii. SEPIL should arrange that a complete scheme of structural assessment of buildings and properties, fences, walls etc is carried out in advance of proposed onshore pipeline works.
- viii. In the event that ABP decide to grant permission for this development I recommend SEPIL should pay a contribution by way of the Community Gain Condition set out in Chapter 48. Such contribution to be made to Mayo County Council planning authority and to be distributed in a scheme to be agreed by Mayo County Council, and as set out in the condition in Chapter 48.

## **44.8 Inspector's Conclusions**

I have considered the information provided in detail. I am satisfied that a comprehensive assessment of the traffic involved has been carried out. I am satisfied that a comprehensive assessment of the traffic carrying capacity of the existing road network to handle the volumes of traffic involved has been carried out. I am also satisfied that an adequate assessment of the peak hour volumes of traffic has been prepared for the junctions on the haul route.

I have obtained clarification of the sight distances and signage details proposed at the Access A and B at Aghoos tunnelling compound and at the entrance to the Srahmore peat deposition site.

The 2010 Traffic Management Plan is a big improvement on that proposed in 2009. In particular the decision to tunnel under Sruth Fada Conn and a tunnel in one direction from Aghoos has reduced very significantly the traffic impacts on Pollathomais and Glengad.

I am impressed that the longer time programme now envisaged (26 months) will provide flexibility for the applicant to respond to community derived traffic needs be they (1) school

drop off pick up times, (2) local funerals, (3) use of the L1202 by community bus or service vehicles, (4) vulnerable people using the road as pedestrians cyclists etc.

I am impressed that the revised 2010 proposed development includes stronger Traffic Management and Control logistics and a good management structure to deliver the transportation requirements of the project.

I am also impressed that adequate measures to mitigate the impact of the traffic use on the Haul Route are being adopted – speed controls, full radio contact with vehicles, breakdown plan for HGV's, driver code of conduct and training and monitoring regime.

I am satisfied that the R313, R314, L1204 and L1202 from its junction with R314 to Pollathomais junction with L5243-0 have been improved to a good standard and that these roads and the junctions involved can cope with the traffic proposed for the construction of this project.

As regards the L1202 from its junction with L5243-0 through Pollathomais and to Glengad, I note parts of this road have not been widened. I note that much reduced level of HGV traffic estimated for this road in the 2010 proposal. I am satisfied that the convoy system is a workable system. I am satisfied with the speed control measures proposed for his section of road.

I am satisfied with the proposals regarding those areas at McGraths Public House and McEleneys where properties are close to the road.

I am satisfied with the monitoring proposals for vibrations and for control of vibrations from HCV's - road surface quality to be maintained, speed reductions to be implemented and vibration monitoring to be verified.

I conclude that the Traffic Management Plan and Haul Route proposals are satisfactory.

## **44.9 Inspectors Recommendations**

I recommend that the following conditions attach to the approval of this project.

1. On the L1202 between Pollathomais and Glengad the maximum speed for HCVs working on the project shall be 50km/hour. The lower speed restrictions as set out on 6013-1015 and in respect of McGrath's Bar (20km/hour) shall also apply.

**Reason:** In the interests of road safety on L1202.

2. The visibility at the site junctions proposed at Aghoos and the visibility at the existing entrance to Srahmore Deposition site shall be in accordance with NRA standards in the revised details provided at the OH [DRN OH 133].

**Reason:** To ensure that road safety standards are achieved at these junctions.

3. Before development commences, other than works directly associated with preconstruction surveys, the owners/developers (and their successors in title) shall enter into legally binding agreement(s) with the planning authority under section 47 of the Planning and Development Act, 2000. The agreement(s) shall provide for the following:
  - (i) the satisfactory landscaping of the LVI site, including the maintenance and provision of planting and site restoration, in accordance with the Landscape details contained in the E.I.S. and subject to agreement with the planning authority. These works to be supervised by the project ecologist.
  - (ii) payment to the planning authority of all costs incurred by Mayo County Council in relation to the repair, maintenance and rehabilitation of the road network arising from the construction of the development, determined by the Road and Bridge survey to be carried out prior to and post construction in accordance with a further condition of this permission; the amount of such costs shall be as agreed between Mayo County Council and the developer or, in default of agreement, shall be determined by An Bord Pleanála,
  - (iii) restoration of the LVI site and way leave to the satisfaction of the planning authority following the cessation of gas transportation, including the removal of items of equipment over ground and removal of facilities to grade level,
  - (iv) full implementation of the Traffic Management Plan, contained in the E.I.S. and as may be amended by the conditions of this permission or by agreement of the Mayo County Council and Gardai.
  - (v) payment of the planning authority's reasonable costs in engaging transportation personnel to monitor the Traffic Management Plan, and the provision of office accommodation and telecommunications facilities on site for such personnel, and
  - (vi) payment of the planning authority's reasonable costs in engaging environmental personnel to monitor implementation of the Environmental Management System, required by way of further condition, and the provision of office accommodation and telecommunications facilities on site for such personnel.

**Reason:** To ensure satisfactory control of the development in the interest of the proper planning and sustainable development of the area.

4. All agreements with the planning authority, required by way of the conditions in this permission, shall be in writing and copies of such agreements shall be made available for public inspection during normal office hours at the planning authority's offices, and at the developer's offices in Belmullet.

Monitoring results required under the conditions of this permission shall be submitted to the planning authority electronically and in hard copy form, and shall be made available for public inspection during normal office hours at the planning authority's offices, and at the developer's offices in Belmullet. The developer shall develop a computerised database for the recording and transfer of monitoring data; the design of the database shall be subject to agreement with the planning authority.

**Reason:** In the interest of clarity and transparency, and to facilitate ease of interpretation of all monitoring data collected and recorded.

## 5. **Transportation and Traffic Management**

The following traffic management measures shall apply –

- (a) Haulage of all excavated peat from the site to the Deposition site shall be restricted to the designated Haul Route, and the return of all unladen haulage vehicles shall be along the haul route. No haulage of peat shall commence until such time as those improvements required by Mayo County Council of the relevant section of the Haul Route have been completed
- (b) The maximum number of Heavy Commercial Vehicle (HCV) movements along the haul route shall not exceed as set out in the scheme documents. The developer shall keep a record of all traffic movements into and out of the sites, and a copy of this shall be available for inspection by the planning authority and the Project Monitoring Committee on request.
- (c) All signage detailed in the Traffic Management Plan shall be erected prior to the commencement of the haulage of peat or construction materials and equipment and shall be maintained during construction works. Prior to this, or during the haulage period, the developer shall erect any other signage required by the planning authority to facilitate the safe haulage of construction materials.
- (d) A school traffic warden shall be engaged to travel on each of the school buses or to travel in tandem with the school bus using the Haul Route so as to facilitate the safe embarking/alighting and road crossing by children at all times during the haulage of peat. Arrangements shall be put in place that the HCV traffic using the Haul Route shall stand by at the drop off times and pick up times at the schools.
- (e) The potential impact of traffic management proposals and the convoy system shall be monitored on the bus schedules.

**Reason:** In the interest of efficient traffic management, road safety and public safety.

6. The developer shall be responsible for the carrying out of a Road and Bridge survey before and after the construction period. The extent and precise content of the survey, which may be carried out by Mayo County Council at the developer's request and which shall generally relate to the road network directly and indirectly affected by the proposed development, shall be subject to agreement with the planning authority.

**Reason:** To facilitate the determination of damage attributable to the proposed development, and to ensure the proper maintenance and reinstatement of roads and bridges following construction.

## 7. **Construction Programme:**

In the event that the Board decide to grant approval for the proposed development I recommend the following condition



- 1) An E.M.P shall be agreed 2 weeks before commencement of the proposed onshore upstream pipeline. That the E.M.P shall contain among other matters, details of the pre construction surveys and method statements for construction, and shall detail how seasonally sensitive works are to be accommodated in the programme. The E.M.P shall contain details of the updated programme for the proposed works.

**Reason:** To ensure adequate time is provided for the agreement of the EMP and to protect the environment.

- 2) Prior to the commencement haulage on any section of the haul route, the roads comprising that section of the haul route shall be improved and strengthened and maintained as may be required by Mayo County Council in accordance with an agreement to be entered into with Mayo Co, which agreement shall include any other such works for the haul route as Mayo County Council or Gardaí may require.

**Reason:** In the interests of Road Safety.

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## Chapter 45 Route Selection

### 45.1 Background

In the Inspectors 2009 Report a detail analysis of the route selection process and an analysis of the requirements of a route selection process were considered.

In that report that section of the route (2009) at Glengad and that section of the route (2009) between Aghoos and the terminal were considered satisfactory. My recommendations to the Board for approval of those parts of the route were subject to clarification of issues regarding the QRA.

### 45.2 ABP Invitation to Modify the Route

SEPIL were invited to "...modify the route between chainage 83+910 and 89+550 so that the route at this location would be generally in accordance with that indicated as Corridor C (that is within Sruth Fada Conn Bay)..."

ABP also set out a proximity distance criterion against which it proposed to assess the proposed development:

*"...the following standards, when applied to the proposed pipeline, are the appropriate standards against which the proposed development should be assessed and that the Board should, therefore,...adopt a standard for the Corrib upstream untreated gas pipeline that the routing distance for proximity to a dwelling shall not be less than the appropriate hazard distance for the pipeline in the event of a pipeline failure. The appropriate hazard distance shall be calculated for the specific pipeline proposed such that a person at that distance from the pipeline would be safe in the event of a failure of the pipeline."*

### 45.3 The Revised Modified 2010 Proposed Development

Mr. Butler, Project Manager for RPS on Corrib Onshore Pipeline Project outlined in his brief of evidence how SEPIL have chosen the route now proposed as follows:

1. The proximity distance requirement as set out by ABP is the principal constraint by which the pipeline route now proposed has been defined [BOE Section 4].
2. The scope for the consideration of alternative pipeline routes between the chainage points was very limited [BOE Section 4.1].
3. The detailed alignment of the pipeline route now proposed has been developed on the basis of optimising its distance from dwellings having regard to the construction method [BOE Section 4.1].
4. The minimum distance from dwellings to the centreline of the proposed route is now 234m allowing for +/-8m in the horizontal alignment of the proposed tunnel in Sruth Fada Conn Bay [BOE Section 4.1].

5. Mr. Butler also outlined the alternative methods of construction used and he outlined reasons for selection of the size of the tunnel.
  - 8-10 people work in tunnel.
  - Ventilation and other fittings required for safe working.
  - Railway system to carry concrete segments.
  - Installation of the pipeline and services will involve manned activities.
  - The inside diameter of 3.5m is considered the minimum acceptable size for the tunnel along the proposed development.
6. In respect of the vertical alignment of the tunnel a minimum cover of 5.5m is required and a maximum depth of 10m below the indicated centreline is proposed.
7. In his conclusions, Mr. Butler sets out that the proposed pipeline development minimises potential impact to environmentally sensitive and designated conservation sites.
8. He outlines that by tunnelling in one direction from Aghoos that the potential impacts on the local community and in more populated areas of Glengad and Pollatomish have been minimised.

#### **45.4 Observers Submissions**

- **Alternative Routes**
  - i. Alternative technology available to route the pipeline and to treat the raw gas.
  - ii. Alternatives which are compatible with EU Directives and where people not at risk should be pursued
  - iii. Better technology available (than offshore tie back to onshore processing) via drilling processing exporting all at sea from large ship
- **Modifications**
  - i. ABP invitation to modify route via Sruth Fada Conn defies logic
  - ii. The ABP invitation to modify the route is considered an unreasonable interpretation of legislation because the ABP invitation transformed the original proposal into an entirely different application.
  - iii. ABP reference to the current status of entire Corrib Field Development undermines the impartiality of the Board in consideration of the proposed development
- **Permission Sought**
  - i. The modification brings permission for the tunnel within the remit of Government (Foreshore licence)
  - ii. ABP it is contended should not confine its attention just to onshore pipeline, it should look in detail at all the scheme (i.e. landfall should be considered)
- **Zoning**
  - i. The sites being used for Corrib were not zoned for strategic infrastructure

## 45.5 Consideration of the Consequences of the Route Selected

The following is a consideration of the proper planning and sustainable development of the area.

The Corrib Gas Field Development is a national priority for development. The discovery of this gas field and its development brings a number of important benefits to Ireland.

- A new source of gas to feed into the National Gas Grid network.
- The economic impetus for the extension of the National Gas Network to the West and to the towns and industry in the West region.
- An economic return to this country to be determined in accordance with government policy on the exploration and development of this gas field and the licence terms under which this Gas Field is to be developed.
- Economic return from the significant investment in the local economy and in the national economy.
- A stimulus for further exploration and development of Natural Resources off the Coast.

This onshore upstream gas pipeline is the first such pipeline to be constructed in Ireland. In accordance with Section 143 (1) (a) of P&D Act 2000 the Board shall have regard to the policies and objectives for the time being of the Government, a state authority etc.

In my view the 2002 consent of the Minister for Marine & Natural resources for the construction of a pipeline under S.40 of the Gas Act 1976 and which pipeline was routed to a landfall at Glengad is a matter that ABP shall have regard.

## 45.6 ABP Responsibilities

ABP must apply the criteria set down in 182D before making a decision on 16.GA.0004. In particular 182D (1) and 182D (10) clarify what the Board shall consider and have regard to in making its decision.

182D (1) *“Before making a decision in respect of a proposed development the subject of an application under section 182C, the Board shall consider—*

*(a) the environmental impact statement submitted pursuant to section 182C(1) or (5), any submissions or observations made in accordance with section 182C(4), (8) or (9) and any other information furnished in accordance with section 182C(5) relating to—*

*(i) the likely consequences for proper planning and sustainable development in the area in which it is proposed to situate the proposed development of such development, and*

*(ii) the likely effects on the environment of the proposed development, and*

*(b) the report and any recommendations of a person conducting any oral hearing relating to the proposed development.”*

182D (10) *“In considering under subsection (1) information furnished relating to the likely consequences for proper planning and sustainable development of a proposed development in the area in which it is proposed to situate such development, the Board shall have regard to—*

*(a) the provisions of the development plan for the area,*

*(b) the provisions of any special amenity area order relating to the area,*

*(c) if the area or part of the area is a European site or an area prescribed for the purposes of section 10(2)(c), that fact,*

*(d) if the proposed development would have an effect on a European site or an area prescribed for the purposes of section 10(2)(c) that fact,*

*(e) the matters referred to in section 143 and*

*(f) the provisions of this Act and regulations under this Act where relevant.”*

The fact that some of the local community or some observers object to the proposed development, is not in itself an acceptable planning reason or sufficient justification for ABP to reject the route selected. These objections are however one of the issues to be considered by ABP.

#### **45.6.1 Alternatives to be considered in an E.I.S.**

Schedule 6 P & D Regulations 2001 sets out the information to be contained in E.I.S. Subsection 1 (d) states:

*“1 (d) An outline of the main alternatives studied by the developer and an indication of the main reasons for his or her choice, taking into account the effects on the environment”*

I am advised by Mr. O’Sullivan that in *Volkmar Klohn Vs An Bord Pleanála* 2008/EHC 111 a case which involved a judicial review of the Board decision PL 21.205540 the

matter of alternatives considered by the developer was one of the items attached to the case. It was noted that Section 1 (d) sets a low threshold for an E.I.S. to pass and does not establish a very specific obligation. It was noted that there is no such requirement for the alternatives to be addressed under EIA carried out by the decision maker. I am satisfied that the alternatives considered by SEPIL have been set out in both 2009 E.I.S. and again in the 2010 E.I.S. the alternatives considered have been set out.

## 45.7 SEPIL Responsibilities

In a linear development project such as this onshore pipeline, there are many complex factors relating to the route selection and ABP is not, in my view, well placed to carry out the evaluation of these factors for each possible route. That is a matter for SEPIL the Applicant who can add up these complex factors and decide to select a route accordingly. In the development of the Corrib Gas Field there are additional factors on top of those related to the linear infrastructure onshore pipeline development. These are the well field, its location, the landfall and the terminal locations, and factors relating to the timing of related consents, permissions and construction projects, as well as other factors related to the timing and availability of specialist equipment or contractors and of course the costs involved. All such matters are for the Applicant SEPIL to consider and then make its decision on route selection. It is the applicant who must decide which route is the feasible route for the proposed development and the applicant, SEPIL, has done that and submitted the modified E.I.S. 2010 scheme for ABP consideration and approval.

## 45.8 Inspectors Conclusion

### 45.8.1 On Route Selection and Tunnel Chainage 83+880 to 88+770

1. Glengad as the landfall was confirmed by SEPIL following reconsideration by them of the options available in 2007.
2. SEPIL confirmed in [2009 OH] evidence that the landfall itself is not part of this 16.GA.0004 application. In other words SEPIL believe the Glengad location for landfall has been established and is a constraint on ABP in considering 16.GA.0004.
3. In my view the proposed development, including the landfall at Glengad, must satisfy the same planning requirements in respect of the onshore pipeline at Glengad as elsewhere along the pipeline route. In reality then I do not accept that the landfall at Glengad constitutes a restraint on ABP from considering the proper planning and sustainable development of the area and the impact of the proposed development on the environment. The landfall must pass these tests if it is to be acceptable.
4. The 2002 consents are significant considerations for the Board to have regard to as required under Section 143 of the P & D Act 2000.
5. The planning permission that exists for the terminal is a significant consideration for the Board.



6. I find that the route selected for the 2010 modified proposed development is one which is respectful of the community concerns regarding proximity to dwellings. The route is now located at a distance from dwellings which effectively means that the dwellings and those who live there would be safe even in the event of a worst case scenario, a full bore rupture of the pipeline.
7. I find that the route selected meets the requirements of ABP invitation of 2/11/2009 in the following manner:
- SEPIL have selected a route generally up underneath Sruth Fada Conn Bay, i.e. Route C
  - The proximity distance standard against which ABP indicated that the proposed development would be assessed has been demonstrated in E.I.S. to have been achieved. I am satisfied that it has been achieved. Mr. Wright in his report (and as discussed in Chapter 30 under Safety) has assessed this and he has found that SEPIL have achieved that proximity standard.
  - The revised operating pressures MAOP and the revised route have reduced the risk to the public a low risk level and to an acceptable level. The risks are set out in Chapter 28 QRA. In fact by the standards used by the gas industry, the risks to the public from Corrib Onshore Pipeline are conservative.
8. I also find that the construction method proposed – an underground segmented lined tunnel bored in one direction from a tunnelling compound at Aghoos – has the following important characteristics:
- The tunnel method underneath Glenamoy Bog Complex cSAC and Blacksod Broadhaven Bay pSPA is a proven construction method that will have only slight impact on the ecology and little or no impact on the conservation objectives of these sites.
  - The tunnelling compound at Aghoos is not within a Natura 2000 site. While the compound is adjacent to the cSAC and pSPA the proposals for managing the site will in my view and in the view of Mr. O’Sullivan who has assessed the impacts of the proposed development on the Natural Environment mitigate any potential impacts satisfactorily. This compound will be restored at the end of construction so any impacts (noise, light, visual in particular) from the compound will be temporary.
  - The concentration of construction activity for 4.9km of the linear construction project at the Aghoos compound and which can be reached over a haul network of good well improved roads L1202, L1204, R314 and in an area that is not residential has reduced significantly the traffic impacts of the proposed development on the rural linear residential areas – Glengad, Pollathomais, Rosspport.
  - The concentration of 4.9km of construction activity at Aghoos removes this activity from within the community and consequently all the other non traffic impacts on community are also reduced.

### **45.8.2 Landfall and Glengad Pipeline Route to chainage 83 + 880**

The selection of Glengad as the landfall site has been dealt with in Chapter 19 above.

The landfall is acceptable from a Natural Environment point of view (Chapter 38). The landfall is acceptable from a ground stability point of view (Chapters 34 and 38). The landfall is acceptable from a landscape and visual impact point of view (Chapter 42). I am now satisfied regarding the safety of the public in Glengad from the risks posed by the pipeline and from the LVI. These have been discussed in Chapters 27-30 where the overall conclusion is that the risk to the public from the pipeline at Glengad is low and is acceptable. The risk to the public from the LVI at Glengad is low and is acceptable.

Accordingly I am now satisfied that the route including the landfall itself from landfall at HWM to chainage 83+880 (tunnel reception pit) is acceptable. This section of the route is in my view in accordance with the proper planning and sustainable development of the area. This section of the route will have an impact on the environment, that impact will be slight negative (loss of habitat at LVI compound) and is acceptable.

### **45.8.3 Section from Chainage 88+770 to Chainage 91+720**

I am now satisfied regarding the safety of the public from the risks posed by the pipeline in that area between the tunnel launch pit and the terminal. These risks have been discussed in Chapters 27-30 where the overall conclusion is that the risk to the public from the pipeline is low and is acceptable.

Accordingly, I am satisfied that the route from Aghoos tunnel launch pit back to the connection into the terminal is acceptable. This section of the route in my view is in accordance with the proper planning and sustainable development of the area. This section of the route will have an impact on the environment, that impact will be slight negative and is acceptable.

## **45.9 Inspector's Recommendation**

I recommend to ABP that the route selected for the onshore upstream Corrib Gas Pipeline development as proposed in the 2010 E.I.S. be accepted. The route and the proposed configuration of the development is acceptable and the risk posed to the public by this route and by this configuration of the proposed development as set out in the 2010 E.I.S. is low and is acceptable.

## Chapter 46 E.I.S.

### 46.1 Background to the Environment Impact Assessment

The EIA process for examination of these applications – 16.GA.004 and 16.DA.005 – has been a long and multifaceted process that commenced in 2009 when the initial 16.GA.004 and 16.DA.004 applications were submitted to ABP.

The process involved in 2009 a full round of public consultation. This included participation and submission by the prescribed bodies a long consideration of the issues at the 2009 OH, and a lot of additional material that was supplied by the applicant SEPIL to the 2009 OH.

The process conducted by ABP involved the preparation of a full Inspectors report (2009) incorporating specialist reports on pipeline design and safety and on the whole question of peat stability. The Inspectors Report also had the benefit of a report on the impacts on the natural environment. Mr. Wright, Mr. O'Donnell and Mr. O'Sullivan submitted those reports. The 2009 OH had considered in some detail the route selection process that SEPIL had adopted to arrive at the 2009 route. Additional materials on that route selection process were provided during the 2009 OH process over and above that contained in the 2009 E.I.S.

The 2009 EIA process of that 2009 scheme led to ABP's decision that:

*“Having regard to the foregoing and to the strategic national importance and current status of the entire Corrib Gas Field development, and as it is provisionally the view of the Board that it would be appropriate to approve the proposed onshore pipeline development should alterations be made to the proposed development, you are invited to make alterations to the proposed development as follows:-*

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

*Furthermore, the applicant is requested to furnish the following further information in accordance with section 182C(5) of the Planning and Development Act, 2000 as amended in relation to the entire pipeline route modified as above.”*

SEPIL have responded to ABP's invitation and have submitted the modified proposed development 2010 including a new E.I.S. and again including in the E.I.S. the deposition of peat at Srahmore. SEPIL have also supplied the additional information requested by ABP in the letter of 02/11/2009.

The E.I.S. has again been subject to a full round of public consultation in 2010. The prescribed bodies participated, made submissions and made a substantial contribution again at the 2010 resumed OH. The applicant provided a significant level of expert witness input at the 2010 OH to explain the detail scheme and to respond to questions and to provide some further explanatory documents and additional material for the consideration of the Board. Observers made submissions to ABP again in 2010 and participated extensively in questioning SEPIL's expert witnesses. This is the background against which this assessment is now to be determined.

## **46.2 Observers Submissions**

### **Assessment: Lack of in depth assessment by Applicant in areas**

- EIS is not sufficient as a document or supplied as such

### **Air Quality**

- Concern about emissions from HCV's, dust, particulate matter, NOX at Aghoos Compound

### **Archaeology**

- No local information was sourced for E.I.S. or no landowners were consulted
- Sruth Fada Conn Bay was Mesolithic settlement – concern there will be archaeological degradation
- It is considered that the area is rich in archaeology and this is not reflected in E.I.S.
- The evidence on marine archaeology should be disregarded as investigation work in the Bay is incomplete.
- The only pieces of archaeology found in the investigation have been lost inexplicably by SEPIL.

### **Climate Change**

- Corrib Gas will make no improvement in Ireland's Climate Change Policy
- Greenhouse Gas emissions as a result of the project are not negligible

### **Disruption in everyday lives**

- Impact of noise activity
- 24 hour working, 7 days over 15 months of tunnelling
- Invasion of peaceful local area

### **E.I.S.**

- Sufficient information must be supplied. The perceived deficiency relates to Waste Plan, Traffic Management Plan, Environment Monitoring Plan, Emergency Plan, Decommissioning Plan

### **Green House Emissions**

- Increased green house emissions will worsen air quality in area

### **Honesty**

- Consent/Approval must be based on honest information, not lies - criticism of EIS.

#### **Impacts**

- Already Broadhaven Bay is changed because of loss of swimming pools and rock outcrop there on the beach.

#### **Lighting:**

- High intensity lighting at Glengad has been intrusive to residential amenity.

#### **Noise & Vibration**

- The information provided in the E.I.S. is contested – recorded levels of noise contested
- Early morning HGV traffic cause disturbance to residential amenity
- Noise from construction at Glengad & Tunnel Construction
- LVI Noise levels when reopening
- Security at night disturbs residents Glengad
- Background noise levels quote church bells, birdsong. This shows incompatibility of construction activity

#### **Vibrations:**

- The analysis is based on 2008 data, not relevant to 2010 scheme

### **46.3 Archaeology, Architecture and Cultural Heritage**

#### **46.3.1 Archaeology**

Archaeology seems to be a relatively minor issue for this development. The E.I.S. in Chapter 16 sets out information for assessment supplemented by Appendix N and Appendix O (Underwater Archaeology). In total the inventory of recorded monuments and specific features of archaeological potential for a 100m wide corridor has been presented in Table 16.4 and 16.5. A total of 5 sites are recorded.

- A recorded enclosure site adjacent to the access road to the landfall site at Glengad.
- Three mounds, two of which have archaeological potential and one of which has no archaeological potential (following test excavation).
- One commemorative mass site and stone wall enclosure.

The proposed pipeline route avoids all recorded archaeological monuments.

The enclosure site at Glengad has been fenced off and work is not proposed in this area. The potential impact is described as “indirect” and “no predicted impact” is expected at this site.

The three mounds will not be impacted, two of these are outside the working area and one [A5] is within the working area and 13m from the pipeline. The E.I.S. indicates [A5] site can be avoided with no impact.

### **Monitoring Proposed**

It is recommended by DEHLG National Monuments Section that archaeological monitoring by a licenced archaeologist be undertaken during earthmoving works. Mayo County Council have also recommended that this be done.

#### **46.3.2 Architecture and Cultural Heritage**

There are no protected structures on the route. It is proposed to fence off the commemorative mass site and stone wall enclosure and this has been avoided by the pipeline's immediate route.

Field boundaries where these are disturbed at Glengad will be restored.

#### **46.3.3 Marine Archaeology**

The E.I.S. sets out in some detail on site field survey work in the shore in the Bay and subsurface in sub-tidal areas. Marine geophysical equipment was used and the survey work was carried out under licence from DEHLG.

The conclusion of the examination conducted on behalf of SEPIL and as presented in the E.I.S. is that the known archaeological potential within the Bay is low.

The possibility remains that archaeological material may still be retained in the subsurface deposits, wood fragments and wood found in site investigation works (2010) have been sent for date testing. SEPIL did encounter some potential archaeological material – shells but now say these have been mislaid.

Should an intervention pit be required (this is not expected to be required) then the archaeological supervision – of that excavation work should be fully agreed with DEHLG.

#### **46.3.4 Observers Concerns**

There were a number of concerns:

- The location is rich in archaeology and the E.I.S. does not reflect this.
- Experience by one observer regarding archaeology monitoring and reporting for the terminal site has not been acceptable.
- The one piece of real archaeological material found in site investigations has been lost by SEPIL.
- There is a basic lack of trust that archaeological material may not be handled properly in any finds that are made during construction.



### 46.3.5 Inspector's Recommendations Archaeology

DEHLG National Monuments Section recommend that Monitoring be carried out at this site and included as a condition of any permission that may issue

Archeological Monitoring shall consist of the following:

- Applicant shall engage the services of a suitably qualified Archaeologist
- The Archaeologist should monitor ground disturbance works associated with the development
- This should include all areas outlined in the EIS. The mitigation measures outlined in Table 16.7 should be implemented in full
- 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 Heritage and Planning Division 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

In the event that ABP decide to grant a permission for this development then I recommend the following condition:

The mitigation measures outlined in Section 16.5 of the E.I.S. should be implemented in full.

**Reason:** To ensure that where archaeological material is uncovered the appropriate notification of DEHLG takes place and that agreement is confirmed on the best way to preserve the material uncovered.

The following condition recommended by Mayo County Council:

*The developer shall facilitate the planning authority in the archaeological appraisal of the site and in preserving and recording or otherwise protecting archaeological materials or features which may exist within the site. In this regard the developer shall*

- Notify the planning authority in writing at least four weeks prior to the commencement of any site operation (including any further hydrological and geotechnical investigations) relating to the proposed development.*
- Employ a suitably qualified archaeologist with relevant experience in peatland archaeology prior to commencement of development. The archaeologist, who shall work under licence, shall assess the site and monitor all site development works.*
- Provide satisfactory arrangements for the recording and removal of any archaeological material which may be considered appropriate to remove. The archaeologist shall be responsible for reporting any finds, without delay, to the planning authority. In such event, works shall cease in the affected area and shall not recommence until such a time as mitigation measures (if any) agreed with the planning authority have been carried out, and*
- Submit a report to the planning authority detailing the results of the monitoring.*

**Reason:** *In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site. [Mayo County Council Submission]*

## **46.4 Noise and Vibration**

Chapter 9 of the E.I.S. describes the potential noise and vibration impacts resulting from the proposed development. Figures 9.1a and 9.1b attached identify the noise receptor locations.

Appendix H1 provides an assessment of noise and vibration impacts associated with the Terrestrial Construction works.

Appendices H2 and H3 provide an assessment of noise and vibration impacts associated with tunnelling and also provide outputs from modelling (H3).

The impacts of noise and vibration on terrestrial and marine ecology are assessed in chapters 12, 13 and 14 of the E.I.S. The potential for effects on peat stability in relation to groundbourne vibration from tunnelling are presented in chapter 15 and Appendix H2 of the E.I.S.

## **46.5 Noise Limit Levels and Construction Noise Criteria**

These are discussed in Section 9.2.1

**A maximum permissible noise level at the façade of dwellings during construction of  $L_{Aeq}$  dB = 70 for Mon-Fri daytime working hours (NRA Guideline Oct 2004) is indicated in Table 9.1.  $L_{Aeq}$  dB = 65 Saturday 8-4.30.**

**A night time criterion of 45dB at the closest receptor outside façade of living spaces** is indicated (EPA Guidance note for noise in relation to scheduled activity).

SEPIL indicate that 65dB will be adopted for assessment of daytime noise. SEPIL indicate that 45dB is guide but that actual night time noise level will be agreed with the relevant authorities, Mayo County Council/E.P.A.

### **46.5.6 Vibration Criteria**

These are discussed in Section 9.2.2. of the E.I.S.

A limit of 2.5mm/sec (peak particle velocity PPV) is identified as a typically tolerated vibration level for piling activity (NRA).

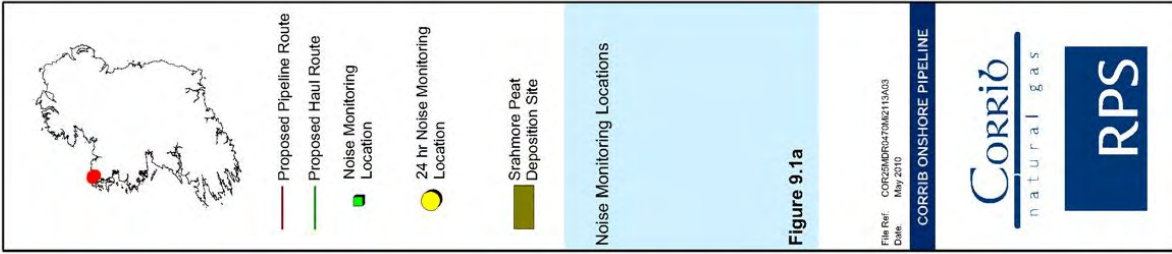
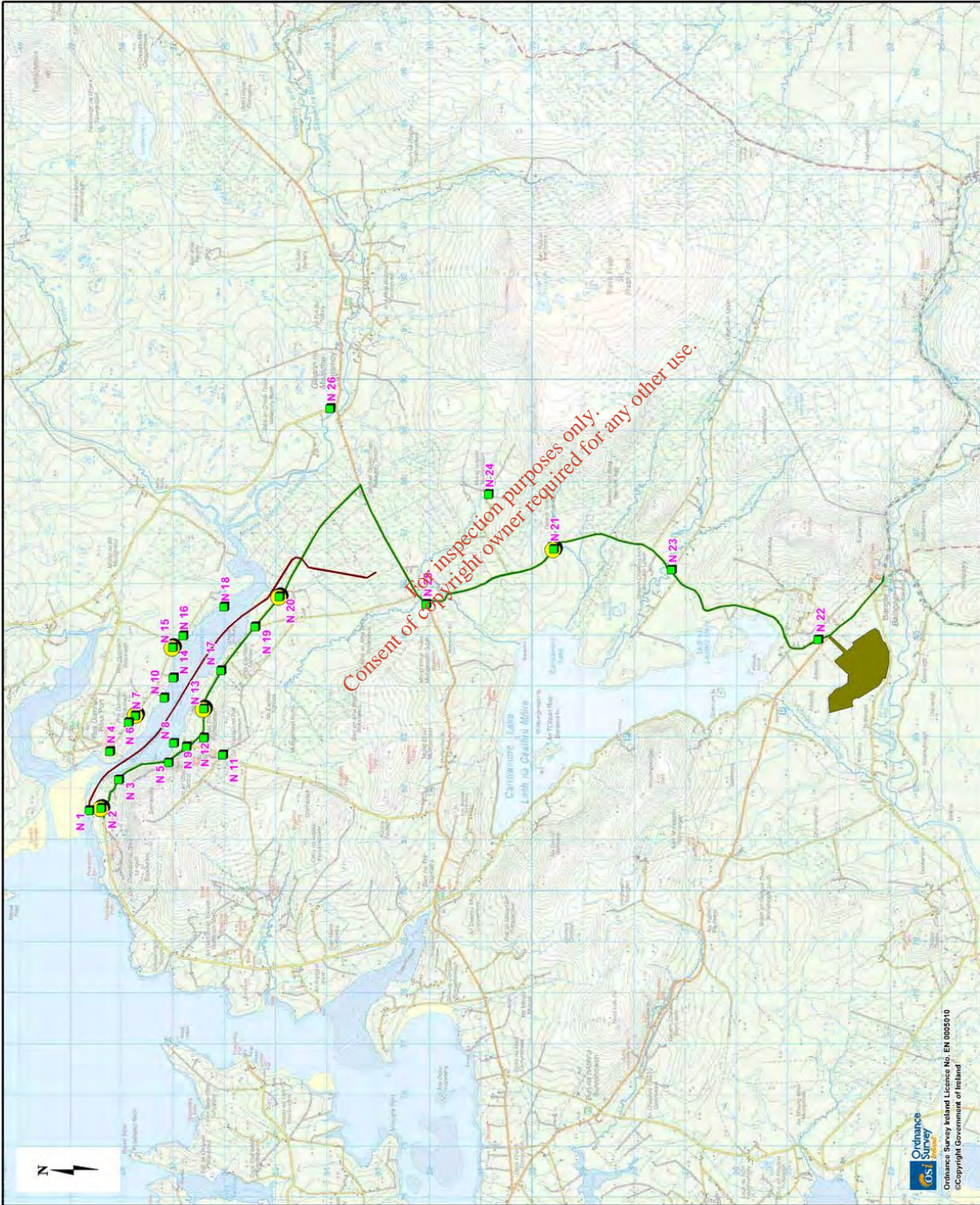


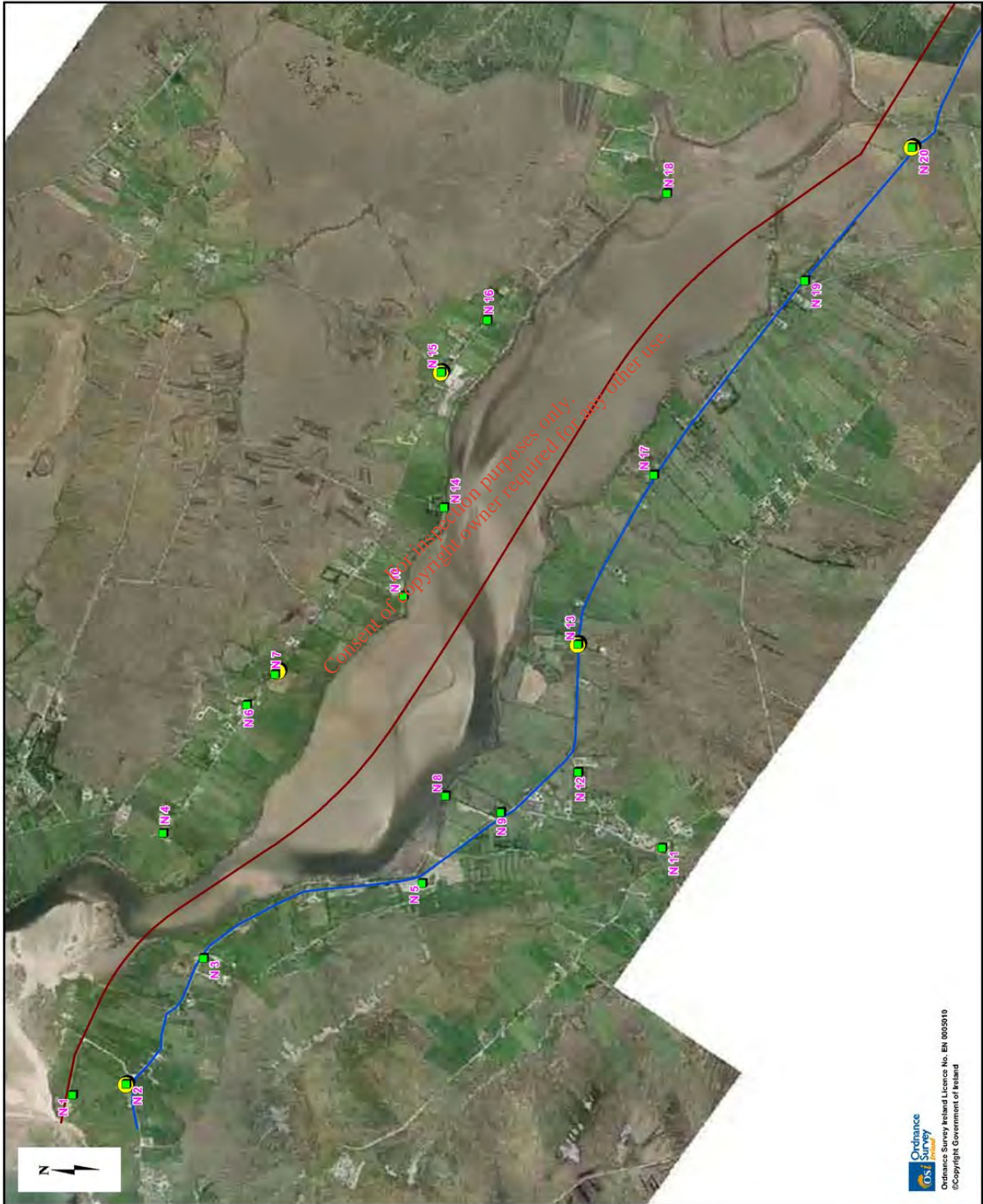
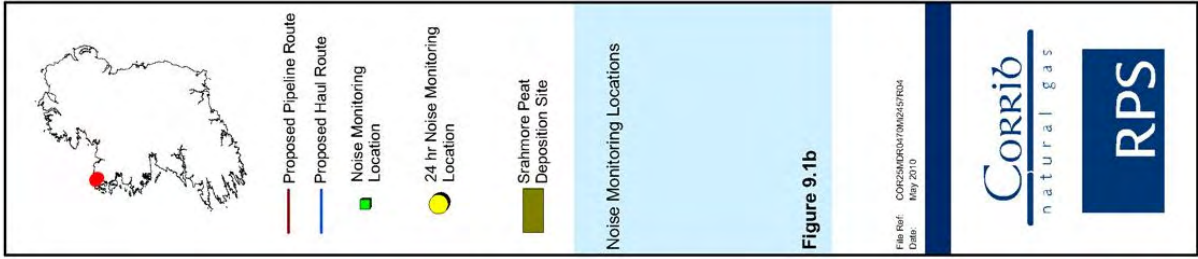
Figure 9.1a

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Date: May 2010

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### 46.5.7 Traffic Noise

The predicted construction traffic noise levels are set out in Table 9.10. The area most affected by this is Pollathomais through to Aghoos on L1202 and also to a somewhat lower extent along the L1204 haul route to Srahmore.

#### 46.5.7.1 L1204 and R314 Noise Receptors

These routes are south of the terminal and some distance away from the construction site. These routes will be part of the haul route.

The table indicates that the noise predicted for receptors N21, N24, N25, N26 is within the NRA assessment criterion of 65dB(A).

The table indicates that the noise predicted for receptor N22, which is located on L1204 near its junction with R313 i.e. near to entrance to Srahmore Peat Disposition site, exceeds the NRA assessment criterion 65.9dB(A) at N22, 65dB(A) is the NRA criterion value against which SEPIL have assessed construction noise levels.

#### 46.5.7.2 L1202 & Local Roads in Rossport Noise Receptors

These routes are along either side of Sruth Fada Conn Bay and are affected by baseline noise levels, construction noise levels and traffic noise levels.

The data provided indicates that the noise predicted for receptors N1-N16, N18-N20 is within the NRA assessment criterion of 65dB(A). The noise level predicted at N17 (1.5km West of Aghoos) exceeds the NRA assessment criterion of 65dB(A) at 65.4dB(A).

Consideration of the impact rating of the change in noise levels between the baseline noise level and each noise receptor and the predicted noise level at the receptor is shown in Table 9.10 for traffic noise. This table indicates that there will be a major impact [change in noise level of between 11-15dB(A)] at receptors N3(Glengad) and N19(Aughoos).

### 46.5.8 Construction Noise

#### 46.5.8.3 Daytime Construction Noise

The predicted construction noise levels for daytime construction activity are shown in Table 9.8 and the cumulative construction daytime noise and traffic noise are shown in Table 9.10.

Table 9.8 indicates that construction activity noise levels will not exceed NRA assessment criterion 65dB(A) for any of the noise receptor sites, N1 – N26 inclusive. However, the impact rating of the change in noise levels between the baseline noise at each noise receptor also shown in Table 9.8 indicates severe [greater than 15dB(A) increase] impact

at N2 (Glengad) and major impact [change in noise level of between 11-15dB(A)] at N19 (Aughoos).

Then in terms of the total cumulative construction noise and traffic noise receptors N17 [65.4dB(A)] and N22 [65.9dB(A)] noise levels exceed NRA assessment criterion [65dB(A)].

#### **46.5.8.4 Night time Construction Noise**

These predicted noise levels are shown in Table 9.9.

This indicates that the predicted night time construction noise levels will not exceed the E.P.A. or W.H.O. assessment criterion of 45dB(A).

However, the impact rating which indicates the change in noise levels between the baseline and the noise level at each receptor is shown as major [change to the noise level of between 11-15 dB(A)] at receptor N2 (Glengad).

#### **46.5.8.5 Noise from Tunnelling Activity**

This has been predicted as groundbourne noise level of 9dB L<sub>AMAX,S</sub>. This is further indicated as well below the significance criterion of 35dB L<sub>AMAX,S</sub> and would be inaudible within any residential property.

## **46.6 Vibration**

### **46.6.1 Construction Traffic Vibration**

The E.I.S. in Section 9.4.3 indicates that vibration from traffic is a function of size, shape speed of the vehicle and the surface condition of the road. It is indicated that road traffic vibration can be largely minimised by maintenance of the road surface.

In Chapter 7.6 of the E.I.S. on traffic, mitigation measures are set out. These include maintenance of the road surface, a traffic management plan, maintenance of the vehicle fleet, management of the movements of the convoy system on that part of the L1202 where the road width is reduced between Pollatomish and Glengad, speed limits for HGV traffic 60km generally maximum speed and 50kmph and 30km on specific parts of L1202 where the road is not wide enough for two HGV vehicles to pass each other safely and a 20km/hour speed limit is now proposed at McGrath's Public House.

Mayo County Council in their closing submission to the OH provided confirmation that the council will be in a position to carry out any road work rehabilitation or improvement works required to facilitate construction of the proposed development.



A vibration test was carried out using a convoy and the results were presented at the OH [DRN OH 80].

#### 46.6.2 Tunnelling Vibration

This is discussed at Section 9.4.4 of the E.I.S. The closest residential properties to the tunnelling works are located 240m from the tunnel between Pollathomais and Glengad. The predicted vibration from tunnelling at those properties is indicated to be in the range 0.01 to 0.03mm/s which is considered to be below the threshold of human perception for vibration.

It is further considered in Section 9.4.4 that even within buildings where amplification of groundbourne vibrations will take place that:

*“...the vibration level on suspended floors within houses in between Poll a tSomais (Pollatomish) and Gleann an Ghad (Glengad) during the pass-by of the TBM is at a level likely to be significantly less than the threshold of human perception for vibration...”*

#### 46.6.3 Mitigation Measures

##### 46.6.3.1 Noise

These are set out in Section 9.5. The E.I.S. stated that mitigation measures as outlined in B5 5228 “Noise and Vibration Control on Construction and Open Sites” will be employed on site during construction.

The mitigation measures are summarised in the E.I.S. and include a 3m tall noise attenuation barrier around the tunnelling launch pit, perimeter at Aghoos and reception pit at Glengad.

These also include measures that will require a significant management effort in the construction project to specify noise reduction measures for plant machinery and work practices and to monitor and enforce these measures over the duration of the construction.

##### 46.6.3.2 Offshore Pipeline Commissioning

This is not part of the onshore pipeline development as it is proposed to ABP for approval [16.GA.004] however offshore pipeline commissioning will be conducted from the Glengad site during the onshore pipeline development proposed programme.

It is expected that elevated noise levels will emanate from Nitrogen generating plant and associated compressors.

At present [31/05/2010 E.I.S. submission] that operation is proposed to be carried out on a 24 hour basis over one to two weeks. It is stated that further noise attenuation measures are

being sourced and should these not be available then this activity will be curtailed and not carried out between 8p.m. and 7a.m.

#### **46.6.3.3 Vibration**

In relation to tunnelling, SEPIL state that as there are no significant impacts from vibration or groundbourne noise anticipated no mitigation measures are identified. The E.I.S. says no mitigation measures are required.

#### **46.6.3.4 Method Used for Noise Predications**

Appendix H provides details of the method used. The data from noise baseline measurements taken on site are provided together with other factors wind, temperature, rainfall, sunshine. Copies of the certificates of calibration equipment have been provided which appear to show good correlation between the expected results and the actual results and the levels of uncertainty in the readings as measured are deemed to be within a level of confidence of 95%.

The Appendices H<sub>2</sub> and H<sub>3</sub> includes impact assessment of noise and vibration from tunnel construction and modelling of noise and vibration from the tunnel drive. The tunnel drive model was calibrated by reference to measured data from the Dublin Port Tunnel. A TBM similar to that used on the Dublin Port Tunnel was assumed for the model work.

Assumptions were made concerning the soil characteristics based on geotechnical investigations of the area. These issues were challenged as it was considered by observers that site information on the 2010 route had not been included in vibration modelling.

I disagree. The information that was available for the 2009 proposed tunnels has been confirmed by further site data collected. On that basis I am satisfied that the vibration predictions are not unreasonable.

#### **46.6.4 Information Provided in the Addendum to E.I.S.**

At the OH 2010 information was submitted indicating that further mitigation was proposed in respect of the LVI compound and in respect of the tunnel reception pit at Glengad where the E.I.S. 2010 proposal that a diesel water pumping operation had been intended to continue throughout the night at these sites. The revised proposal is that no water pumping will be carried out from these sites between 22:00 and 08:00. The review of noise levels also indicated how additional noise abatement could be achieved in the form of specification of alternative equipment that will reduce the level of noise generated at source in the tunnelling compound at Aghoos. The following measures are proposed:

- A reduction of noise from the three power packs required to power the TBM will be achieved.
- Centrifuges will now not operate between 23:00 – 07:00.
- Noise reduction at the separation plant.

- Alternative wheeled loader will be used giving significantly reduced noise emissions.
- Trucks will now not operate within the tunnelling compound between 23:00 – 07:00.

The revised noise information provided in the addendum also revises the table for the predicted construction night time noise levels. A re-analysis of noise levels is presented which predicts noise levels at each of the noise receptor sites N1 to N26. The original Table 6.2 only provided data for N2, N7, N13, N15, N20 and N21. Some extrapolation has been used to predict noise levels at all the receptors. Data collected from a noise survey in 2007 is also added to demonstrate that the baseline data collected in March 2010 and on which the original E.I.S. data tables have been prepared represents a higher baseline ambient level (2010) than that measured in 2007.

Appendix D as revised in the addendum reflects the improved specification for equipment (1) power packs, (2) separator, (3) wheeled loader.

#### 46.6.5 Interpretation of the Addendum Data

The additional data and tables provided in the addendum are not that easy to relate to the information presented in the E.I.S. particularly in relation to night time noise prediction. It is possible to make the following general conclusions regarding the additional data provided in the addendum:

1. There will be no night time pumping activity at Glengad associated with the onshore pipeline construction. This will reduce the noise impacts at Glengad at night.
2. The ambient baseline night time levels used in the E.I.S. (March 2010) are, according to SEPIL, relatively high ambient levels when compared to the (2007) levels. This high ambient level pushes up the cumulative noise levels. In my view the real issue with night time noise levels will arise on calm nights as well of course as the intensity and level of the noise itself.
3. The additional data provided in the addendum shows more clearly than the original E.I.S. that noise night time impacts will affect properties in the Aghoos area, noise receptor N19 in particular. N20 is also affected but this property is owned by SEPIL. There are four residential houses shown in this area AG10, AG11, AG12, AG13.
4. The noise receptor sites at the north of Sruth Fada Conn Bay along N4, N6, N7 appear to be particularly susceptible sites for noise generated at Glengad. While the cumulative noise level (night time) is shown within the EPA and WHO assessment criterion of 45dB(A) this area along the north side of Sruth Fada Conn Bay is vulnerable to noise emanating from Glengad in my view on calm nights. There are multiple (more than 10) residential houses in the area.
5. The revised figures 6.2a and 6.2b presented in the addendum show little change in daytime noise levels predicted for Glengad from those shown in E.I.S.

6. There is a significant reduction in predicted construction noise levels (daytime) at Aghoos.
7. The revised figures 6.2.a, 6.2.b and 6.2.bii as provided in the addendum (large scale Aghoos night time model output of noise) show no night time noise levels above 45dB(A) at Glengad and show reduced levels at night time noise predicted for Aghoos when compared to the diagram shown in the 2010 E.I.S. Fig 6.2b Appendix H1.

#### **46.6.6 Further additional information provided at OH**

SEPIL provided updated detail of proposals for noise mitigation at Aghoos in [DRN OH 94] submitted to the OH.

In a further design upgrade, SEPIL now propose that the power packs and the separation plant will be housed within acoustic sheds. The result of these additional measures is predicted to be no increase in background noise levels at any of the noise receptors in the area, except N19. There are 4 houses in this area at Aghoos.

In the case of N19 the predicted night time noise level is now expected to be 26.3dB(A) [cumulative 27.8dB(A)] whereas the lowest measured baseline levels were 22.6dB(A) (on 12/03/2010) and 20.0dB(A) (on 26/09/2007). This prediction is a very satisfactory predicted noise level at night at the receptors (4 houses) at N19 at Aghoos.

#### **46.6.7 Tunnelling**

SEPIL provided specialist report in Appendix H3 on the modelling of noise and vibration. In the BOE Mr. Rupert Thornely Taylor further provided a slide showing the footprint contour of limit of human perception of TBM vibration.

Mr. Taylor's conclusion from his analysis is that neither vibration nor groundbourne noise will be perceptible by any resident in the vicinity of the proposed tunnel and will therefore have no effect on human beings or buildings.

#### **46.6.8 Observer Challenges Noise Baseline Figures**

A challenge to SEPIL's noise measurement levels was made at the OH. The basis for the challenge was that on 25/03/2010 when observation of baseline noise levels were being taken by SEPIL on the north side of Sruth Fada Conn it was contended that an incorrect wind speed was measured. The challenge contended that on that day the bay was calm with little or no wind. The challenge was illustrated by submission of 3 photographs [DRN OH 158c] and wind measurements [DRN OH 158b]

- (1) taken and marked 25/03/2010 and showing a rib in the water – on the day the noise readings recorded in E.I.S. were taken at N8, N14, N18.

- (2) and (3) photos illustrating different conditions in the Bay flat calm 25/09/2010 and with some wind 26/09/2010.
- (4) wind measurements were supplied for 26/09/2010 for 16:00 at Belmullet.

In order to examine the point being put before ABP SEPIL were requested to submit wind speed records from Met Eireann at Belmullet and from wind measurements taken by SEPIL at the terminal. These were submitted, [DRN OH 146A] refers.

#### **46.6.8.1 Inspectors Opinion on the Challenge to the Noise Measurements**

1. The challenge is unusual in that it is based not on any measurements of noise but rather on the relationship between a perceived wind condition (calm) on the day and the actual wind speed recorded by SEPIL on that day 3.7m/sec mean measured wind speed.
2. I am prepared to accept the observers perception as “that the day was calm”, but the problem I have is that evidence was only given about seeing the noise measurement event taking place on site and nothing was provided in evidence that all three events were seen [11:10, 14:03, 15:50 @ N14 and corresponding times at the other noise receptors].
3. The wind speed measurements provided for Belmullet and for the terminal on 25/03/2010 provided by SEPIL are consistent enough with the recorded mean measured wind speed at Sruth Fada Conn Bay as provided by E.I.S. Here again it has to be said that conditions would undoubtedly have differed between each of these locations.
4. The methodology used in collecting the noise measurements and the modelling itself were not challenged.
5. In my view the point being made by the observer and the objection to the SEPIL noise figures as presented for baseline measurements in E.I.S. could be stated as follows:

In calm conditions sound travels differently in Sruth Fada Conn Bay and noise is detectable at greater distance and with more impact on such days.

I have no difficulty accepting that point.

#### **46.6.9 Complaints from Observers Regarding Vibration**

Three specific complaints were presented in submission and at OH regarding the effects of vibration from HGV traffic on L1202. The contention made was that HGV traffic haulage to Glengad in connection with the offshore pipe works at Glengad had caused damage to property.

1. Barrett's: Photos were submitted showing the Barrett's property and some small cracks on the front wall/front pier corner. The L1202 refers between Pollatomish and Glengad where the road has not been widened.
2. McEleney's: Slides had been presented in 2009 showing the damage alleged to have been caused at McEleney's house. This was raised again and the contention was made that because the road at McEleney's is narrow and not wide enough for

two HGV's to pass and because McEleney's house is close to the road and because the road surface/road structure was inadequate that damage had occurred at McEleney's front wall and at their house. L1202 refers between Pollatomish and Glengad where the road has been widened.

3. McGrath's pub and residence: This property is on the side of the L1202 road at Pollatomish where the road has not been widened.

#### 46.6.10 SEPIL's Response

In the Traffic Management Plan, SEPIL have indicated in the E.I.S. the following mitigation measures to minimise the impacts of traffic:

- SEPIL intend through Mayo County Council to keep the road surface in good repair and condition.
- SEPIL's proposal to tunnel from Aghoos in one direction has the effect of significantly reducing the volumes of HGV traffic that will be required at Glengad (from that which would have been involved in the 2009 scheme where the lower crossing tunnel would have been likely constructed from Glengad).
- The TMP includes speed limit reduction to 30kph in the narrowest areas if L1202 and 50kph in those wider sections and a maximum of 60kph everywhere.
- SEPIL propose that vehicles will be well maintained.
- SEPIL propose a driver training programme and a driver code of conduct for driving HGVs and personnel vehicles.
- SEPIL will arrange pre-construction structural assessments at properties along roadways and will on request provide pre-construction structural assessments to other properties.
- SEPIL will arrange monitoring on site where requested to do so of vibration and noise levels along the route.
- SEPIL have identified a number of noise (and vibration) monitoring locations along the route where noise and vibration monitoring will be carried out on a 24/7 basis at Aghoos and on a weekly basis at the other 4 points.
- Monitoring will be reported on a fortnightly basis to Mayo County Council in an interpretive report. This report will include the data, a discussion of apparent noise and vibration sources and the significance of the results. This monitoring proposal was set out in [DRN OH 141] submitted by SEPIL at the request of the Inspector.
- SEPIL submitted an assessment of the pavement condition at McGrath's Bar. It is now proposed that the surface there be removed and a better quality of materials better compacted will be installed there prior to overlay.
- As a measure of mitigation in the event of an absence of road improvements SEPIL have proposed that vehicles will reduce speed to 20kph at McGrath's Bar (SEPIL [DRN OH 147] refers).
- SEPIL submitted a statement on the pavement condition at McEleney's. This indicated that Mayo County Council had constructed a new reinforced concrete retaining wall at McEleney's. The wall has foundations down to firm strata and the



road has been strengthened with a smooth running surface. SEPIL believe this will mitigate against any noise and vibration impacts that may result from HGV passing traffic. A 30kph speed limit will be maintained by HGVs at McEleney's. While the speed reduction measures are provided for road safety reasons they will reduce the impact of noise and vibration (SEPIL [DRN OH 145A] refers).

#### **46.7 SEPIL's Response to DCENR**

SEPIL in response to issues raised by DCENR regarding a specific issue "the significance of the duration of a vibration (tunnelling will be continuous 24 hour, 7 day operation) rather than its intensity..." with respect to ground stability indicated that:

- Baseline vibration readings taken at roadside locations were in the range 0.175 to 0.275mm/sec.
- The calculated vibration induced by tunnelling at a house 240m distant from the tunnel had been determined at 0.02mm/s.
- Assessment of vibration effects on ground instability is Dooncarton Mountain would take account of the greatest magnitude of vibration (in PPV) at the site of the sensitive slopes irrespective of the duration of the event. In this regard the duration would be not considered significant.
- As a distance of 800m the PPV would be notably less than 0.02mm/sec.
- The primary mechanism of slope failure on the previously failed slopes was essentially water pressure related. The failures were not as a result of vibration.
- Typically the safe limit for vibration on slopes is in the PPV range 15 to 25mm/sec.
- SEPIL indicated that the groundborne vibration arising from the tunnel and from construction traffic (either separately or in combination) have been predicted. The predicted vibration levels combined with the distance of the road and the tunnel trajectory from the slopes of Dooncarton are such that the probability of vibration affecting ground stability can be ruled out.

##### **46.7.1 Discussion Noise**

1. I am satisfied that a full analysis has been presented.
2. Noise is one impact that has the potential to interfere with the residential amenity of the area and if not properly controlled particularly at night, this noise can impact in an unacceptable manner on local residents.
3. L1204 Noise Receptors: I am reasonably satisfied that there will be no problems from noise. No complaints from previous noise levels on previous haulage of peat have been made. I note that quantity of peat to be hauled is reduced over the original planned quantity and the contract programme period has been extended. Other changes in truck size and in proposed management of traffic impacts have impressed me. I expect noise levels will be acceptable in this area.
4. L1202 Aghoos Noise Receptors: Noise receptors at N19 are the ones most likely to be affected by the 24/7 tunnel construction support activity at the Aghoos Compound.

The predicted noise levels are generally acceptable. The mitigation measures being taken including the additional upgrade in the design as submitted at OH (vehicle and equipment improved specifications regarding noise, attenuation enclosures for heavy equipment, excluding separator operations at night) are demonstrating that SEPIL are conscious of the potential noise nuisance that may arise from activities at this site. Noise monitoring, review and reporting of noise levels at these receptors is a critical task. I am satisfied that a condition limiting the max noise levels at the nearest noise receptor site (dwelling) is the best way to protect the residential amenity in the area.

5. L1202 Glengad and Rosspport Noise Receptors: I am satisfied that SEPIL are proposing a much reduced level of activity at Glengad in the 2010 scheme. While night time working may not be required it is clear to me that certain works will involve night time working at Glengad
  - offshore umbilical, offshore commissioning, activities that are controlled through the Environment Management Plan process and DCENR Section 40 implementation.
  - tunnel boring which is working 24/7 will complete at the reception pit in Glengad.
  - it is not unreasonable to assume that protest activity at Glengad will require security lighting and manned activity. Such has been the case in the past and evidence has been shown that considerable impact on the residential amenity of the area and on normal use of the L1202 has arisen from such activity and from the security response used at such times.

I am satisfied that a condition limiting noise levels at the nearest noise receptors in Glengad, and at Rosspport on north of Sruth Fada Conn Bay, is the best way to control the noise levels and to protect the residential amenity in the area.

## 46.8 Inspectors Recommendations Noise

### 1. Glengad

All construction work shall be programmed as far as possible to avoid working between 19.00p.m. and 07.00a.m. Where night working at Glengad becomes necessary the programme shall be agreed with Mayo Co Co. Only essential works shall be carried out. Audible tones and impulsive noise should be avoided at night. Noise generation at night shall be controlled on site and kept to the lowest possible achievable levels.

#### Noise Levels

<i>Day</i>	07.00a.m. – 20.00p.m.	65dB L <sub>AEQ</sub>	
<i>Night</i>	20.00p.m. – 07.00a.m.	Target level for design:	35dB
		Calm night maximum level:	40dB
		Overall maximum level:	45dB

## 2. Aghoos

Only essential work shall be carried out between 17.00p.m. and 07.00a.m. Audible tones and impulsive noise should be avoided at night. Noise generation at night shall be controlled on site and kept to the lowest possible achievable levels. Noise levels at the nearest noise sensitive receptor (dwelling) shall not exceed

<i>Day</i>	07.00a.m. – 20.00p.m.	65dB L <sub>AEQ</sub>	
<i>Night</i>	20.00p.m. – 07.00a.m.	Target level for design:	35dB
		Calm night maximum level:	40dB
		Overall maximum level:	45dB

**Reason:** To protect the residential amenity of the area.

3. During construction and haulage, noise levels shall be kept to a minimum. Any activity that will result in a significant increase in the ambient noise levels, for example, piling or rock breaking, shall be notified to the Project Monitoring Committee in advance. Advance notice of the schedule of such activity shall be made available to the general public by way of public advertisement.

**Reason:** In the interest of public health and residential amenity.

## 46.9 Inspector's Conclusions Vibration

1. SEPIL present a strong argument that vibrations will not cause any problems and will be well within acceptable ranges.
2. Evidence has been provided in respect of TBM vibrations and vibrations from traffic convoy and the vibrations from pile driving at the reception and launch pits and rock breaking at the reception and launch pits.
3. Observers concerns have been raised on waterbourne vibrations, marine mammals and fish, Dooncarton susceptibility to vibrations, property damage issue and traffic damage issues.
4. Mr. O'Sullivan has been satisfied with the information provided in the E.I.A. process regarding the characterisation of noise predictions and regarding the range/frequencies detectible by marine mammals and fish. He has concluded that the proposed development is acceptable in this regard.
5. I am satisfied that SEPIL's proposal to carry out pre-construction structural surveys and vibration monitoring on an ongoing basis these measures will provide control data on vibrations.
6. As outlined in Chapter 34 Landslides at Dooncarton I am satisfied that the proposed development does not pose a threat to the stability of Dooncarton Mountain.
7. I conclude that an appropriate condition on vibration monitoring is the appropriate control for the proposed development.

## 46.10 Inspector's Recommendation Vibration

I have reviewed the proposed monitoring of vibration [DRN OH 131] as submitted by SEPIL to oral hearing in response to questions. And I have included below a recommendation in that regard:

Vibration monitoring should be carried out during construction as provided in the E.I.S. – generally and in the specific detail provided at Oral Hearing [DRN OH 25]. The monitoring shall include:

- (1) Monitoring at the Aghoos Tunnel Launch Pit Area
- (2) Monitoring at the Glengad Tunnel Reception Pit Area
- (3) At each site monitoring vibration from (a) Piling activity (b) Rock Excavation activity (c) Tunnel Boring Machine activity. In the case of the Glengad site as the TBM makes its way towards the site.
- (4) Monitor at 25m and 50m from the source on two orthogonal planes aligned parallel and perpendicular to the predominant foliation or schistosity of the rock or as close to parallel and perpendicular as may be practicable.
- (5) The monitoring should serve to characterize the site specific ground response to these construction activities and shall provide verification data for review of the model predicted vibrations.
- (6) An interpretative report and the data of the monitoring activity to be provided to Mayo County Council and to the PMC and published via web in accordance with monitoring procedures established.
- (7) Vibration shall not exceed the standards set out in NRA Guidelines for Treatment of Noise and Vibration in National Road Schemes as follows:  
Allowable vibration velocity (PPV) at the closest part of any property to the source of vibration at a frequency of  
Less than 10Hz      for all vibrations >10Hz  
8 mm/sec              12.55 mm/sec

**Reason:** This is necessary to provide control information on the dissipation of vibration and to ensure there is no impact arising from such excavation works.

## 46.11 Air Quality & Climate Impact

Details of background air quality for NO<sub>x</sub>, SO<sub>2</sub>, CO, Benzene, NO<sub>2</sub> and PM<sub>10</sub> have been established using background data from EPA measurements at Kilkitt Co Monaghan. SEPIL have indicated that these results are from a rural location within the same zone D, defined in the Air Quality Standards Regulations [S1 271 of 2002], as the zone that is relevant to the site of the development. Sampling carried out by SEPIL at the Terminal site at Ballinaboy has verified that the figures obtained from the Kilkitt results are consistent with the test results from samples taken at Ballinaboy. In addition to the above parameters EU directive 2008/50/EU is due to be implemented in Ireland from June 2010

and sets an annual target value for the smaller particulate PM<sub>2.5</sub> for the protection of human health.

SEPIL have used the local assessment model in the Design Manual for Roads and Bridges for assessment of impacts on air from road transport. This method is recognised in the NRA Guidelines. SEPIL have set out meteorological conditions in the existing environment as follows:

- Mean Annual Rainfall 1142mm
- Mean Wind speed 13 knots
- Prevailing wind is West to South West
- Average 30 days with gales per year
- Less than 5 days calm per year

The sensitive receptors are identified as houses at a distance of 250m (Glengad compounds SC1 and SC2) and 350m Aghoos compound SC3, and one school in Pollatomais which is beside the haul route L1202. The cSAC's at Glenamoy Bog Complex and Broadhaven Bay are beside the haul route. The pipeline traverses the cSAC at Glengad. In addition houses along the haul route are identified as sensitive receptors along L1202, R314, L1204 and R313.

The conservation sites in the area are also considered to be sensitive receptors, these are shown on figures C1, C2, C3 in the E.I.S. preface to section C Natural Environment.

In the modified proposed development there will be emissions from three diesel generators [two 1MW and one 0.5MW generators] which will be located at Aghoos and which will provide power for the tunnel boring machine and equipment.

SEPIL use an air dispersion model recommended by Aermot under Irish EPA guidance for air dispersion modeling.

The results of the modeling are presented in Table 8.4 for the generator emissions from Aghoos tunneling compound and in Table 8.5 predicted impact of traffic pollutants on the road network during peak construction and post construction.

SEPIL present the predicted cumulative impact (worst case) at receptors on the section of L1202 north of the site entrance at Aghoos in Table 8.6

These results indicate that NO<sub>2</sub> is predicted to increase by 41% and PM<sub>10</sub> is predicted to increase by 2% at the residential receptors concerned.

It is predicted that all other sensitive receptors in the area will experience levels lower than those presented in Table 8.6.

The total cumulative impact ( $\mu\text{g}/\text{m}^3$ ) for  $\text{NO}_2$  is 4.23 which compares with the limit for protection of human health  $40\mu\text{g}/\text{m}^3$ . The total cumulative impact ( $\mu\text{g}/\text{m}^3$ ) for particulate matter  $\text{PM}_{10}$  is 10.20 which compares with the limit for the protection of human health of  $40\mu\text{g}/\text{m}^3$ .

#### 46.11.1 Potential Impact on Sensitive Ecosystems

The construction associated with the pipeline is not predicted to cause  $\text{NO}_x$  levels that would breach guidelines ( $30\mu\text{g}/\text{m}^3$  for sensitive eco-system).

It is expected that emissions from the generators at Aghoos have the potential to breach these guidelines (reference NRA guidelines for the assessment of the significances of impact of construction activity on sensitive eco-systems).

SEPIL have predicted that a small section of the Glenamoy Bog complex cSAC, which is 50m from the location proposed for the generators, may be affected by  $\text{NO}_x$  levels  $> 30\mu\text{g}/\text{m}^3$ .

SEPIL have carried out an assessment of the potential deposition of dry Nitrogen at the cSAC using procedures from the NRA guidelines. It has been estimated that 7kg N/Ha/year for the period of tunnelling may be deposited on the cSAC at the nearest point to the generators. The habitats at this location are estuarine and salt marsh.

SEPIL consider that the predicted loading of 7kg N/Ha/year is well within the critical load. 30-40 kg N/Ha/year UNECE United Nations Economic Commission for Europe critical loads for nitrogen deposition on "pioneer and low mid salt marshes".

#### 46.11.2 Observers Submissions

Observers have expressed concerns that dust particulate matter and fumes from transport vehicles and from diesel generators will impact on the area and will affect anybody with respiratory problems.

#### 46.11.3 Mayo County Council Condition Re: Dust

Mayo County Council in their submission to ABP have requested that the following condition be considered by ABP.

Dust levels shall not exceed  $350 \text{ mg}/\text{m}^2$  (TA Luft Air Quality Standard) per day averaged over thirty days when measured at the site boundaries. Any activity, which could reasonably be expected to exceed that dust level, and proposed mitigation measures, shall be notified to the planning authority and the project Monitoring committee in advance, and shall be made available to the general public by way of public advertisement.

**Reason:** In the interest of public health and residential amenity. Condition 19 as recommended by Mayo County Council. This condition is acceptable.



## 46.12 Carbon Losses and Greenhouse Gas emissions

The E.I.S. in Section 8.4 outlines the impacts on air quality and climate from the proposed development. Appendix G provides calculations of carbon losses from peat disturbance. Table 8.10 below sets out the summary of greenhouse emissions for construction. The total has been estimated at 30590 tons of CO<sub>2</sub>.

**Table 8.10:** Summary of Greenhouse Emissions for Construction (Tonnes of Carbon Dioxide Equivalent).

Item	Estimated GHG Emissions (tCO <sub>2</sub> eq) <sup>1</sup>
Quarried Material	2,043
Concrete, Mortars, Cement	12,405
Metals (pipeline Steel) <sup>2</sup>	5,956
Plant Emissions	1,464
Peat Removal	4,059
Material Transport	4,451
Personnel Transport	212
<b>TOTAL</b>	<b>30,590</b>

1. Tonnes Carbon Dioxide Equivalent

2. Already Fabricated

There is a substantial increase in Greenhouse Gas emissions in the 2010 scheme when compared to the 2009 scheme – 17276 tons (2009) to 30590 tons (2010). The biggest change arises in the estimated Greenhouse Gas emission from concrete, mortars, cement which includes bentonite and tunnel grout at 12405 tons.

SEPIL have concluded that the contribution of Greenhouse Gas emissions arising from the construction of the onshore pipeline in the context of the National Emission Levels is negligible. The 2009 E.I.S. indicated that the National Emissions Kyoto Target of 63 million tons of CO<sub>2</sub> equivalent (i.e. Corrib represents 0.00048% of National Target).

## 46.13 Observers Submission

1. The Greenhouse Gas contribution from the Corrib Scheme is not negligible as claimed by SEPIL.
2. The development of the Corrib Gas Field will not improve or contribute to Ireland's Climate Change Policy.
3. The E.I.S. has not considered factors such as the influence of
  - a) Climate Change
  - b) Wind Strengths and Direction
  - c) Problems associated with carrying out work during inclement weather in the area
  - d) Human Error

#### 46.14 Discussion

- 2) I accept the figures presented by SEPIL. I do not accept that the Corrib Gas Field will make no contribution to Ireland's Climate Change Policy. Natural Gas is a clean efficient fuel. The pipe distribution system for gas is an efficient way to transport energy. This has, in my view, a positive contribution to make in removing the need for the transportation of fuel to those consumers connected to the National Grid.
- 3) I do not accept that the contribution of Corrib Onshore Pipeline to Greenhouse Gas emissions is negligible. At 30590 tons, it cannot be considered negligible. I am satisfied that ABP has before it adequate details for assessment. I do not consider that the generation of 30590 tons equivalent of CO<sub>2</sub> is a sufficient reason to withhold an approval for this proposed development.
- 4) Climate Change: An allowance has been made in design for increased sea levels and increased flood levels from extreme rainfall events. I am satisfied that an adequate allowance has been made in this regard. It is true that other possible Climate Change factors – increase/decrease in ambient temperature etc – may arise in the future. In my view issues that can be foreseen and are likely to arise – flood levels – have been adequately considered in the E.I.S. In the lifetime of the proposed development (The pipeline has a 30 years design life) in my view it is difficult to foresee other Climate Change factors that could have a bearing on the design requirements for this onshore pipeline. No factors were suggested and there is no basis in my view to consider that the E.I.S. is deficient as a result.
- 5) Wind: The onshore pipeline will be buried. Evidence has been provided regarding potential for scour within the Bay. I accept the evidence that the pipeline will be safe from the potential impacts of scour currents in the Bay.
- 6) Inclement Weather: I believe this issue is that in the event of a leak in the pipeline, that inclement weather will restrict efforts to carry out remedial/repair work. The safety of the public from the proposed development has been assessed and the risks to the public are low and acceptable. The exposure of the area to extreme weather conditions is one of the factors that have been considered in respect to the construction of the pipeline. I am satisfied that the 26 month programme is reasonable and that within that programme there will be sufficient time to cater for delays that may arise because of extreme weather. I do not expect that extreme weather conditions will have any bearing on the operation of the pipeline. I am satisfied that once the pipeline is constructed and completed, weather events will not affect the proposed development. In the event that a leak or problem does occur with the pipeline then in my view any extreme weather conditions will delay efforts to carry out remedial/repair work.
- 7) Human Error: This cannot be discounted as a factor. I have accepted that some potential uncertainties such as human error could be a factor and I have included for that in my assessment of the proposed development. The Qualitative Risk Assessment contained in the E.I.S. outlined how SEPIL controlled many such threats to the safety of the public. Notwithstanding that SEPIL have provided a guarantee on safety to the public and notwithstanding that SEPIL have absolute confidence that

this pipeline will not fail, a consequence distance for the routing of the pipeline has been specified by the ABP. That is at the end of the day how uncertainties such as human error are overcome and the safety of the public is maintained even in a worst case scenario of a full bore rupture of the pipeline.

#### **46.15 Assessment**

1. I am satisfied that sufficient information has been provided in the E.I.S. Chapter 8 and in Appendix Q to enable the impact of the proposed development to be assessed.
2. Dust from construction activity, dust from haulage of stone into the site, and peat out from the site along the haul route and dust from the deposition of peat at Srahmore are the areas where concerns may arise.
3. Concern may also arise in the vicinity of L1202 at sensitive receptors there and in particular in the vicinity of the tunneling compound at Aghoos where three diesel generators will operate to power the tunnel boring machine and where significant haulage to and from the site will arise on a continuous basis.
4. I am satisfied that while the levels of NO<sub>2</sub> will increase North of Aghoos as a result of the diesel generators that the total impact is a slight adverse impact only and will occur during the construction operation. I am also satisfied that dust levels can be controlled provided the mitigation measures set out in section 8.5 of the E.I.S. are undertaken.
5. The peat deposition activity is covered separately in the E.I.S. Volume 3, Books 1,2,3. Mr. O'Sullivan in his report Appendix 1 has considered the proposed peat deposition at Srahmore. This is also considered in Chapter 40.
6. Peat deposition will be the subject of a Waste Licence from E.P.A.
7. I note that during the peat deposition activities in 2005, 2006, 2007, that there were a small number (3) of dust exceedances on the Waste Licence then in place. Appendix 9.1 and Appendix 11.1 in the Appendices related to the Srahmore peat deposition set out the details. Action was taken on site and within the licensing procedures and the dust exceedances were managed at that time.
8. I note inspection and cleaning is proposed with either manual or automated wheel washers and that road sweepers will be used to keep the roadways maintained from spillages.
9. I am satisfied that there will be minimal impact on air quality as a result of the proposed development. I am satisfied that the mitigation measures proposed for ensuring truck and haulage vehicles do not pull clay and stone material onto the haul route should work satisfactorily.
10. I am satisfied that SEPIL have considered the impact of the diesel generators on air quality at Aghoos and I accept the analysis contained in the E.I.S.
11. Overall I am satisfied there will be minimal impact on air quality as a result of the modified proposed development. I am satisfied that the mitigation measures proposed will minimize the impacts involved during the construction phase of the project.

12. During the operation phase of the project the proposed development will not have any impact on air quality.

#### **46.15.1 Inspector's Conclusion**

The carbon losses from the construction of the onshore pipeline are in my view not likely to have any significant impact on the environment.

#### **46.15.2 Inspectors Conclusions Air Quality**

1. I am satisfied that appropriate measures are proposed to control the generation of dust from construction and haulage activities.
2. I note that some minor exceedances occurred at Srahmore on previous deposition of peat there. I note corrective actions were taken at that time.
3. I am satisfied that adequate measures are proposed to limit and control the impacts of exhaust fumes at the Aghoos Compound.

### **46.16 Non Technical Summary**

An issue was raised regarding the additional material produced at OH that a non-technical summary was not provided – particular reference was made to the Addendum. It was concluded that the omission of a non-technical summary for that document in effect was a sufficient justification for ABP to reject the whole E.I.S.

The E.I.S. itself has a non-technical summary. In fact much of the material in the E.I.S. is written without undue reference to technical descriptions. Apart from the appendices some of which are quite technical, the E.I.S. is reasonably well laid out and clear in how and where to find information. In my view, a reasonable submission has been achieved in that regard. The wastes arising is one area where it is necessary to bring together information from a number of different parts of the E.I.S. in order to assemble the full information on wastes arising but this can be done and in my view even in that area of wastes arising the E.I.S. is not unreasonable although it could have been co-ordinated better in regards to wastes arising.

This objection to the E.I.S. regarding the non-technical summary was raised not as a result of any misunderstanding of the contents of the documents presented at OH - the addendum [DRN OH 8] in particular - rather the objection was technical and an effort to have the E.I.S. ruled inadequate and in non-compliance with EIA Directive Article 25 2(e) “*a summary in non-technical language of the information specified above*”.

I do not accept this objection. The documents submitted by the applicant at the OH were in themselves clarification to questions asked. In the case of the addendum much of this information related to issues raised by DCENR in the parallel process being conducted by them as part of the DCENR assessment of Section 40 application. In the case of material in

the addendum much of this was self explanatory and only some of it required to be read in tandem with technical details of the appendices of the main E.I.S. A number of days were set aside at OH for questions and any issues that required clarification were clarified.

In my view this objection seems a small issue when compared to the range and depth of information involved in this E.I.A. process and bearing in mind that this is the second round (2009 and 2010) of detail examination of this project and the impacts associated with the proposed development on the environment. I find this objection not sustainable.

## **46.17 Services and Utilities**

The impacts on services and utilities were considered in the 2009 Report. There were no issues and I was satisfied with SEPIL's proposals in 2009 and I was satisfied that no significant impact on the area or on the environment would arise from that 2009 scheme.

The 2010 scheme proposed involves a number of additional issues that need to be considered.

### **46.17.1 Electrical Supply to Support Construction of the Tunnel**

SEPIL indicated that sufficient power is not available in the local ESB network adjacent to the Aghoos Compound to provide the power required for construction of the tunnel. It was considered that upgrading the ESB network would delay the project. Accordingly, diesel powered generators are proposed.

These will operate 24 hours per day and together with other equipment proposed for Aghoos compound site, they will produce noise and fumes which needs to be assessed (refer to noise and air quality sections above where the impacts of these generators and other equipment from a noise and air quality point of view are considered).

In summary, the proposed attenuation barrier around the Aghoos site at 3m high together with the additional measures as outlined at OH [DRN OH 94] whereby acoustic housing is proposed to further mitigate the noise levels all these proposals are considered satisfactory. In summary also the impact of the fumes on air quality has been assessed and it is concluded that that impact is temporary and at an unacceptable level. I am satisfied with the proposal to use diesel generators on the Aghoos site. As a result there will be no impact on the local electricity grid from the tunnelling power requirements.

### **46.17.2 Wastes Arising**

This issue relates to additional waste materials from tunnel arisings and from the construction materials that will be surplus to requirements when the Aghoos compound and landfall valve compound and excess materials from haulage roads along the pipeline

are being removed prior to reinstatement. This has been considered in Chapter 31 where I have concluded that the management of wastes as proposed in the E.I.S. is satisfactory.

#### 46.17.3 **Tunnelling Materials**

Specialist materials will be required to construct and equip the 4.9km long tunnel. SEPIL propose to import materials such as tunnel linings and services. Concrete/stone will be locally sourced. It is proposed to mix grout on site at Aghoos for filling the tunnel. Services within the tunnel will be left in situ as the tunnel is grouted. The air duct at 1 metre diameter will not be grouted. It will be filled with Nitrogen.

#### 46.17.4 **Water**

150m<sup>3</sup> per day fresh water will be required for mixing bentonite. Other water requirements include water for cleaning plant and machinery portable toilet/welfare facilities. Water will also be required for the grout mixing.

It is proposed to obtain water from the terminal and Mayo County Council have indicated that they are in a position to provide all of the requirements for the construction works if required to do so. It is possible to achieve this by extension of a watermain along L1202 as far as the compound at Aghoos. That work is anticipated by SEPIL but is not included in this proposed development. It is also proposed to harvest rain water from the site at Aghoos daily and to store this in tanks on site.

2500m<sup>3</sup> of water will be required for the hydro test of the pipeline. This will be sourced at the terminal as was the proposal in the 2009 scheme.

I am satisfied that there are minimal impacts arising from the requirements for large quantities of water on an ongoing basis. The proposals contained in the E.I.S. are satisfactory.

#### 46.17.5 **Telecommunications**

The existing telecommunications link at the terminal will be used throughout the construction of the proposed onshore pipeline. A link may be installed to the Aghoos and Glengad compounds if required

#### 46.17.6 **Lighting**

Lighting will be required during darkness hours at the Aghoos tunnelling compound, in the pipe stringing area and on the access roads there.

Otherwise lighting will only be used where safety and security reasons dictate that lighting is necessary. This matter was considered in detail in 2009 Report. The issue may arise (and



may then cause an impact which affects the residential amenity particularly in Glengad) as a response to protest activity. As I outlined in the 2009 report, Chapter 26 Security:

*“I find that although the impacts of such events will be significant, that they are a necessary part of the proposed development in this case. I find that in a situation where this proposed development is approved in some form such security as is required would be a necessary part of the development.”*

The full impacts of the 24 hour workings at the Aghoos compound are considered in Chapter 35 this included consideration of lighting as proposed. In summary it is considered that the lighting proposed can be controlled and managed such that it does not pose a nuisance to the residential amenity at Aghoos. It is considered that any impact of lighting at night on the natural environment will be minimal and will affect only the immediate area around the compound where there are no dwellings and will only last while the tunnelling work is in progress and so constitutes a temporary impact with no residual impacts after the conclusion of construction.

#### **46.18 Inspector's Conclusion on the Environment Impact Assessment**

Mr. Keane has indicated on behalf of SEPIL that no other project has been the subject of as much study as this onshore pipeline scheme. While this may or may not be true it is a fact that very considerable amount of survey and report information has been assembled over many years from 2000-2010 as SEPIL has proposed three different routes in that time for the Corrib onshore pipeline linking the landfall at Glengad to the terminal. In particular I note the following:

1. The site of the 2010 proposed scheme is well understood. Details of the site together with data and assessments of the impacts likely from the proposed development have been clearly submitted for ABP assessment. I am satisfied with the information that is now available about the site.
2. The 2010 proposed scheme has been clearly set out and detailed in the E.I.S. and in the additional material provided at the OH. I am satisfied with the level of detail and transparency of the documentation provided about the proposed development, about the construction of the proposed development and about the likely impacts of the development as proposed.
3. The prescribed bodies have provided ABP with full and detail advice on the respective aspects of the development and they have provided expert advice on their respective area of responsibility. I am satisfied that the advice received provides a solid basis for assessment of many of the issues concerned in this Environment Impact Assessment.
4. The issues that need to be considered are assessed in the chapters of this report. The concerns and submissions of observers have been incorporated into the assessment.

5. The conclusions are set out in each chapter and I do not propose to repeat these conclusions here.
6. The impact of the proposed development 2010 on the Health and Safety of the public has been considered in great detail. Mr. Wright's reports 2009 and 2010 provide expert advice in this regard. It has been concluded that the proposed development poses a low risk to the public and that that level is acceptable. That risk is very low. The design of the pipeline itself and the modifications incorporated in the 2010 route and in the tunnel construction proposed and in the maximum operating pressures now proposed, all these factors provide a robust and safe development. The modified 2010 scheme has provided significant moderation of the risks to the general public and the scheme is now acceptable from a public safety point of view.
7. The likely impacts of the proposed development on the natural environment have been assessed. Mr. O'Sullivan's reports of 2009 and 2010 provide the details of this assessment. It has been concluded that the impacts of the proposed development once constructed and for the expected life of operation of the proposed development will be minimal and that such impact is acceptable. It has been concluded that the significant impacts that arise from the development will be generated by the construction phase. These impacts are considered temporary and capable of being mitigated and controlled within the proposed development to a level that is acceptable. A series of conditions have been proposed to provide monitoring and control standards for the duration of the construction project and which will limit the impacts allowable during the construction stage.
8. The likely impacts of the proposed development on the Natura 2000 sites have been assessed. In view of the significant nature of the proposed development and its location adjacent to and impinging upon Natura 2000 sites an appropriate assessment has been carried out by Mr. O'Sullivan and the details are available in his report in Appendix 1. It has been concluded that the likely impacts of the proposed development will not have a significant effect on the integrity of the Blacksod/Broadhaven Bay pSPA or on the Glenamoy Bog Complex cSAC or on the Broadhaven Bay cSAC which is adjacent to the site for this development.
9. The likely impacts of the construction of the pipeline in peatlands and other geotechnical issues have been considered by Mr. O'Donnell in his Report (2009). It has been concluded that the proposed method of construction in peat lands is acceptable. Conditions have been recommended for control of construction activities in peat lands.
10. As regards the tunnel and the route up through Sruth Fada Conn Bay this is the shortest and most direct route for the pipeline. The cost and long period of construction are factors which in my view have in the past been responsible for SEPIL not selecting this route. The route now selected by SEPIL is in my view the best option for this pipeline. The use of the segmented lined tunnel has the effect of reducing considerably impacts that would be associated with construction methods with other surface excavation routes. The tunnel bored from one side, the Aghoos side, also has the effect of moving a large part of

construction activity outside of the residential linear developments at Glengad and Pollathomais.

#### **46.19 Inspectors Recommendations**

I find the modifications proposed by SEPIL in response to ABP invitation acceptable and I recommend that ABP conclude this EIA process by deciding that the proposed development is acceptable, that the risk posed by this development to the general public is acceptable, that the impact of the proposed development on the environment is associated largely with the construction phase, that such impact will be temporary and that where there is a residual or permanent impact that it is acceptable.

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## Chapter 47 Legal Issues

### 47.1 Observers Submissions

- 1) SEPIL have failed to provide written consent of Coillte and DEHLG (foreshore) for making this application – Regulations Article 22.2g

*Response:*

“ 22 (1) A planning application under section 34 of the Act shall be in the form set out at Form No. 2 of the Schedule 3, or a form substantially to the like effect.  
(2) A planning application referred to in sub-article (1) shall be accompanied by –  
(g) where the applicant is not the legal owner of the land or structure concerned, the written consent of the owner to make the application, ...”

SEPIL (Mr. Keane) pointed out that this article 22.2(g) refers to applications made under Section 34 of the Act.

I note that Coillte have issued a letter (4/2/2009) of consent to the application for the proposed development.

I also note that the application for the consent relates to the onshore pipeline above the HWM. It will be necessary for SEPIL to obtain a foreshore license for construction of the tunnel and for the construction of the pipeline in the foreshore are through separate procedure under the foreshore Acts.

- 2) Site investigations not part of E.I.S. for these applications therefore they must be part of the project itself and E.I.S. not conducted on impacts of site investigations

*Response:* In my view this is a legal argument that cannot be decided by ABP.

Firstly: The site investigation information all of it as submitted in the Addendum to the E.I.S. itself and in documents submitted to the OH, are before ABP for consideration.

Secondly: The consent process for carrying out the site investigations in Sruth na Fada Conn Bay is a matter for DEHLG in accordance with foreshore licence requirements.

Thirdly: In my view, ABP has valid applications before it for assessment and for decision.

Any contest of the validity of the processes is a matter for the courts.

- 3) Original 2002 consent is contested and further exemption status of 2002 pipeline is contested.

*Response:* These are not matters for ABP to decide. These are matters which need to be addressed by the courts.

- 4) That the 2002 consent and the exemption deriving there from is invalidated by works carried out... means of access to a public road and which exceeds 4m...

*Response:* Issue of Retention Permission for offshore pipe laid onshore at landfall, (1) because exemption contended illegal; (2) ECJ 215/06 ruling regarding retention permission. This issue and the facts pertaining to the issue are dealt with (see Chapter 23 Boundaries of Permission Sought)

In the first instance matters of unauthorised development are a matter for Mayo County Council.

I have no remit to examine these matters except in so far as my remit to examine these applications [DA.0005 and GA.0004] is concerned and to identify the facts and the Boundaries of the proposed development which I have done in Chapter 23 of both this report and the 2009 Report.

It appears from information presented by Mr. Keane on behalf of SEPIL that the High Court has already decided this issue.

I am satisfied that consent (2002) for the pipeline laid at Glengad has been issued by DMNR. I am satisfied that the extent of the onshore pipeline development proposed has been established. I am satisfied that in the construction of the offshore and onshore pipelines it is the practice for there to be an overlap of these separately constructed pipeline segments. I am satisfied that this overlap was clearly identified at the 2009 OH and that the modified onshore pipeline as proposed by SEPIL will be constructed in accordance with the details submitted and in accordance with any consent that ABP decide to grant for this development. There is no application for retention before ABP in this application.

- 5) 96/82/EC Sevesco applies to the project. ABP/HSA have made flawed decisions concerning the applicability of this Directive to the project.

*Response:* Sevesco Directive; whether this applies to the pipeline – this has been considered in Chapter 41.

Any contest by observers that seeks to apply the Sevesco Directive to this pipeline is not in my view a matter for ABP to decide, it is a matter for the courts.

Likewise, any perceived deficiency in Irish Implementing Legislation is not a matter that ABP can address in considering these applications. Such deficiency is a matter for the courts to decide.

- 6) Irish regulations on same are somehow deficient as they seek to exclude pipelines from Sevesco Directive.

*Response:* See response above.

- 7) No E.I.S. performed on cliff face breach prior to the 2002 consent to construct the pipeline

*Response:* This is not a matter that can be considered within my remit from ABP. Any challenge to the 2002 consent is in my view a matter to be decided by the Courts, not ABP.

8) EC has concerns that Irish legislation contains no obligation on decision makers to coordinate with each other effectively.

*Response:* The implication in this issue as raised is that the ABP process is somehow incomplete because documentation and process from all statutory bodies was not available for discussion in the consideration of these applications by ABP.

This is really a matter more for the Oireachtas than for ABP. In my view ABP has to comply with the provisions of the Planning and Development Acts.

In the course of this E.I.A. process very considerable engagement has taken place between DCENR, DEHLG, CER and other statutory bodies EPA, Inland Fisheries, An Taisce and the ABP process of assessment.

The fundamental task for ABP is that it carry out the E.I.A. process as required by law. In my view this is being achieved.

9) Contention that ABP not specifically designated as competent authority for E.I.A.

*Response:* This was raised again at 2009 OH. This matter again in my view is one that would need to be challenged in the courts.

10) The decision of ABP and the invitation to modify the route could not have been reasonably reached on the basis of the provisions of the Planning and Development (S.1.) Act 2006

*Response:* This is clearly a matter of the interpretation of Section 182c 5(b) of the Strategic Infrastructure Act 2006. In my view the Act in providing 182c 5(b) recognises that Strategic Infrastructure development as proposed may require modification rather than rejection and recommencement of the planning process with a new application. In my view these applications before the Board for decision are one example of where such modification was the appropriate action for the Board. This view is contrary to the objection raised of course but I believe I am correct on this point.

These matters are brought to the attention of the Board for consideration.



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# Chapter 48 Community Gain

## 48.1 Introduction

The Planning and Development (Strategic Infrastructure) Act 2006 provides in Sections 182d (6) and (7) as follows:

*“(6) Without prejudice to the generality of the foregoing power to attach conditions, the Board may attach to an approval under subsection (5)(a), (b) or (c) a condition requiring –*

*(a) the construction or the financing, in whole or in part, of the construction of a facility, or*

*(b) the provision or the financing, in whole or in part, of the provision of a service, in the area in which the proposed development would be situated, being a facility or service that, in the opinion of the Board, would constitute a substantial gain to the community.”*

*“(7) A condition attached pursuant to subsection (6) shall not require such an amount of financial resources to be committed for the purposes of the condition being complied with as would substantially deprive the person in whose favour the approval under this section operates of the benefits likely to accrue from the grant of the approval.”*

## 48.2 Inspectors Assessment

### 48.2.1 Context

The area in which the proposed development is located is an area which has a low density population base and lags behind the remainder of the country in economic terms. The following extracts from the E.I.S. set out demographics.

**Table 6.2:** Population at State, County and Local Level, 1996-2006\*

Area	Total Population			% Change	% Change	% Change
	1996	2002	2006	96-02	02-06	96-06
State	3,626,087	3,917,203	4,239,848	+8.0%	+8.2%	16.9%
County Mayo	111,524	117,446	123,839	+8.0%	+5.4%	11.1%
Study Area	2,129	1,927	1,899	-9.5%	-1.5%	-10.8%

\*Source: Census of Population 1996, 2002 and 2006 (Central Statistics Office).

**Table 6.6: Principal Occupations (%) 2002-2006\***

	A	B	C	D	E	F	G	H	I
State 2002	5	13	8	18	6	13	17	10	11
State 2006	4	12	9	18	6	14	16	11	11
Mayo County 2002	11	14	11	13	5	12	15	10	9
Mayo County 2006	9	14	12	13	5	12	15	12	9
Study Area 2002	25	13	20	7	3	8	7	9	8
Study Area 2006	16	17	19	8	3	8	9	14	6

\*Source: Census of Population 2006 (Central Statistics Office).

- A. Farming, fishing & forestry managers.
- B. Manufacturing workers.
- C. Building & Construction workers.
- D. Clerical, office administrative & government workers.
- E. Communication & Transport workers.
- F. Sales workers.
- G. Professional workers.
- H. Services workers.
- I. Other workers.

**Table 6.7: Unemployment Rates 1996, 2002 and 2006 (%)\***

	Unemployment Rate			Total Unemployed		
	1996	2002	2006	1996	2002	2006
State	14.8%	8.8%	8.5%	226,728	159,346	179,456
County Mayo	16.3%	10.7%	9.1%	7,141	5,350	5,240
Study Area	37.3%	35%	23%	243	202	163

\*Source: Census of Population 1996, 2002 & 2006

### SEPIL Statement

“This community and socio-economic assessment of the impact of the proposed onshore pipeline development cannot occur in isolation from the considerable and extensively documented history of conflict that has occurred between proponents of the Corrib Gas Field Development and objectors to that project.” [Extract from the E.I.S. Section 6.1]

Extract from the E.I.S. 6-18

“It is a fact that the Study Area is very peripheral, even within County Mayo, and this presents significant development problems...”

“...The Development Plan also notes other significant deficiencies in community, social and economic infrastructure in the Study Area: the main fishing piers at Rinroe, and Port Durlainne (Portulin) are in need of major improvement; there is no indoor sports facility in the area; there is a significant deficiency in the provision of broadband, which acts as a major constraint to new employment in the areas. In response, stated Actions of the Development Plan include lobbying relevant bodies to improve roads within the parish; improvement of bog roads, including in the vicinity of Rossport; lobbying relevant bodies to improve the pier at Rinroe, to upgrade the pier at Port Durlainne (Porturlin), including provision of a marina, and upgrading of the slipway at Ros Dumhach (Rossport); lobbying relevant agencies to provide broadband to the area; examining the feasibility of developing a multi-purpose cultural centre; aiming to develop community playgrounds for children at Ceathrú Thaidhg (Carrowteigh), Gleann na Muaidhe (Glenamoy) and An tInbhear/Poll an tSómais (Inver/Pollatomish); and investigating the feasibility of developing a multi-purpose indoor sports hall in the area.” [Extract from E.I.S. Section 6.3.13]

### **Cassell’s Report**

One of the recommendations of the Cassell’s Report “Proposed Corrib Gas Pipeline: Need for a comprehensive integrated solution” dealt specifically with the issue of improving benefits to the local community.

- ***Investment Fund for Local Development:*** *during the mediation, the Corrib Gas Partners informed me that they are working to establish how best they can work with the local communities and will be announcing a social initiative once details have been finalized over the coming months.*
- ***I am recommending*** *that an Investment Fund for local development be established involving Shell and the local development agencies. The fund should be significant, should be front-loaded and should continue for the duration of the project. The initiative should seek to contribute to the long-term economic, social and environmental development of Rossport, Kilcommon Parish and the Erris area generally. The process for supporting local development should be appropriate and transparent with a strong involvement of the local development agencies and local community. [Extract from Cassell’s Report]*

### **SEPIL’s Response to Investment in the Local Community**

Section 6.5.3. of the E.I.S. sets out the proposals by SEPIL for investment in the community, support to local groups and services and plans to provide a scholarship fund for the region. This community investment programme by SEPIL has three elements; The Local Grants Programme, The Third Level Scholarship Programme and the Erris Development Fund.

The programme is seen by SEPIL as a long term fund and in January 2009 was front-loaded by an investment of €5 million for the first three years.

The objectives of the Corrib Natural Gas Erris Development Fund, which SEPIL state will operate throughout the life of the overall Corrib project, are to contribute to the long-term economic, social and environmental development of the Iorras Area and to contribute to

capacity building in the area by providing both financial and non-financial assistance which will benefit the local community.

Fr. Nallen in his 2009 submission to ABP makes the following points:

- 1) This submission outlines the impact on community life of the gas processing plant at Bellanaboy. The gas pipe is seen as bringing trauma, unease and insecurity to the people. The project is seen as diminishing the quality of life, devaluing property, restricting family members from building new houses and preventing them from living happily in a relatively safe environment.
- 2) The submission makes the point that the project while giving to the area and to the country, it also takes from the community. It states the project will replace peace of mind with chronic anxiety. It identifies the robust opposition to the project as being due to fear for Health and Safety and acute concern for precious social and ecological structures.

In all this context therefore it seems very appropriate that ABP would decide to impose a condition that would constitute a substantial gain to the community.

I am not aware that for the area any service plan or community facilities plan has been prepared or is available under the community development programme of the County Development Board. In my view such a plan would be an essential element going forward to integrate more closely benefits of the Corrib Gas Field Development with the needs of the area and with the facility needs and community service need of the area.

The Cill Comáin Development Plan 2006-2010 has been prepared by Comhar Dún Chaocháin Teorants, a community development co-operative which serves an area that includes the entire parish of Cill Comáin.

There are many services and facilities that could be provided within the area. As an example, the Dun Chaocháin Cill Comáin Development Plan has a section on “proposed actions” which were identified as needs within the community. These proposed actions schedules, which may now be a little dated in 2010, are nevertheless a very useful starting point because, as I understand it, this Cill Comáin Development Plan has come from within the area and was widely consulted as it was being developed.

This Corrib Gas Field Development project has undoubtedly placed significant stress on the local communities of the area. The proposed development of an onshore pipeline will cause very considerable disturbance and disruption albeit for the temporary duration of the construction programme. It is considered that ABP should exercise its discretion and impose a condition which would constitute a substantial gain to the community.

### 48.3 Observers Submissions

- ABP have been asked to address issue where SEPIL are investing in the community in advance of receiving all necessary permissions. This polarises the community.
- The benefit of 50 expert jobs is not equal to the loss of traditional cottage industry jobs that will result.
- Perceived small level of benefit locally
- Jobs - number of jobs is questioned
- That Corrib may supply 60% of Ireland's gas needs is questioned
- Actual value overall min €5bn –max €11bn. How could state take €3bn as per Goodbody report?
- Benefit not worth the risks proposed
- **Financial Value:** Private Company will benefit. Project not for benefit of Erris/Kilcommon.

These observers submissions divide two ways:

- (i) Those who oppose the project consider that any community funding for local projects, events, people or organisations is a form of coercion or a form of bribery or otherwise a method of purchasing support for the project; and
- (ii) Those who support the project point to the very significant benefits being derived from SEPIL's local investment programme and it was clearly indicated that projects or organisations could only be approved for grant aid when they had satisfied rigorous criteria regarding the benefit to the community and the sustainability of the project/programme being grant aided.

There was argument both ways on whether the grant aid being made available excluded certain area or excluded certain people/organisations who may be opposed to the SEPIL proposed development. There is no benefit to be derived from analysing this two sided argument in any consideration of the planning issues involved in the proposed development.

### 48.4 Mayo County Council Recommendations

As regards the recommendations from Mayo County Council (2009) that the water supply to Rossport could be connected to the Erris supply and that SEPIL could make this investment as part of compensation for disruption in the community. I do not recommend that any condition be attached to permission being given in that respect. It is still open to all the parties involved; Rossport GWS Trustees, Mayo County Council and SEPIL to agree such works and it would be open that the funding being provided as the Community Gain condition could be used for the project or to part grant aid the project as would be agreed. As regards the recommendations from Mayo County Council that a charge of €1 be levied per m<sup>3</sup> of material and peat (75,000m<sup>3</sup> peat for disposal, 95,235m<sup>3</sup> materials for disposal, 78,600m<sup>3</sup> material to be imported, 248,835m<sup>3</sup> in all) to be hauled to and from the site of the proposed



development and to the deposition site at Srahmore. I see merit in the proposal however in my view more can be done and should be done bringing together the needs of the Community and the willingness of the applicant and the statutory power provided to ABP to use the community gain condition to provide for the construction of facilities and/or the provision of services needed in the area.

Mayo County Council also recommended a condition that SEPIL make a contribution of €20,000 (€10,000 had been recommended by Mayo County Council in 2009) towards the regional arts centre in Belmullet.

As SEPIL did not make any specific comments regarding this recommendation, I propose to ABP that it accept the recommendations from Mayo County Council in this regard and condition this contribution.

### **48.5 Mr. O'Sullivan's Recommendations**

In order to examine this issue Mr. O'Sullivan as part of his brief considered what might be done and he has reported accordingly in Section 6.0 of his report. A copy of Mr. O'Sullivan's complete report (2010) is in Appendix 1 to this report. Mr. O'Sullivan's analysis is very reasonable and his recommendation is balanced between the requirements of the legislation [to be specific and not to be excessive] and the submission by the applicant regarding the social investment fund proposed by SEPIL. The condition recommended by Mr. O'Sullivan will amount to €8.36 million over 5 years including the €20,000 proposed for the Regional Arts Centre in Belmullet.

This is a significant community gain and in my view this investment in facilities and services for the local community will balance to a reasonable extent the disruption and disturbance caused by the proposed development and will constitute a substantial gain for the Community. In my view also SEPIL have demonstrated clearly that a contribution towards the community of a significant order such as recommended by Mr. O'Sullivan is acceptable and is being already implemented by SEPIL in the community. In this respect therefore I am satisfied that in accordance with 182 d(7) the community gain condition recommended will not require an excessive amount of financial resources. Accordingly, I accept the conclusions put forward by Mr. O'Sullivan and I have developed Mr. O Sullivan's Conclusions in the following recommendation.

In an ideal situation the following recommendations would continue for longer than the 5 years of the immediate impact of construction and implementation of the proposed development. However, Mr. O'Sullivan's advice to me is that to do so may in fact exceed the intent of Sections 182 d(6) and (7) and mindful of that and also mindful that SEPIL themselves have indicated that they intend to invest in the local area for the lifetime of the project, I have proposed a five year investment programme.

I believe it important that the investment be made in the Community Gain condition though Mayo County Council and while I expect SEPIL will have involvement with Mayo County Council in the assessment of applications and disbursement of the grants the decisions on the grant should be independent of SEPIL. Mayo County Council as Planning Authority are in my view in the best position to take these decisions on the grants.

## **48.6 Inspector's Recommendations**

In the event that ABP decide to approve the proposed project, then the following conditions are recommended:

1. SEPIL shall provide a Community Gain Investment Fund over each of the 5 years for the benefit of the community in the area of the proposed development.
2. The Investment shall be paid to Mayo County Council on an annual basis commencing in the year that ABP decide to approve the proposed development.
3. Mayo County Council shall, through the County Development Board agree on a Community Development Plan for the Area. The plan and the area to be covered by the plan shall be subject to wide consultation and should be put in place within 9 months of the grant of any approval by ABP. The plan shall be proposed by the County Development Board and adopted by Mayo County Council. The plan shall be independent of the Investment Fund. The objectives, services and actions contained within the plan shall provide the context against which the Investment Fund will be disbursed and against which application for funding will be considered.
4. Nothing in this condition shall be interpreted as an exclusion of the Local Grants Programme, the Scholarship Programme, the Corrib Natural Gas Erris Development Fund Projects from receiving support from this new Community Gain Investment Fund.
5. The Investment shall be €1.7 Million per annum, a total of €8.5 Million over the life of this Community Gain Investment Fund.
6. Nothing in this condition shall prevent SEPIL from continuing to invest in the local community after 5 years.

**Reason:** To provide substantial community gain for the area in which the development is located and which has wide needs for social and community services and support.

### **Recommendation**

The developer shall make a contribution of €20,000 to the Regional Arts Centre at Belmullet in a form to be agreed with Mayo County Council.

**Reason:** To provide for community facilities in accordance with section 182D (6) of the Planning and Development Acts 2000-2006.

## Chapter 49 Acquisition Order Issues

### 49.1 Related CAO Application [PL 16 DA 0005]

An order “Gas Act 1976 (as amended) Corrib onshore pipeline Acquisition Order 2010” has been applied for under the Gas Act 1976 (as amended) for the compulsory acquisition of the lands required for the construction of the entire modified proposed onshore upstream pipeline file reference number 16.DA.0005. the following documents have been submitted

- A draft order
- Master maps 1 of 2 and 2 of 2
- A Book of Reference
- A specification
- A Statement of the nature of the right over land which SEPIL seeks to acquire by virtue of the order.
- E.I.S.
- Additional information submitted at OH

The maps show the route of the proposed pipeline and each of the 10 plots of land involved, it was confirmed at the OH that the maps extend to the HWM at each estuary and at the beach at Glengad. The lands over which the rights are to be acquired are shown in red “relevant lands” and in green “Deviation limits” and extend to the HWM. The Book of Reference sets out the relevant lands and deviation limits that are to be acquired under the acquisition order.

In column 2 of the Book of Reference the following is shown “A right over land/way leave” for the width and length and area required in each plot colored red of the Relevant Lands.

In column 3 of the Book of Reference the following is shown i.e. the area of land for each plot colored green and the townland in which the land is located, for the lands within Deviation Limits.

The E.I.S. for the modified proposed development and the additional information provided at the OH set out the details of the proposed development.

The Book of Reference sets out in columns 4,5,6 the person(s) who enjoy the right over Relevant Lands, owner(s) of lands within Deviation Limits, and lessees/occupiers of Relevant Lands and lands within Deviation Limits.

SEPIL itself owns plots WL(3)001, WL(3)005, WL(3)008, WL(3)010.

Coillte Teoranta owns plot WL(3)009. Mr. Keane on behalf of SEPIL confirmed at OH that the letter of 4/2/2009 from Coillte as attached to the original letter of application 16.GA.0004 also applies in respect of the proposed development.

In reality therefore in so far as the “compulsory” aspect of the acquisition order is concerned SEPIL are seeking to acquire rights over plots WL(3)002, WL(3)003, WL(3)004, WL(3)006, WL(3)007. i.e. rights over 5 pieces of land.

Again while there is no difference in the rights being sought over WL(3)006 and WL(3)007 from the rights being sought for all of the plots WL(3)001 to Plot WL(3)010 the reality is that the proposed construction of the pipeline in plots WL(3)006 and WL(3)007 will be by tunnel underneath these plots.

In effect therefore while plots WL(3)006 and WL(3)007 will be fenced off and secured and while there may be some disturbance of these lands as a result, SEPIL do not anticipate that these plots will be surface excavated. Nonetheless the same rights over land are being sought for these lands as for all the lands included in the acquisition order.

#### **49.1.1 Advertisement**

Notice of the making of the application for the acquisition order to ABP was published in the Irish Independent on Tuesday June 1<sup>st</sup> 2010 and also in the Western People on Tuesday June 1<sup>st</sup> 2010 SEPIL.

### **49.2 Submissions received by ABP in response to Notices**

#### **49.2.1 Objections from Landowners**

1. Kathleen Noone WL(3)002, Glengad, Pollathomais, Co. Mayo
2. Seán and Mary Coyle WL(3)003, Glengad, Pollathomais, Co. Mayo
3. \* Laurence Coyle WL(3)006, Glengad, Pollathomais, Co. Mayo Eoin O Leidhin
4. \* Patrick McAndrew WL(3)007, Glengad, Pollathomais, Co. Mayo

#### **49.2.2 Representations and Objections from Others**

5. Diana Taylor, Glengad, Co. Mayo
6. Rossport Solidarity Camp, Barr na Coilleadh, Pollathomais, Co. Mayo.
7. Terence Conway, Inver, Barnatra, Co. Mayo.
8. Teresa & Brid McGarry, Gortacragher, Rossport, Ballina, Co. Mayo

\*Both Mr. Laurence Coyle and Mr. Patrick McAndrew were represented at the OH and their objections were presented by Mr. Leo Mulrooney Barrister advised by Alan Gannon, Claffy Gannon & Co. Ltd Solicitors.

### **49.3 SEPIL presentation of Acquisition Order at the OH**

Mr. Kelly’s Brief of Evidence [DRN OH 92] generally sets out the applicants requirements for lands to construct the proposed pipeline. While there were inaccuracies in the BOE document the position is clear as follows.

### 49.3.1 Glengad:

- (1) The Acquisition Order is being sought for the lands shown on Master Map 1 of 2
- (2) Some width dimensions are shown for the proposed acquisition on DG0302 between the yellow dotted lines on that drawing and applicant has confirmed that the yellow lines shown on DG0302 coincide with the boundaries of the lands proposed to be acquired in the Acquisition Order as shown on the Master Map 1 of 2. These widths show 97 m and 65 m in width for the Deviation Limits at Glengad.
- (3) The Applicant in BOE [DRN OH 92] in particular on slide 5 of that BOE indicated that they intend using a lesser width “*..the area directly affected by construction activity will be 40 m wide...*”
- (4) “*...it is considered unlikely that any deviation of the pipeline route in this location [chainage 83+380 to chainage 83+880] is highly unlikely...*”
- (5) The Acquisition Order Map 1 of 2 extends to the HWM on the Broadhaven Bay extremity of the proposed development at Glengad.
- (6) The Acquisition Order Map 1 of 2 extends to the HMW on the Sruth Fada Conn Bay side of Glengad. This was clarified by the Applicant [DRN OH 153].

I have confirmed the HWMs shown by the Applicant in the 2010 Acquisition Order Map 1 of 2 are correct with ordinance survey. The Ordnance Survey map which shows these HWM boundaries is attached in Appendix 5B in Folder 16 [O.S. Mayo 11,3 1895-1896].

### 49.3.2 Aghoos to Bellanboy Gas Terminal

The plots of land in this Section are shown on the Master Map 2 of 2. i.e WL(3)008, WL(3)009, WL(3)010.

WL(3)008 ,WL(3)010 are owned by SEPIL WL(3)009 is owned by Coillte Teoranta.

I have confirmed the HWM shown by the Applicant in the 2010 Acquisition Order Map 2 of 2 is correct with ordinance survey. The Ordnance Survey map which shows this HWM boundary is attached in Appendix 5B in Folder 16 [O.S. Mayo 11,4 1895-1896].

## 49.4 Consideration of Objections

### 49.5 Plot WL (3)001 SEPIL own this Plot

This plot is owned by SEPIL.

Relevant Lands 367m long, 14m wide, 0.535 Ha.

Deviation Limits 3.639 Ha

### 49.6 Plot WL (3)002 Mrs. Kathleen Noone owner

Mrs. Kathleen Noone (owner/occupier), Mr. Pat McAndrew (Lesser/occupier).

Relevant Lands 33m long, 14m wide, 0.046 Ha.

Deviation Limits 0.167 Ha

#### Submission – Kathleen Noone, Glengad 28/07/2010

This appears to be a copy of Rosspport Solidarity Camp submission.

#### 1. The proposed development is not “of strategic importance to the State and is not in the interest of the common good.

This objection states that the project is not a strategic project in the national interest. Section 182c Sections 1(c), 2(a) and 9, set out clearly that an application for an upstream gas pipeline is required to be made under the S.I Act 2006. Section 215a of the P&D Acts 2000 – 2006 as inserted by Section 37 of the S.I. Act 2006, sets out in Section (1) the transfer of functions under the Gas Act 1976 to An Bord Pleanala.

The arguments being put forward in this objection that SEPIL’S interests (a private company) are not the public interest, and that this development is not in the national interests, are arguments against the terms of the S.I. Act 2006 itself. The argument that the natural resources are being handed over to a private consortium is not a matter that comes within the jurisdiction of ABP. This policy is a matter for Government to determine. ABP is obliged to have regard to Government policy in carrying out its assessment of the application before it, and in making a decision on those applications.

The argument that there are a number of factors that must be satisfied in order for the state to be able to interfere with citizen’s property rights is an argument that really needs to be taken to the Courts, and is not an argument that can in my view be considered by ABP in assessing and deciding this case.

Legislation in the form of the Planning & Development Acts, in particular the S.I. Act 2006 has provided that the proposed development cannot proceed without a permission which ABP has been empowered to consider and decide. Furthermore the legislation has set out the matters to be considered by ABP in taking a decision in Section 182d of the



Strategic Infrastructure Act 2006. Furthermore, legislation has transferred to ABP the powers necessary to assess and decide whether to confirm or otherwise acquisition orders under the Gas Acts.

**This objection seeks to require ABP to decide issues that ABP is clearly not empowered to consider or decide issues with regard to citizens property rights and issues regarding interpretation of what legislation is or is not in the National Interest. Accordingly, I believe this whole objection is not sustainable,**

**2. The proposed development is not proportionate to the denial of the human personal proprietary rights of the people of the region who are directly affected.**

**European Convention of Human Rights**

**The Human Rights Act 2003**

**Constitution of Ireland 1937**

Section 32 1A (a) of the Gas Act 1976 as amended provides

*“A person may apply to the appropriate Minister of the Government for an order under this section (which order is in this Act also referred to as an ‘acquisition order’) to acquire compulsorily any land or right over land which is required by such person in connection with the construction or operation of a pipeline for which such person applies or has applied for a consent under section 39A or 40 of this Act, as the case may be, and subject to the following provisions of this section, the appropriate Minister of Government may make an acquisition order in relation to the land or right over the land.”*

Section 215A of the Planning and Development Act 2000 as amended provides

*“(1) The functions of – (a) the Minister for Communications, Marine and Natural Resources,*

*(a) Any other Minister of the Government, or*

*(b) The Commission for Energy Regulation,*

*Under section 31 and 32, and the Second Schedule to, the Gas Act 1976, as amended, in relation to the compulsory acquisition of land in respect of the strategic gas infrastructure development are transferred to, and vested in, the Board, and relevant references in that Act to the Minister for Communication, Marine and Natural Resources, any other Minister of the Government or the commission for Energy Regulation shall be construed as references to the Board and any connected references shall be construed accordingly.*

*(2) The transfer of the function of the Minister for Communications. Marine and Natural Resources, any other Minister of the Government or Commission for Energy Regulation to the Board in relation to the compulsory acquisition of land in accordance with subsection (1) shall include the transfer of all necessary ancillary powers in relation to deviation limits, substrata of land, easements, rights of access to land, the revocation or modification of planning permissions or other such functions*

*as may be necessary in order to ensure that the Board can fully carry out its functions in relation to the enactments referred to in subsection (1).*

*(3) Article 5 of the Second Schedule of the Gas Act 1976 shall not apply in respect of the function of compulsory acquisition transferred to the Board under subsection (1).”*

### **Discussion**

1. The “Corrib Onshore Pipeline Acquisition Order 2010” Application has been made by SEPIL to ABP in accordance with the statutory provisions of the Gas Act 1976 as amended.
2. A compulsory acquisition order when made by its very nature involves a prioritisation of right over the lands in question in favour of the beneficiary person who applied for the order, rather than the owner of the lands or the rights over the land.
3. This objection is really against the CAO process rather than an objection specific to the acquisition order seeking to acquire rights over Ms Noone’s lands.

Conclusion: I do not accept this objection. The extent of the rights over lands being sought is limited to that required for the construction and operation of the pipeline. Once constructed the used of the lands for all practical purposes returns to the owner of the lands.

3. **“Accordingly the proposed development and all permissions, licenses, consents, approvals or other such facilitations sought in furtherance of the proposed development fail to pass the primary requirement of the Planning and Development (Strategic infrastructure) Act, 2006 as set out in the Preamble thereto.”**

The Preamble to the Planning and Development (S.I) Act 2006 is as follows:

*“An Act to provide, in the interests of the common good, for the making directly to An Bord Pleanála of applications for planning permission in respect of certain proposed developments of strategic importance to the State; to make provision for the expeditious determination of such applications, applications for certain other types of consent or approval and applications for planning permissions generally; for those purposes and for the purpose of effecting certain other changes to the law of planning and development to amend and extend the Planning and Development Acts 2000 to 2004; to amend the Transport (Railway Infrastructure) Act 2001 and The Acquisition of Land (Assessment of Compensation) Act 1919 and to provide for related matters”.*

In my view the proposed development subject to conditions is acceptable as set out in detail in the various chapters of this report.

In my view the application for approval under Section 182C made by SEPIL to ABP is not contrary to the proper planning and sustainable development in the area in which it is proposed to situate the proposed development.

In my view the proposed development will not constitute a significant threat to the environment albeit that there will be impacts on the environment as a result of this development. I am satisfied that these impacts have been mitigated by the method of construction, route of the pipeline, and detail configuration and proposed operational system of this development. Such impacts as cannot be mitigated have been assessed and are considered to be acceptable and in the case of many impacts are of temporary nature for the duration of the construction project.

In my view the Preamble to the Planning and Development (S.I.) Act 2006 is no more nor no less than a preamble and general description of what the Act provides.

The Act itself in Sections 182C, 182d and in Section 215A sets out the requirements in relation to a proposed development of the upstream onshore pipeline as proposed by SEPIL. Accordingly I find this objection is not sustainable.

4. **“No agency of the State or within the State, including the Bord itself can be a party to any decision or to the promotion or furtherance of any development that is or will lead to a breach of any fundamental or constitutional right.”**

This objection to the acquisition order is in effect seeking to impose on ABP a duty to decide matters relating to fundamental and constitutional rights. The Planning and Development Act 2000 as amended does not provide for ABP to determine fundamental and constitutional rights of individuals which is more correctly a function of the High Court and Supreme Court, accordingly I find this objection is not sustainable.

5. **“The exigencies of the common good demand that the statutory obligations imposed upon An Bord Pleanala and the Local Authority be exercised according to the principles of social justice.”**

Section 32 of the Gas Act 1976 relates to the Acquisition Order  
Section 32(5)(a) provides

*“The Minister shall (now ABP) before making an acquisition order, comply with the following requirements*

- viii. *In case an acquisition order is to provide for the acquisition... of land held by a local authority, a railway undertaker other than Cora Iompar Eireann, a gas undertaker other than Bord Gáis, a harbor authority, or an electricity undertaker other than ESB, the order shall be so made only if the Minister (now ABP) is satisfied that the making of the order is in the public interest,...*”

As Ms. Noone does not appear to me to be either a local Authority, A railway undertaker other than CIE, a gas undertaker other than Bord Gáis, a harbour authority, or an electricity undertaker other than ESB in my view there is no obligation in law as provided in Section 35(5)(a) for ABP to satisfy itself that the making of the order is in the public interest.

The obligations on ABP are those set out in the Gas Act 1976 as amended and as set out in the P&D Acts 2000 – 2006 as amended. Section 8(1) and Section 9 of the second schedule of the Gas Act 1976 when combined with Section 215A of the P&D Acts 2000-2006 provide the Authority for ABP to form its opinion and confirm or otherwise the acquisition order.

In my view the legislation does not provide that “the exigencies of the common good” or “the principles of social justice” shall be determined by ABP and then used as a basis for forming its opinion on the Acquisition Order Application.

Accordingly I find that this objection is not sustainable.

**6. “The manner in which the applicant seeks to deny the rights of citizens who are opposed to the proposed development is wholly disproportionate and is a further denial of basic human and constitutional rights.”**

In my view this objection is not relevant to the considerations by ABP of the Acquisition Order Application before it for decision. This is because the objection relates more to rights of citizens and arguments against the security adopted by SEPIL on the sites associated with the Corrib Development. The objection also suggests that SEPIL

*“ The applicant seeks to impose its will through the use of unreasonable, unfair, arbitrary and intimidatory tactics antithetical to both the common good and the social good”* part of Ms Noone’s 6<sup>th</sup> point.

The applicant has presented in the E.I.S. details of the statutory procedures through which it has engaged and continues to engage in order to obtain all necessary consents required so that it can proceed to construct the development as proposed.

I have seen evidence that the applicant is pursuing such consents in accordance with the legislative requirements.

I have also seen evidence presented in video material at 2009 Oral Hearing and presented in evidence at both 2009 and 2010 OH of both passive and very active resistance to the project by those who are opposed to the project. Observers have tried to present material related to this conflict, much of it between protesters Gardaí and security, as a planning argument against the application for approval under the planning acts and as an argument against the acquisition order. In the case of the 2010 OH much of this material was ruled irrelevant. Matters of law and order are matters for the Gardaí and are not relevant considerations for the ABP in my view in deciding this acquisition order.

In my view the legislation Gas Act 1976 Section 32 and Second Schedule provides that the stated position [...]“any representations made or objections not withdrawn....” Second Schedule Section 8(1) Gas Act 1976] of those who oppose this project be considered along with all other relevant matters. In my view the E.I.A. process also provides that the different submissions of the applicant and all other submissions be they for or against the

proposed development be considered before deciding whether or not the proposed development is acceptable or not.

Those are the matters that need to be considered. This objection is not relevant. Accordingly I find this objection is not sustainable.

### **49.7 Plot WL(3)003 Mr. Sean Coyle, Ms Teresa Coyle Owners**

Relevant Lands 32m long, 14m wide, 0.044 Ha.

Deviation Limits 0.172 Ha

The Coyle's have objected to the CAO.

#### **49.7.1 Submission – Sean and Mary Teresa Coyle, Glengad, Pollatomish 28/07/2010**

1. The Coyle's object to the acquisition order being confirmed on their lands because they consider the modified route of the pipeline is such that unacceptable safety risks still pertain to the Coyle's as residents at Glengad.
2. In E.I.S. SEPIL indicates that the nearest house is 230m from the pipeline. It is the Coyle's contention that the E.I.S. is inaccurate because they farm the land directly above the pipeline on a daily basis as they do not intend being "lodgers" in their house they will be exposed as they go about their daily lives.
3. The Coyle's object on the basis that the LVI creates a potential and obvious pressure build-up in the process of bringing the gas ashore to the gas terminal. The Coyle's believe any problems at the LVI will have devastating consequences for residents at Glengad and that the BP Gulf disaster has shown that fail safe devices are not fail safe and can fail to operate as planned.

The Coyle's ask ABP to reject the compulsory Acquisition Order.

#### **49.7.2 Discussion – Objection 1: Unacceptable Safety Risk**

The primary safety for the local community and for local farmers using their lands in the normal way comes from the design of the pipeline and the standards to which the pipeline is designed, constructed, tested, commissioned and operated. This report has assessed that design and has found that design is acceptable. The primary safety will be the subject of a safety permit which is required by SEPIL under the Petroleum (Exploration and Extraction) Safety Act 2010. The CER have been given responsibility for establishing the safety framework under which the safety permit will be assessed. SEPIL will not be able to operate the pipeline without a safety permit.

Coyle's land and WL(3)003 in particular has the following risks:

- (1) **Individual risk from the pipeline** shown on Figure 11 and in Table on Figure 15 is  $2.9 \times 10^{-9}$  at the centerline of the pipeline (i.e. above the pipeline). This is the risk of receiving a dangerous dose of thermal radiation per year.  
This risk is below the level of risk  $1 \times 10^{-6}$  established as broadly acceptable by ABP and based on UK HSE standard for gas pipelines.
- (2) **Individual risk from the LVI** shown on Figure 11 and also shown on Figure 15 Coyle's land is approximately 310m from the LVI. The Figure 11 does not extend as far as Coyle's land distance but the risk at 260m from the LVI  $2 \times 10^{-13}$  which is below the level of risk established by ABP as broadly acceptable and based on the UK HSE standard for gas pipelines.

The revised E.I.S. together with the additional information provided and considered at the 2010 Oral Hearing provide design documentation for the pipeline and for the Quantified Risk Analysis for the proposed development. In particular Appendix Q of the revised E.I.S. has incorporated the material provided at the 2009 OH into the design documentation provided for the 2010 proposal.

The revised E.I.S. has also incorporated the additional information requested by ABP in the letter of 2/11/2009.

I am now satisfied with the level of detail and documentation provided by SEPIL for the modified proposed development.

### **Mr. Wright's Report**

Mr. Wright in his report has considered in detail the design of the pipeline proposed and he is satisfied that SEPIL have proposed a design that is acceptable and complies with the standards for gas pipelines.

Mr. Wright has also considered in detail the QRA and the risk assessments carried out by SEPIL and presented in the 2010 modified E.I.S. and as outlined above.

Mr. Wright has concluded that a site specific QRA has been carried out by SEPIL.

Mr. Wright has confirmed that the modified proposed development, the 2010 proposal, meets the standard set out by ABP in its letter of 2<sup>nd</sup> November 2009 as further clarified in the ABP letter of 29<sup>th</sup> January 2010 to SEPIL. i.e. in a worst case scenario a full bore rupture of the pipeline at the MAOP the houses along the route will be safe and will provide safe shelter.

I am satisfied that the modified proposed development is acceptable at Glengad for the following reasons.

- (1) Mr. Wright in his report has considered the safety of the public and has concluded that, standing next to the pipeline, the risk of receiving a dangerous dose of thermal radiation (1000TDUs) is  $2.92 \times 10^{-9}$ /year. This is a low risk and is an acceptable risk.
- (2) The modified proposed development as now routed and as now configured [MAOP has been declared and operating controls have been configured to limit operating



pressure to MAOP] meets the requirements for proximity distance set out by ABP in its letter of 2/11/2009.

- (3) The modified proposed development meets the requirement for individual risk as set out by ABP in its letter of 2/11/2009. In the case of Coyle's land as outlined above the individual risk standing above the pipeline is  $2.92 \times 10^{-9}$  /yr which is more than two orders of magnitude lower than the  $1 \times 10^{-6}$ /yr risk level set by ABP as broadly acceptable.

I therefore conclude that the proposed development does not pose an unacceptable risk to the Coyles and I find this objection is not sustainable.

### 49.7.3 Objection 2 and 3 – The LVI

The central point is Mr. and Mrs. Coyle's objection related to the potential for "...the devastating consequences to all local residents at Glengad....if anything was to go wrong at this location."

The LVI is not a pressure reduction device as described in the Coyle's letter of objection.

The LVI in the normal operation of the pipeline will be open and gas will be flowing through the LVI and the pipeline at a pressure below the MAOP.

The LVI is an overpressure protection device which will come into the closed position if the pressure in the onshore pipeline approaches the MAOP.

The concerns expressed by the Coyle's are also matters about which ABP sought clarification from SEPIL.

ABP in their letter of 2/11/2009 requested that a number of aspects of the Glengad pipeline including the LVI be further examined by SEPIL and that further information be provided accordingly. These are points (a), (b), (c), (d) on page 2 of the ABP letter and points (e), (f), (g), (h), (i), (j), (k) on page 3 of the ABP letter.

The information requested has been submitted.

- In particular the code and test pressures requirements for the LVI have been set out in the E.I.S.
- DCENR have confirmed that the code and design for the pipeline meets the requirements of that Department and comply with the TAG requirements of 2006.
- Appendix Q has integrated the analysis provided for the 2009 OH and where necessary the analysis has been updated to reflect the modified proposed development.
- A revised QRA has been submitted and a sensitivity analysis has also been provided for the QRA.
- Failure modes of the pipeline have been considered in the E.I.S. These deal specifically with the possibility of third party intentional damage at Glengad, wet gas in the pipeline CO<sub>2</sub> in the pipeline, and the potential for methane Hydrate in the pipeline.
- A Qualitative Assessment of Risk has been provided
- The severance of the umbilical has been considered in the E.I.S.

- The concept of a vent at Glengad and the potential for an increase in the safety for the population in Glengad by the use of a straight pipe at the landfall has been considered.
- Hazard distance contours have been provided as requested by ABP.
- Risk levels of  $1 \times 10^{-5}$ ,  $1 \times 10^{-6}$ ,  $0.3 \times 10^{-6}$  have been plotted as contours.
- The societal risk at Glengad has been provided

Mr. Wright conducted intensive questioning of the modified development as proposed by SEPIL to enable as full an understanding as possible of the SEPIL design and the SEPIL configuration of the onshore pipeline including the LVI. Accordingly I am satisfied that a full understanding of the proposed development, as now before ABP for decision, has been established

#### 49.7.4 Discuss Objections 2 and 3

1. The individual risk at the LVI itself is just below  $1 \times 10^{-5}$  which is within the risk level set out by ABP as tolerable if ALARP is demonstrated.
2. That condition (Tolerable if ALARP) applies to an area of a 63m wide circle from LVI
3. Societal Risk at Glengad is shown on Figure 14 which shows one casualty at a frequency of  $1 \times 10^{-10}$  which is a low societal risk. Mr. Wright has indicated that this societal risk is 6 orders of magnitude below the acceptance criterion line for societal risk as contained in PD 8010.
4. SEPIL have considered Third Party intentional damage to the pipeline. They have produced analysis to show that the pipeline itself could not be damaged by excavation machinery of the size normally in use in the area. The analysis suggests that it would require a very heavy excavator to provide the power required to damage the pipeline.
5. SEPIL have indicated that third party intentional damage is now included in the QRA. SEPIL has prepared a sensitivity analysis of a case for third party intentional damage this is shown at Figure 18. The risk at Coyle's land from the LVI (intentional damage by 3<sup>rd</sup> party) is less than  $2 \times 10^{-13}$  which is a low risk and an acceptable risk.  
SEPIL consider third party intentional damage is not a credible risk for the pipeline
6. The Coyle's concern about the risks to the community in Glengad and the risk to themselves as farmers of lands in adjacent to and over the proposed pipeline itself have also been expressed by other observers who reside in Glengad and who live and use the area including the L1202 and the beach at Glengad. The risks to a person working on the land at the pipeline have been assessed. This risk as set out above is  $2.92 \times 10^{-9}$  which is low and is acceptable.

Accordingly I conclude that the LVI does not pose an unacceptable risk to the Coyles. I find this objection is not sustainable.

#### **49.8 WL(3)004 Mrs. Edel Doherty**

Relevant Lands 28m long, 14m wide, 0.040 Ha.

Deviation Limits 0.152 Ha

This is owned by Mrs. Edel Doherty.

In the case of plot WL(3)004 no submission was received. Mrs. Edel Doherty is identified in the Book of Reference as the person who for the time being is entitled to enjoy the right over Relevant Lands WL(3)004 and Mrs. Edel Doherty and Mr. Paul Doherty are identified as the occupiers/lessees of the Relevant Lands and of lands within Deviation Limits of the plot.

#### **49.9 WL (3)005 SEPIL own this Plot**

This Plot is owned by SEPIL

Relevant Lands 58m long, 14m wide, 0.081 Ha.

Deviation Limits 0.304 Ha

#### **49.10 Plot WL (3) 006 and Plot WL (3) 007**

##### **49.10.1 Plot WL (3) 006**

This plot is owned by Mr. Lawrence Coyle\*.

Relevant Lands 145m long, 14m wide, 0.205 Ha.

Deviation Limits 0.723 Ha

##### **49.10.2 Submission – Lawrence Coyle, Glengad, Pollatomish 28/07/2010**

This appears to be a copy of Rossport Solidarity Camp submission. These issues have been discussed in the case of Mrs. Kathleen Noone above and will not be repeated here.

\*Both Mr. Laurence Coyle (006) and Mr. Patrick McAndrew (007) were represented at the OH and their objections were presented Mr. Leo Mulrooney Barrister advised by Alan Gannon, Claffy Gannon & Co. Ltd Solicitors. Mr. Mulrooney presented Mr. Coyle's Case as follows:

Mr. Mulrooney clarified a number of points in questions and statements to Mr. Kelly, Construction Manager for SEPIL.

1. The piece of land over which rights are proposed to be acquired compulsorily by the acquisition order is 145m long and 14m wide an area of 0.205ha the relevant lands coloured red.
2. Mr. Coyle owns the lands on either side of the proposed pipeline spread.

3. Mr. Coyle's family home is 350m approx. from the rights over land being acquired.
4. Mr. Coyle has been in possession of the lands since 1988 when he took over from his parents.
5. Mr. Coyle grazes 16 cattle on the lands.
6. Once the lands become fenced off by SEPIL the landowner will not have access or use of the lands but access across the lands affected will be provided for the landowner.
7. The construction programme will be 26 months but the lands will not be immediately required. Discussion will take place with the landowner before entry. The lands will be required from 2012.
8. On completion of the works the lands will be reinstated to the present condition.
9. The return of the lands to the landowner will depend on the reinstatement period after the site fence is removed. An Environmental Agricultural Adviser will advise on how best to reinstate.
10. The lands will not be excavated as such as it is proposed to tunnel underneath these lands. The disturbance will therefore relate to fencing and removal of fencing and activity related to same.
11. SEPIL are confident that the 26 month programme can be achieved.
12. SEPIL would like to accommodate the agricultural requirements of landowners on an ongoing basis.
13. No other CAO's are foreseen on Mr. Coyle's land.
14. Any changes to the proposed pipeline will occur as provided for in the lands being acquired and as outlined by Mr. Kelly in his Book of Evidence to OH.
15. No other changes or potential for changes to the proposed development are envisaged by SEPIL.
16. The feasibility of other routes has been considered which would avoid this CAO.
17. This proposed route is considered the best route following a detailed examination.
18. In 2009 alternative routes considered were discussed and outlined in 2009 E.I.S. This 2010 proposal is the same as that put forward in 2009.
19. In response to questions whether routes had been explored which did not terminate at Bellanaboy, Mr. Kelly indicated that the terminal at Bellanaboy is the termination point of the pipeline and the offshore pipeline is already constructed as far as Glengad.
20. A question was put must the route commence at Glengad and terminate at Bellanaboy. SEPIL answered yes that was the proposal for which the acquisition order was applied for to ABP.
21. In response to the question are royalties to be paid to the State by Shell on this gas, SEPIL responded that this was not a relevant matter at the proceedings.
22. A question will taxation be accrued to the State from this development was deemed by Inspector to be outside of the remit at this hearing.

### 49.10.3 Plot WL (3) 007

This Plot is owned by Mr. Patrick McAndrew\*

Relevant Lands 4m long, 2m wide, 0.0004 Ha.

Deviation Limits 0.131 Ha

#### 49.10.4 Submission – Patrick McAndrew, Glengad 28/07/2010

This appears to be a copy of Rosspport Solidarity Camp submission. As these issues have been discussed in the case of Mrs. Kathleen Noone above I do not propose to repeat the arguments here.

\*Both Mr. Laurence Coyle and Mr. Patrick McAndrew were represented at the OH and their objections were presented Mr. Leo Mulrooney Barrister advised by Alan Gannon, Claffy Gannon & Co. Ltd Solicitors.

Mr. Mulrooney clarified a number of points relating to Mr. McAndrew's lands, in question and statements to Mr. Kelly Construction Manager for SEPIL.

1. The piece of land over which rights are proposed to be acquired compulsorily by the acquisition order is 4m long and 2m wide an area of 0.0004ha the relevant lands coloured red.
2. Mr. McAndrew's family own the lands south of the lands being acquired
3. Mr. McAndrew's house is approximately 350m from the lands being acquired.
4. Mr. McAndrew is grazing the land with 15 donkeys.
5. The land has been in Mr. McAndrew's family for four generations.

Mr. Mulrooney then made the following submission on behalf of Mr. Coyle and Mr. Mc Andrew:

#### 49.10.5 Strategic Interest

1. Making reference to the long title to the Act which states:  
*"An act to provide in the interest of the common good for the making directly to ABP of applications for planning permission in respect of certain proposed developments of strategic importance to the state..."*  
It was put forward that the onus is on the applicant to show the strategic importance to the state.
2. Applicant is not the Government. There is no guarantee that the gas from Corrib will be made available to Irish State. It could be a new source for UK, it could be liquefied and exported there is no strategic interest in that.

#### 49.10.6 Public Interest

1. Mr. Mulrooney indicated he was not relying on subsection (5) of Section 32 of Gas Act. He put forward that there was an onus on the applicant to demonstrate public interest arising from the proposed development.
2. ABP must satisfy itself that the purposes for which the acquisition order is sought and it must be in the public interest.

3. Historically, compulsory acquisition has been made for public infrastructure projects, roads, etc. In this case there is a stark contrast. SEPIL is a foreign owned company with shareholders and in business for profit – a private interest not a public authority.
4. ABP must consider what peripheral benefits of employment/taxation will accrue from this development. The jobs anticipated are clear. The taxation at 25% is less clear due to significant deductions with a real possibility that no taxation may accrue.
5. Reference is made to the High Court case of *Clinton v An Bord Pleanala & Others* 184JR/2003 in the following:

*The balancing of the constitutional right and the exigencies of the common good is a matter for An Bord Pleanala. I accept the comments Budd J. in An Blascaod Mór v Commissioners of Public Works (no. 3) Unreported 27<sup>th</sup> Febuary 1998 as a correct statement of the law as to the approach which An Bord Pleanala should take in considering a Compulsory Purchase Order where he stated –*

*“The word ‘exigencies’ has a connotation of more than useful and, ‘reasonable’ or ‘desirable’; it means ‘necessary’ and implies the existence of a pressing social need. The notion of necessity is linked to that of a democratic society, based on tolerance and broad mindedness, unless it is proportionate to the legitimate aim being pursued.”*

Reference is further made in the Supreme Court decision of *Clinton v An Bord Pleanala & Others* 347 & 348/2005:

*“It is axiomatic that the making and confirming of a compulsory purchase order (CPO) to acquire a person’s land entails an invasion of his constitutionally protected property rights. The power conferred on an administrative body such as a local authority or An Bord Pleanála to compulsorily acquire land must be exercised in accordance with the requirements of the Constitution, including respecting the property rights of the affected landowner (East Donegal Co-Operative v The Attorney General [1970] I.R. 317). Any decisions of such bodies are subject to judicial review. It would insufficiently protect constitutional rights if the court, hearing the judicial review application, merely had to be satisfied that the decision was not irrational or was not contrary to fundamental reason and common sense.*

*The decision of the Supreme Court reversing the decision of Keane J that portions of the Turf Development Act, 1946 were unconstitutional did not address the standard to be applied by an administrative body when considering the making of a CPO.*

*The same thinking is implicit in the judgment of Costello P. in Crosbie v Custom House Dock Development Authority...In that case, the acquisition was mandated by the statute and not delegated. However, Costello P. stated:*

*“The making of an order compulsorily to acquire an objector’s property rights results in an interference with the objector’s constitutionally protected property rights. [He then describes how the legislation provides for the compulsorily acquiring]. Here the Oireachtas...has in effect concluded that the public good which is to be achieved by urban renewal requires the limitations on the objector’s constitutionally protected rights.”*

It is interesting to note that, even in the absence of constitutional protection, Denning M.R. in *Prest v Secretary of State for Wales* (1982) 81 L.G.R. 193 at 211 declared:



*“It is clear that no Minister or public authority can acquire land compulsorily except the power to do so be given by Parliament: and Parliament only grants it, or should only grant it, when it is considered necessary in the public interest...I regard It as a principle of our constitutional law that no citizen is to be deprived of his land by any public authority against his will, unless it is expressly authorized by Parliament and the public interest decisively so demands: and then only on the condition that proper compensation is paid.”*

Watkins L.J. said, in the same case at pp.211 to 212:

*“The taking of a person’s land against his will is a serious invasion of his property rights. The use of statutory authority for the destruction of those rights requires to be most carefully scrutinized. The courts must be vigilant to see that that authority is not abused.”*

*In my view, the procedures at a compulsory purchase hearing must ensure that these principles are observed. The acquiring authority must be satisfied that the acquisition of property is clearly justified by the exigencies of the common good.”*

It is contended that employment/taxation benefit is not enough to meet the public interest requirement.

6. Tangential benefits cannot be confused with pressing social needs. The current use of cattle/donkey grazing must be compared to the proposed use of gas pipeline/profits.

#### **49.10.7 Necessity**

1. ABP must satisfy itself that necessity dictated the CAO must be granted. It is put forward that the applicant has not established the necessity for the scheme.
2. The best route must be chosen and demonstrated by the applicant to convince ABP that this route and CAO is necessary.
3. It is contended that the project is one planned by stealth, that a piecemeal approach has been taken to the overall project and that as a result the route proposed now is a fait accompli.
4. It is contended that a different approach should be adopted to refine the gas at sea.
5. The acquisition sought is unprecedented. A private individual/company is proposing to acquire by compulsory acquisition lands in the name of profit.

#### **49.10.8 Response by SEPIL in Respect of Acquisition Order**

*Plot WC(3)006 Lawrence Coyle and*

*Plot WC(3)007 Patrick McAndrew*

Mr. Keane, Senior Counsel on behalf of SEPIL, responded to Mr. Mulrooney’s arguments.

1. SEPIL would make legal argument and response to Mr. Mulrooney’s legal argument in closing statement.
2. All the evidence provided by SEPIL applies to considerations of this acquisition order application.
3. SEPIL’s position is that the acquisition order is in public interest and is for the common good.

4. Mr. Keane submitted confirmation of making of Section 40 application by way of a letter of 17/06/2010 from DCENR concerning same.
5. In reference to section 32 subsection (5) of Gas Act 1976, Mr. Keane indicated that by extension this subsection excludes other interests (i.e. non public authorities) and therefore that subsection (5) does not apply in this case.
6. Mr. Keane stated that DCENR witnesses at 2009 OH had set out the benefits and public good deriving from the then proposed development.
7. On that evidence the proposed development is clearly a strategic interest for the state.
8. While employment and taxation are benefits of the Corrib Scheme clearly there is also the contribution of the Corrib capacity to the security of the supply of the state.
9. Mr. Keane argued that it would be contrary to EU law should the state insist on buying the gas from Corrib.
10. No evidence was presented that the infrastructure to enable gas reversal (in the UK-Ireland interconnectors) will take place.
11. Mr. Keane did not accept that the long title to the Planning and Development (Strategic Infrastructure) Act 2006 should be used to define the provisions of the Act. He referred to Section 215A which provides for applications for acquisition orders to be made to ABP.
12. He argued that the definition for “Strategic Upstream Gas” and other definitions within the Act were what specified or defined the provisions of the Act.
13. He indicated that the purpose of the pipeline had been established i.e. to connect the offshore with the terminal.
14. Only a wayleave was being acquired this did not constitute a significant interference with the landowners land use. He argued that compensation would be paid for the temporary use of the lands involved.

#### 49.10.9 Discussion

##### **Strategic Interest/ Public Interest/ Common Good**

I do not accept Mr. Mulrooney’s argument that the long title to the act somehow places an obligation on ABP to only approve applications where ABP have determined that the proposed development is in the interest of the common good.

In my view the title sets out that the Act itself has been made in the interest of the common good.

The Act on the other hand is very specific in Section 182D setting out the criteria for decisions of the Board on applications made under 182c of the Act.

The Act in Section 215A transfers the functions of the Minister for Communications Energy and Natural Resources to ABP in relation to the compulsory acquisition of land in respect of strategic gas infrastructure development under Section 31 and Section 32 and the Second Schedule to the Gas Act 1976 as amended.

I do not accept Mr. Mulrooney's argument that because a private company is putting forward these applications that ABP should reject the applications on that basis alone.

In my view it would be unreasonable, in fact it would be unworkable, for an undertaker such as SEPIL (who are a private company), who has in accordance with EU Directives, as subsequently implemented in the Gas Act 1976 as amended, rights within the open market, rights to develop gas infrastructure, to expect a linear infrastructure development as the onshore gas pipeline is and which traverses many property holdings to expect that rights of those lands be obtained only by negotiation and agreement.

It is only possible for such development as the onshore pipeline to be constructed as is the case with other linear infrastructure developments such as electricity and telecommunications networks, roads and motorway projects, water and waste water infrastructure with the assistance of compulsory acquisition powers over lands.

Clearly SEPIL have the standing by virtue of the requirements of 182c(2) and the certificate provided by the Minister for Communications, Energy and Natural Resources 5/9/2007 and which certificate was provided with the application to the Board for the 182c approval. (Note also DRN OH 91 which confirms that DCENR have received a new Section 40 application.)

Clearly the legislation has provided that SEPIL can make an application for a compulsory acquisition order Section 32 1(A) as inserted by Gas (Interim)(Regulation) Act 2002 and clearly ABP has now been given the authority to assess the application to consider any objections or other representations and then decide whether to grant the acquisition order or not to grant the order.

#### 49.10.10 Necessity

##### **Is there a need for this project?**

- Government stimulated this Corrib Gas Field Development by means of the issue of Exploration and Petroleum Licences.
- It is clear from Chapter 6 of this Report that it is very much Government Policy to Develop the Natural Gas Resources lying off the Irish Coast.
- It is also clear that the economy is heavily dependent on Natural Gas as a source of fuel for Industry and for the consumer market. It is also clear that the economy is heavily dependent on electricity generated using natural gas as the fuel source.
- Clearly there is a substantial economic need for Ireland to have a robust gas supply available for power generation and gas supply to commercial and consumer markets because the economy is heavily reliant on gas energy.
- Clearly there is a substantial and critical reliance within the country and within the economy on natural gas as an energy source now and into the future.
- Clearly there is an open market situation enabled by law whereby gas undertakers such as SEPIL are able to apply for acquisition orders for rights over land to build privately owned gas infrastructure.

- Clearly there is a need for the Corrib Well Field to be brought into production to provide a supply of natural gas into the Irish National Gas Grid.
- Clearly there is a need for a satisfactory onshore pipeline to connect the offshore pipeline to the terminal to complete this development.

These factors in my view set out the National interest in have this Corrib Gas Field brought into production. These factors in my view set out the necessity for the scheme.

**Is the proposed development in accordance with the proper planning and sustainable development of the area?**

Yes, in my view the modified 2010 proposed development is in accordance with the proper planning and sustainable development of the area.

The development is in accordance with the provisions of the Mayo County Development Plan 2009-2014. The development is in accordance with the Regional Planning Guidelines 2004-2010 and the development is not in conflict with the RPGS 2010-2022. I am satisfied that the development is acceptable and does not pose an unacceptable risk to the safety of the general public.

**Is the proposed development proposed in a manner that is likely to have a significant impact on the environment?**

No, in my view having assessed the various aspects of the proposed development I am satisfied to recommend to ABP that the EIA can be concluded on the basis that any likely impact from the development does not pose a threat to the environment.

**Is the proposed development likely to have an impact on the environment that will constitute a threat to the integrity of Natura 2000 sites?**

No, I am satisfied that the route selected and the construction methods and construction technology proposed have been developed and now that alternative route and methods have been adopted such that the impacts of the proposed development are acceptable and do not threaten the integrity of the Natura 2000 sites in the area.

**Are the lands proposed to be acquired compulsorily excessive or disproportionate to what is reasonably required to build this pipeline?**

No, in the case of Mr. Coyle's land plot WL(3)006 and Mr. McAndrew's plot WL(3)007 only rights over the land are to be acquired and by tunnelling underneath these lands the overall impact when the tunnel has been constructed and the pipeline installed will be minimal. The lands will be required for a period up to 26 months – a lesser actual occupation time has been discussed by SEPIL – however the loss of the lands involved can in my view be suitably made good by way of compensation. I note that while SEPIL have not made any submission in that regard that SEPIL have other land that is not included in any works proposed that may be available and in close proximity to the site on which it is proposed to acquire the rights such other lands could accommodate such loss of acreage.

**Is there any aspect of the proposed development that imposes unnecessary or excessive imposition on Mr. Coyle's lands or Mr. Mc Andrew's lands?**

In my view, no. SEPIL have indicated that while the project will take 26 months to construct that Mr. Coyle's land will not be required for that full period and SEPIL have proposed that Mr. Coyle will be afforded access through to his lands on the other side of the proposed acquisition site. In the case of Mr. McAndrew's lands, access across the site of the proposed development does not arise.

**Is the proposed construction and the immediate works proposed at the boundaries with Mr. Coyle's and Mr. Mc Andrew's land satisfactory?**

Yes, I am satisfied that the fencing proposed will form an adequate and satisfactory boundary fence for these lands. Likewise the lands of Mr. McAndrew will be fenced in similar manner and I am also satisfied in regard to those.

**Are there issues regarding impacts of the development proposed which will affect Mr. Coyle's or Mr. McAndrew's lands?**

No, I am satisfied that on reinstatement of these lands that the residual impacts of the pipeline itself will be negligible and will be the rights as set out in the acquisition order sought by SEPIL. In reality SEPIL do not propose to excavate through these lands at all however there will be reinstatement because of fencing and removal of fencing and such other construction traffic and construction uses as may be required

**49.11 WL (3)008 SEPIL own this Plot**

This Plot is owned by SEPIL  
Relevant Lands 900m long, 20m wide, 1.798 Ha.  
Deviation Limits 15.009 Ha

**49.12 WL (3)009 Coillte Own this Plot**

This Plot is owned by Coillte who have certified that they consented to the application being made.  
Relevant Lands 1175m long, 20m wide, 2.345 Ha.  
Deviation Limits 5.504 Ha

**49.13 WL (3)010 SEPIL own this Plot**

This Plot is owned by SEPIL  
Relevant Lands 799m long, 20m wide, 1,593 Ha.  
Deviation Limits 3.180 Ha

## **49.14 Other Representations Received by ABP regarding the Acquisition Order**

### **49.14.1 Rosspport Solidarity Camp Representatives**

#### **Eoin O Leidhim Rosspport Solidarity Camp 28/07/2010**

Rosspport Solidarity Camp prepared the objection submitted by Mrs Kathleen Noone and discussed above. The Rosspport Solidarity Camp representation is a copy of that objection and consequently has already been dealt with above.

### **49.14.2 Terence Conway, Inver Barnatra, Ballina 23/07/2010**

1. This objection contains a petition signed by the local community.
2. The community has not been properly consulted and does not consent to the project.
3. The acquisition order will contravene Article 43 of the Irish Constitution.
  - Mr. Conway's neighbours have right to private ownership of land.
  - The state cannot pass law to abolish that right.
  - It is not in the interests of social justice of the state to forego this right and have compulsory acquisition of land from members of the community in favour of Shell and for their use and profit. The compulsory acquisition will provide Shell with benefits that are not on the open market.
  - It is not in the national interest to compulsorily acquire the land it is purely for the good of Shell.
4. Mr. Conway's submission mentions the brave stance of their neighbours in Rosspport who received CAO's and were jailed for refusing to allow Shell on their land.

Mr. Conway attended both the 2009 and 2010 OHs. He made a number of contributions at the OHs in particular relating to the significance of the conflict between the local community and SEPIL. Mr. Conway sought to present multiple DVD material and CD material that related to the protest activities and conflict with Gardaí and SEPIL security staff. He wished to present other documentary evidence on DVD and CD which portrayed a perspective of the situation that exists and that has existed during the carrying out of works on the Corrib Gas Field Development. I ruled the material put forward in 2010 as irrelevant and would not accept it into the proceedings after I had viewed it privately. Mr. Conway also made a significant contribution to both 2009 and 2010 E.I.A. process through questions to SEPIL regarding the integrity of the pipes which are stored waiting for approval to the scheme.

1. Mr. Conway's objection contains a petition of support for his submission.
2. Consultation: I am satisfied that evidence was presented of the consultation carried out by SEPIL. I saw and heard evidence of a rejection of consultation by some of those present at the Oral Hearing 2010.



I believe a reasonable level of consultation and circulation of information about the proposed development has taken place. I note the extensive submissions received by ABP. I note the extensive knowledge of observers who participated in both the Oral Hearing in 2009 and in 2010.

I fully accept that there are members of the local community who are not in favour of this development and who do not give their consent to the scheme.

In my view, ABP are in a position to take these objections into account in the final decision on this Acquisition Order.

In my experience there are many infrastructure projects where the consent of some of the local community and local landowners is not forthcoming to the Compulsory Acquisition of the lands involved. The Corrib Scheme is not unique in this.

In my view this lack of consent is not a valid objection on its own. I find Mr. Conway's objection is not sustainable as I believe the proposed scheme of development is acceptable.

3. Article 43 of the Irish Constitution: This issue is a challenge by Mr. Conway to the legislation under which this application to ABP for an acquisition order has been made. This is a matter for the High Court and not ABP to decide. Accordingly I find the objection not sustainable.
4. The jailing of the Rossport 5 is a matter of comment by Mr. Conway rather than an objection.

#### **49.14.3 Teresa and Brid McGarry, Gortacragher, Rossport, Ballina 26/07/2010**

1. This objection is to the placing of this "unique unprecedented pipeline complex" anywhere in the community on that basis that (the pipeline) is a dangerous experiment.
2. It is contended that the true reality behind the project has been exposed as being a deeply flawed endeavor with devastating and detrimental consequences for the inhabitants in its midst.
3. The McGarrys do not have confidence in the applicants as a result of the consistent damning exposure and it is claimed the applicant's proposal lacks credibility.

The McGarrys as I understand it, live on the North side of the Bay near Rossport. As I understand it the McGarrys lands were along the 2002 route as proposed. As I understand it the Rossport 5 were fully supported by the McGarrys. As I understand it when the court decided to send the Rossport 5 to jail it also decided not to send Ms. (Bríd, I believe) McGarry to jail at the same time.

While these are background details and have not been confirmed by me I set them out here as a context for the support being given by the McGarrys to the landowners at Glengad against the Acquisition Order.

1. I am satisfied with the pipeline design as proposed. Mr. Wright has examined the design and the details of the proposed development and he has concluded that the proposed development is acceptable. This development, the 2010 Scheme, is in my

view not an experimental unique pipeline without precedent. There are undoubtedly features of the proposed development which differ from other pipelines. Overall a thorough and in depth analysis of the proposed development has brought me to the conclusion that this development is acceptable. The risk to the safety of the public is low and is acceptable. Accordingly, I do not find this objection sustainable.

2. ABP, in their letter of 2/11/2009, sought and received clarity with regard to the proposed development. I am satisfied that the project is not flawed as it is presented to ABP for decision.

I accept that there are aspects to the technical design, Appendix Q in particular, which are not the easiest of documents to read and fully absorb/understand for the lay member of the public. Nevertheless ABP has used expert advisers and has through the expert advisers conducted a thorough and full analysis of these technical issues.

Mr. Wright's report makes clear that he finds the proposed development acceptable.

Mr. O Donnell's report which dealt extensively with peat stability and geotechnical issues, has found the development in the peat lands acceptable.

Accordingly I find the objection not sustainable.

3. SEPIL have the required standing under the Gas Acts to make this application for a CAO to ABP and this has been detailed in this report already.

In my view that is the reality. ABP must now recognise SEPIL's standing and decide to grant the Acquisition Order or not to grant the Acquisition Order on the merits of the application.

In my view, the proposed development is acceptable. Accordingly I find that a lack of confidence by the McGarry's in SEPIL and a perceived lack of credibility by the McGarry's regarding the proposal by SEPIL is not sufficient basis for rejection of this application.

Accordingly I find this objection unsustainable.

#### 49.14.4 Diane Taylor Glengad

1. This objection is made on the basis that Glengad is a well populated area and it is unacceptable to issue compulsory acquisition orders for a project of the magnitude of the Corrib Gas Project to just a couple of landowners. The pipeline is considered ill thought out and dangerous.
2. Glengad is seen as a magnificent place, protected under EU legislation because of its fragile, rare and vulnerable landscape.
3. The objection makes reference to the Shell Scholarship Scheme and indicates that university-going students from Kilcommon are not on Shell Scholarships.
4. The objection expresses concern that landowners are being bribed to facilitate the development by Shell. The objection has a negative comment about the impact of the proposed development on some people in the community who are considered corrupt (presumably for accepting the proposed development or in some way supporting the proposed development).
5. The objection is in support of neighbours in Glengad who object to the acquisition order on their lands.

Ms Taylor has made a number of submissions to ABP and has attended the 2009 and 2010 Oral Hearings. Ms Taylor lives at Glengad.

1. I accept that Glengad is a rural linear residential area. The nearest houses at Glengad to the LVI are 280m. The nearest houses are 234m to the pipeline at Barnacuille. The risk to the public at Glengad and Barnacuille is low from both the LVI (Glengad) and the pipeline (Glengad and Barnacuille). The risk is below the risk levels set out by ABP as broadly acceptable. The pipeline does not pose a risk to the health of the public that is unacceptable. I have examined the proposed development in detail as outlined in this report. I find that the development is acceptable and accordingly it is my recommendation that ABP decide to confirm the Compulsory Acquisition Order. I do not agree with this objection and I find it is not sustainable.

2. The Natural Environment at Glengad is indeed splendid. I fully understand the concern Ms Taylor and the many others who objected to the proposed development have because of the perceived threat to the pristine environment.

I find however that the development has been proposed in a scheme that seeks to respect the environment within which the pipeline will be buried. I find that the development is not likely to have significant impacts on the Natura 2000 sites including Broadhaven Bay cSAC and Glenamoy Bog Complex cSAC at Glengad. Mr. O Sullivan has examined the impacts of the proposed development in detail. He has concluded that the development is acceptable from a natural environment point of view.

I do accept that there will be intrusion in the environment during the construction phase. I am satisfied with the measures proposed by SEPIL to control and mitigate these impacts. I also have proposed a series of conditions to ABP should the Board decide to grant approval for these applications.

I fully expect that once construction and restoration is completed, that the recovery will be a full recovery and with the exception of the LVI Compound which is proposed to be set down. The pristine environment will continue in Glengad but also in Sruth Fada Conn Bay itself. As regards the LVI, which will be set down in a lowered compound area, it will only be slightly visible if discernable at all from the road at Glengad where Ms Taylor lives.

3. This is a statement. The Community Gain condition which is proposed will ensure that Mayo County Council can administer the SEPIL Community Gain Investment in a manner which will be independent of SEPIL. There have been submissions such as this statement where perception is that the SEPIL current investment fund is in some way biased.

4. This objection present the harsh reality of the protest in the area where any voice raised in favour of the proposed development is considered in some way unreasonable and in some way not a rational voice by those who oppose the project.

The reality is that the project has divided the community. In my view labels such as “corrupt” and comments about “bribery” only heighten the divisions. I have set out to respect all those who participated and to respect their points of view and to consider all the views put forward. Indeed while there has been much repetition of argument I have nevertheless given each submission reasonable attention in this report. In my

experience of Acquisition Orders for lands to facilitate linear infrastructure development there are some landowners who may not want to lose any rights over their lands at all. Others may be less opposed to the linear development involved. This difference in approach and this difference in the freedom of choice of landowners is not something that others should seek to dictate. Such is the case with this particular objection. I see no good reason why Ms Taylor's negative comment in this objection should in any way influence the decision of ABP. I expect that ABP will consider Ms Taylor's representation here but I can find no reason that this objection should be sustained.

5. I note Ms. Taylor's point that she wishes to support the objections of her neighbours and landowners whose lands are subject to this Acquisition Order.

## **49.15 Submission received at OH regarding File 16.DA.0004**

Background to

ABP received an application for permission for the Corrib Gas onshore upstream pipeline File 16.GA.0004 and also received an associated application for an acquisition of lands under the Gas Acts to enable the pipeline to be constructed. File 16.DA.0004.

ABP following receipt of these applications decided to hold an Oral Hearing and appointed me as inspector to prepare a report on these applications and to conduct the Oral Hearing.

The Oral Hearing took place between May 19<sup>th</sup> and June 24<sup>th</sup> 2009 and included the hearing of a specific module relating to the specific objections lodged with ABP by landowners affected by the acquisition order. Ms Monica Muller was represented by Mr Michael O'Donnell BL advised by Mr Brian Harrington solicitor Casey & Company Solicitors.

### **49.15.1 Submission Ms Muller at 2010 Oral Hearing**

Submission on behalf of Ms Monica Muller Rossport South, Ballina, Co. Mayo in respect of File 16.DA.0004 the Acquisition Order sought by SEPIL (2009 project). The submission on 13<sup>th</sup> September 2010 at OH was read by Mr Peter Sweetman on behalf of Casey & Co Solicitors who were unable to attend due to court commitments.

The submission can be summarised

- a) SEPIL have withdrawn two Acquisition Order applications made that related to Ms Muller's land – (File 16.DA.0001, File 16.DA.0004)
- b) In respect of File 16.DA.0001 (2008) the application for acquisition order was withdrawn after Ms Muller had made submission to ABP but at a time when an oral hearing into that acquisition order had not taken place.
- c) In respect of File 16.DA.0004 (2009) the application was considered at an oral hearing in Belmullet in May/June 2009. Ms Muller was represented and presented her objection. The second application (File 16.DA.0004) for a compulsory acquisition order was heard at considerable expense to Ms Muller.
- d) Ms Muller has no particular legal difficulties in accepting the withdrawal of the planning applications (refers to File 16.GA.0001 the planning application associated

- with File16.DA.0001), both the undertaker and ABP have failed to advise Ms Muller of the particular provisions relied upon by them in the withdrawal of the two applications for acquisition orders and the acceptance of such withdrawal by ABP.
- e) It is clear from any reading of the statutory framework governing compulsory acquisition of lands for the purpose of Gas Act 1976 that the Board (ABP) has acted *ultra vires*.
  - f) The Board was required to make a decision either to refuse to confirm or to confirm the acquisition order.
  - g) In light of the letter of 2/11/2009 where the following is stated “(2) that part of the route between chainage 83+910 and 89+550 (5.64Kilometres between Glengad and Aghoos) is considered unacceptable”. Which chainages includes Ms Muller’s land those applications are de facto redundant and the Board had only one option that being to refuse to confirm the compulsory acquisition order application.
  - h) The Board are requested to consider its actions and remedy the matter.
  - i) Ms Muller having now faced 2 (modern-day) applications made for compulsory acquisition orders over her lands both of which are redundant the Board is requested to make an order for Ms Muller’s costs – (S.I. Act 2006 Section 33 Amendment Section 219 of principal Act)

#### 49.16 SEPIL Response

SEPIL response to the submission on behalf of Ms Muller (FILE 16.DA.0004)

Mr Esmonde Keane counsel responded on behalf of SEPIL. The following summarises his response.

1. The application for the acquisition order is made under the Gas Act 1976 as amended.
2. While Gas Acts are silent in respect of withdrawal of an application nothing in that Act implies you can only withdraw some applications and you can’t withdraw others.
3. The application was made under Section 32(1A) and that carries with it an intention that a person who makes an application can withdraw the application.
4. Good running of the State and organisations within the State requires that where applications can be made they can also be withdrawn. This is the natural and ordinary intended meaning of the Act. Mr Keane submits the same interpretation applies to all such situations.
5. The application (FILE 16.DA.0004) has been withdrawn by SEPIL’S letter of 31/5/2010 to ABP and that ABP is *functus officio* and has not now an application (FILE 16.DA.0004) before it which requires a decision.
6. The letter of 2/11/2009 from ABP to SEPIL is an invitation to modify the proposed development and is not considered by Mr Keane as a decision by ABP on the applications that were before it at that time (FILE 16.DA.0004, FILE 16.GA.0004).

## 49.17 Inspectors Consideration of Issues

### 49.17.1 Relating to File 16.DA.0004 Inspectors Recommendation in 2009 Report

In my report (2009) to ABP I set out in Chapter 49 detail consideration of the objections received. I draw the attention of the Board to these considerations and Section 49.2. "Submission Ms Muller Plot No. WL[2]027" and submission 49.2.6 in particular, where I addressed the arguments put forward by Mr O Donnell on behalf of Ms Muller against the acquisition order (FILE 16.DA.0004 refers). I don't propose to re state these here. I also draw the Boards attention to Section 49.11 of that report, which I restate below

#### *"Inspectors Conclusion and Recommendation (2009) on Acquisition Order*

1. *In respect of plots WL(2) 001 to WL(2) 006 inclusive and plots WL (2) 028 to WL(2) 030 inclusive. It is not possible to recommend or not to recommend confirmation of the acquisition order sought by the applicant pending clarification of those issues set out in Chapter 30 Safety of the Pipeline.*
2. *In respect of plots WL (2) 007 to WL(2) 027 [Ms Muller's interest is included in Plot WL (2)027] inclusive and including WL (2) 025A, I recommend to ABP that the acquisition order not be accepted for that part of the route and the lands which are sought in Rossport.*

#### *Reasons:*

- 1) *I consider the proposed development is unsatisfactory between chainage 83+910 and 89+550.*
- 2) *The traffic plan and haul route proposed and the limitations to the road works proposed to support the construction project are not satisfactory.*
- 3) *The construction of the project as set out in the E.I.S. and in the additional information provided at OH would have a significant and unacceptable impact on the local community over a prolonged construction period. The programme is expected to exceed that set out in the E.I.S. The proposed development would not be in accordance with the proper and sustainable development of the area.*
- 4) *It is proposed to construct the pipeline in proximity to the dwellings and within the distance of the hazard lines should the pipeline fail. This is considered unacceptable for an upstream untreated gas pipeline."*

### 49.17.2 Inspectors Recommendation 16.DA.0004

**Inspectors Recommendation on the submission made by Casey & Co. Solicitors on behalf of Ms Muller 13<sup>th</sup> September 2010.**

1. ABP should in my opinion finalize the position with regard to File 16.DA.0004 the acquisition order and the letter of 31/5/2010 from SEPIL seeking to withdraw the application.
2. The options available to the Board are in my view as follows



- To accept or reject the letter of withdrawal from SEPIL,  
In this regard ABP letter of notification of having received a letter of withdrawal to affected parties is noted. ABP may have already decided to accept the letter of withdrawal and ABP may now consider that application withdrawn and no longer before ABP for decision. This I think needs to be clarified as it is not clear from the File 16.DA.0004 at this point in time.
- In a case where the Board decide to reject the letter from SEPIL which seeks to withdraw the FILE 16.DA.0004 application then ABP may take a decision on the acquisition order File 16.DA.0004.  
In this regard my recommendation (2009 above) will assist the Board.

Or

The Board may defer finalization of its decision on File 16.DA.0004 until the Board is in a position to consider my report on File 16.DA.0005 and in light of its consideration at that time take its decision on File 16.DA.0004 in association with its decision on File 16.DA.0005.

#### **49.18 File 16.DA.0001**

I have no remit to report on File DA.0001 I will not deal further with the submission on behalf of Ms Muller in respect of DA.0001. Ms Muller was informed of this at the OH (2010).

#### **49.19 Inspectors Conclusion on CAO 16.DA.0005**

I have examined the proposed development in detail and I have come to the following conclusions.

1. SEPIL, in modifying the proposed development in response to the invitation by ABP, has reduced very much the extent of the Compulsory Acquisition of rights over lands involved.
2. The rights over lands being acquired are well removed from the residential dwellings of the landowners and are well removed from the L1202 from which the landowners affected obtain access to their lands.
3. The areas affected and the rights being acquired are minimal and will have very limited impacts on the farming activities of those landowners involved. The impacts will be simply a loss of use of the area of land affected for a period of up to 26 months in total.
4. The areas affected are at or near the end of the fields in questions and so the impact on the remainder of the holding will be minimal.
5. The rights over lands that are sought are reasonable and not excessive taking into account the development that is proposed. They are a minimum requirement in my view to enable the construction of the project.

6. I find that overall the proposed development is acceptable.
7. I can see no reason why ABP should not confirm this Acquisition Order.
8. As discussed in Chapter 33, the spare umbilical, outlet pipe, fibre optic cable and electrical cable should be extended through the sites of each of the lands over which rights are proposed to be acquired. Accordingly, I believe ABP should modify the order to allow the construction of these spare services.

## **49.20 Inspectors Recommendations**

1. ABP should approve the Acquisition Order.
2. In the event that ABP decide to approve the project and to approve this acquisition order, I recommend that ABP in approving the acquisition order decide to modify the order as follows:

Add the following into Paragraph 3(2)(a) of the order:

*“The construction works shall include the construction of a spare duct, spare umbilical, spare electrical signal cable and spare fibre optic cable.”*

Add the following at the end of Paragraph 4 of the specification:

*“The construction works shall include the construction of a spare duct, spare umbilical, spare electrical signal cable and spare fibre optic cable.”*

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## Chapter 50 Conclusions 182c Application

### 50.1 Overall Conclusions

The Report has considered the issues relating to these applications on a Chapter by Chapter basis. In each Chapter conclusions are set out. For quick reference each of the conclusions is provided below in Section 50.2. These are my overall conclusions:

1. A comprehensive assessment of the proposed development has been completed.
2. The tunnel modification proposed in 2010 by SEPIL has had a profound effect on reducing the impacts of the development on the area.
3. There is good clarity and transparency available now on the site, the proposed development itself, on the impacts of the scheme, on the safety implications of the scheme. This clarity provides confidence in the decision recommended and provides confidence that the safety of the public is fully protected and that the public will not be put at risk by the proposed development.
4. The development is a major project by any measure. Notwithstanding that fact, the modified proposed 2010 development will have a remarkably light impact on the pristine environment of the area.
5. The ABP decision to adopt a consequence based routing distance was a key driver in the overall process of consideration of these applications. That decision provided the impetus for SEPIL to moderate the consequence of a gas release from the pipeline. That decision provided the impetus for SEPIL to find what I consider is now a most suitable, the shortest and the most obvious route for this development.
6. The Corrib Gas Field Development, of which the onshore pipelines is but one small part, will provide substantial benefit for Kilcommon, Erris, Mayo and for Ireland. In this I look at the Kinsale Gas Field which provided the impetus for the large gas industry we now have across the state. Kinsale provided the impetus for electricity power generation to shift from coal/oil/turf fuels to natural gas. Corrib will, I have no doubt, provide impetus for future expansion of the Natural Gas Network in Ireland and I expect it will provide impetus for additional exploration off the coast. Corrib will in my view provide opportunity for Mayo in particular to develop as a new energy producing centre.
7. New momentum is required to engage the local community and to ensure the benefits of the scheme are developed and harnessed locally.
8. The Community Gain Condition will, I believe, provide a strong enabling community gain which can be developed with leadership at every level into a long term economic and social stimulus for the area locally but regionally as well.
9. ABP has been well served by the prescribed bodies and particularly DCENR in this assessment. The contributions of the prescribed bodies have been vital in providing expert opinion and in the assessment of the overall impacts of the proposed development.

10. I find that Government policy in Gas Energy Development is a well developed policy. Further strategic planning is required if the depths of controversy and conflict seen in the Corrib Scheme are to be avoided in future. Standards, strategic development sites, strategic corridors, clear process requirements for all consents, open procedures for decision making, transparency in presentation of projects, these are areas that have led to the depth of conflict and controversy seen in the Corrib scheme.

## **END OVERALL CONCLUSIONS**

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## 50.2 Chapter by Chapter Conclusions

### 50.2.1 Chapter 4: Local Planning Policy, Mayo County Development Plan

Mayo County Council's County Development Plan policy remains the same as in 2009 other than the change in rural housing policy as outlined above. Therefore the conclusions contained in the Inspector's 2009 report stand and are repeated below.

#### 50.2.1.1 Mayo CDP 2008-2014

It is clear from the Mayo CDP 2008 – 2014, that the Planning Authority supports the realisation of the Corrib Gas Field.

*“It is an objective of the council that it fully supports the realization of the Corrib Gas Field find and any other gas finds in the County either on or offshore”*

#### 50.2.1.2 Mayo CDP 2008-2014

It is also clear that the Mayo CDP 2008 – 2014 provides protection for the significant landscape resources in the County. Proposed development needs to be assessed and applicants need to demonstrate that landscape impacts have been anticipated and avoided to a level consistent with the sensitivity of the landscape.

*“It is the policy of the Council, through the Landscape Appraisal of County Mayo, to recognize and facilitate appropriate development in a manner that has regard to the character and sensitivity of the landscape, to ensure that development will not have disproportionate effect on the existing or future character of a landscape in terms of location, design and visual prominence, and that development will have regard to the effects of developments on views from the public realm towards sensitive or vulnerable features and areas. In this regard, proposals for development that have the potential to impinge on the integrity of significant landscape resources will be assessed having regard to the guidelines set out in Section 4.18 of the Development Management Guidelines.”*

#### 50.2.1.3 View and Prospects

Views and prospects should not be adversely affected by the development.

Map 10 of the Mayo CDP 2008 – 2014 indicates the scenic views in the County. This shows the view from L1202 at Glengad looking towards Garter Hill and down to Broadhaven Bay as highly scenic. This also shows views from Ceathrú Thaidhg south and from L1202 north onto Sruth Fada Conn Bay as highly scenic views.

#### **50.2.1.4 Mayo CDP 2008-2014**

The Mayo CDP 2008 – 2014 Policy is to protect and enhance and conserve cSAC's and natural habitats. [Mayo CDP 2008 – 2014 Policy P/EH-NH1, P/EH-NH3].

#### **50.2.1.5 Mayo County Council**

It is clear that Mayo County Council are of the view that the consent under Section 40 of the Gas Act 1976 (as amended) by the Minister for Communication, Marine and Natural Resources on 15<sup>th</sup> of April 2002 established in principle that natural gas was to be brought ashore to a landfall and that the gas was to be piped to the gas terminal along a route on the north side of Sruth Fada Conn Bay.

#### **50.2.1.6 Planning Authority's View**

It is the Planning Authority's view that these underlying principles have not changed. It is Mayo County Council's view that the changes in detail leading to this 16.GA.0004 application have come about through acceptance by the developer of the recommendations of the Cassells Report (with regard to the relocation of the pipeline) and the recommendations of the Advantica Report (with regard to the re-design of the LVI).

#### **50.2.1.7 The 2009 Scheme Mayo County Council's Considered View**

It was clear in the Mayo County Council submission in 2009 that the Council supported the 2009 proposed development and at that time Mayo County Council recommended to ABP that permission be approved for the 2009 scheme subject to ABP satisfying itself as regards certain matters.

#### **50.2.1.8 The 2010 Scheme Mayo County Council's Considered View**

It is again clear in the Mayo County Council submission for the modified 2010 proposed development that Mayo County Council consider the revised proposal is acceptable. Mayo County Council recommend to ABP that permission be approved for the 2010 modified proposed development scheme subject to ABP satisfying itself as regards certain matters outlined above.



### **50.2.1.9 Mayo County Council have Provided a Substantial Submission which details**

1. The Reasons why the Council considers the proposed development is acceptable.
2. A range of detail conditions which are recommended in the event that ABP decides to approve the application.
3. A monitoring and overseeing procedure is proposed whereby the development would be controlled in the event that ABP decide to approve the application.
4. In reality the proposed development will during the construction phase have requirements for (a) Water Supply: In the operational phase of the onshore pipeline there will be no water required. A separate condition [Section 47 Agreement] is proposed in relation to Council services that may be required during the construction phase of the development. (b) Roads: A separate condition [Section 47 Agreement] is proposed by Mayo County Council related to payments by the Applicant for special road maintenance and road improvement costs which Mayo County Council may incur and which are required directly to facilitate the proposed development (c) Waste: A separate condition [Section 47 Agreement] is proposed in relation to Council services that may be required during the construction phase of the development. In the operational phase of the onshore pipeline there will be no waste generated by the proposed onshore pipeline. (d) Waste Water: A separate condition [Section 47 Agreement] is proposed in relation to Council services that may be required during the construction phase of the development. In the operational phase of the onshore pipeline there will be no waste water disposal service required.

### **50.2.2 Chapter 5: Regional Planning Policy**

1. It is clear that the RPG's place strong emphasis on the protection of the environment and on the conservation of landscape resources in the region.
2. The RPG's confirm that EU Habitats Directive requirements should be implemented in full. In particular where development is located in Natura 2000 sites or where there is the potential for development to impact on the conservation objectives of Natura 2000 sites the Habitat Directive should be implemented in full.
3. The RPG's identified the tourism sector as a key part of the economy of the west region. Marketing of the landscape, archaeology, architectural heritage, biodiversity and of the environmental resources is supported.
4. The RPG's have introduced policy on Regional Flood Risk Appraisal for implementation in accordance with the guidelines proposed jointly by DEHLG and OPW on Flood Risk Assessment for Planning Authorities.
5. The RPG's support the development of a small number of gas fired electricity generating stations in the west region.
6. The RPG's support "...the development of the necessary onshore facilities to enable the potential of the Corrib Gas Field to be utilised in the Regional and National context. The potential of this very important natural resource can be of enormous benefit to the region as a whole and is seen as a project of large scale potential development for the region.

7. The RPG's state that the sustainable growth and development of the Gaeltacht areas has significant potential for the Irish Language, Cultural Heritage, Enterprise and Employment, Recreation, Leisure and Tourism within the West Region.
8. Planning authorities are asked to support the provision of energy networks provided that adequate technological standards and acceptable development standards are achieved.

### 50.2.3 Chapter 6: National Policy for Gas Infrastructure

1. National Policy for the Energy Sector is well developed.
2. The sources and supply of gas into the energy sector is a vital component within the National Economy because of the reliance on gas to provide a large part of electricity generating capacity.
3. The security of energy supply is identified as a critical National Interest.
4. National Policy is to strengthen the physical infrastructure links with UK and also strengthen the agreements with UK and European Energy Markets.
5. National Policy is to ensure a diversity of energy sources and to move towards high efficiency use of energy.
6. As regards Gas infrastructure, significant investment is provided in the period of the National Development Plan for BGE Galway Mayo Pipeline to connect to the Corrib Gas Field and to bring Natural Gas to towns in the west.
7. The issue raised in the report on a Common Approach to Gas North and South Policy discussion regarding "Flattening the production profile for Corrib Gas Field" is one for DCENR/CER and SEPIL. This is not a matter that should be considered by ABP in their assessment of this application. The rate of extraction of the resources is a matter for the undertaker to agree with the competent authority and the Regulator.
8. It had been expected that gas usage will increase by 6.5% per annum up to 2013. This is now forecast that total Irish Annual Gas Demand will grow at 0.9% per annum up to 2020. (Joint Gas Statement 2010)
9. The White Paper sets out a target of 50% for Gas contribution to Electricity Generation by 2020. This is to be achieved by bringing increased renewable energy sources on stream up to 2020.
10. In absence of this increased renewable energy, Gas, on a business as usual basis, would be the energy source for 70% of electricity generation by 2020.
11. Having diverse sources of secure energy supply into the future is central to National Policy.
12. It is clear that bringing the Corrib Gas Field into production and connecting the supply from Corrib into the National Gas Network is a Government priority and has been a Government priority for some considerable time.
13. It is clear that Corrib Gas Field is required and that when available, Corrib Gas will provide a vital source of energy supply for the economy and will help provide greater security of supply for the energy needs of the country. Ireland is obliged to strengthen security of supply by 03/12/2014 and to take the necessary measures to satisfy total gas

demand on a day of exceptional gas demand (1:20 years demand level) and in the event that a disruption of the single largest gas infrastructure occurs.

14. The competent authority [DCENR/CER] shall require the natural gas undertakings that it identifies to take measures to ensure gas supplies to the protected customers in extreme weather conditions (7 days), in extended periods of high demand for gas (30 days) and in case of disruption of the single largest gas infrastructure (30 days) These measures are required to be implemented by 3/06/2012.

#### **50.2.4 Chapter 9: Legislative Context**

1. Section 22 of Energy (Misc. Provisions) Act 2006 and the High Court decision in *Jonathon O'Donnell v SEPIL* 233 MCA July 2010 appear to support SEPIL's position that the offshore pipeline as laid onshore for the 2002 consent does not need to be included in this application 16.GA.0004.

However, neither the LVI nor the construction and works associated with drainage to the LVI were a part of the 2002 development. That, in my view, justifies the request by ABP that "...part of the route had been omitted..." and that SEPIL should submit revised drawings "...which fully describe the full extent of the onshore pipeline from HWM to the terminal site...". This matter is considered in more detail in Chapter 23 Boundaries of the Permission Sought.

2. Flood Risk Assessment for the proposed development has been included in the addendum to the E.I.S. This is considered in Chapter 43 Hydrology and Eco Hydrology.

#### **50.2.5 Chapter 11: Prescribed Bodies Submissions (Part Only)**

##### **50.2.5.1 An Taisce**

1. The submission is informed by observers who have separately made submissions to ABP against the proposed development.
2. The submission is argued in principle and has raised procedural issues and legal issues. All the issues raised are considered in the context of the individual chapters of this report.
3. An Taisce accepted at OH that it had not been possible for them to examine the E.I.S. in its entirety. Their examination related to the Non-Technical Summary of the project.

##### **50.2.5.2 CER Submission to ABP**

1. DCENR in their submission to ABP and at 2009 OH had outlined the regulation system envisaged and for which legislation was pending. This is now a reality with the passing of Petroleum (Exploration and Extraction) Safety Act 2010. The CER have now taken up the implementation of this Act to regulate the designated petroleum undertakers.
2. It is clear that CER expect that Corrib Gas Field will require a safety permit before commencement of operations.

### **50.2.5.3 Inland Fisheries Ireland to ABP**

1. It is clear that control of construction operations and in particular control of pollution from bentonite, cement grout, residual wastewater from separation unit and waste water from sewage treatment plant potential overloading are the concerns of Inland Fisheries Ireland.

### **50.2.6 Chapter 12: DCENR Submissions**

1. DCENR participated in the ABP consultation phase in a very comprehensive manner.
2. DCENR, who are engaged in a separate process related to the Section 40 Gas Act 1976 and Section 13 Petroleum Act 1960 Application, shared with ABP in a very open way the expertise and the information being considered by the consultants to DCENR i.e.

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Environ and ENTEC. I welcomed this and from my point of view DCENR have provided highly significant submissions to the ABP process.

3. DCENR and their consultants participated extensively in the OH and answered questions put to them on many technical and procedural issues which informed the ABP process.
4. It is my belief that the observers who put a lot of questions to DCENR, found the participation of DCENR beneficial and observers derived a lot of information regarding aspects of the Corrib Gas Field Development from the DCENR answers.
5. The applicant provided the OH with a copy of response to DCENR further information request which is very useful to ABP now in consideration of these applications.
6. The conclusions set out in Chapter 12 of the 2009 Inspectors Report are still valid but events have moved forward since then.
7. DCENR has not yet concluded the process of assessing the Section 40 Application and the Section 13 Application now before the Minister for consideration. These are parallel process applications to the applications before ABP.
8. It would not be unreasonable to expect that the Ministers public consultation on the Section 40 and Section 13 applications may be re-opened.
9. The safety framework being developed by CER will be (most likely) used to regulate the safety of the Corrib onshore pipeline.
10. In the event that CER Safety Framework is not ready then DCENR will itself regulate the safety of the Corrib onshore pipeline in the manner set out for the ABP in the 2009 submission:

*“In the event that the Minister grants consent to the applicant pursuant to Section 40, and because CER requires a period of time to implement the safety framework, that the DCENR will be responsible for safety of the pipeline.”*

### 50.2.7 Chapter 13: DEHLG and NPWS Submissions

1. Overall it is clear that the DEHLG consider that the development will not be significant and will not have an adverse impact on the integrity of the pSPA and cSAC.  
Inspector’s Note: This contrasts with the DEHLG (NPWS) concerns regarding the 2009 route which impacted on the cSAC Blanket Bog at Rossport Common.
2. DEHLG have recommended conditions regarding archaeology and how the proposed development is controlled and monitored for attachment in the event that ABP decide to approve these applications.
3. It is also clear that there are two issues that do concern DEHLG:
  - (a) Implementation of mitigation measures;
  - (b) Intervention Pit. In the event that an intervention pit becomes necessary that proper and timely procedures are followed to minimize any impacts that will arise from such intervention pit.
4. In my view these concerns of DEHLG can be fully reflected by the attachment of appropriate conditions in the event that ABP decide to approve these applications.  
The DAFF have a concern that the proposed works in the event that an intervention pit be required, may impact the licenced shell fish activity. In my view these concerns can

be reflected in an appropriate condition which can be attached in the event that ABP decide to approve these applications.

#### 50.2.8 Chapter 14: EPA/HSA Submissions

1. A ruling was given at OH that only those matters related to the onshore pipeline as proposed in the modified E.I.S. and all matters relevant to same could be considered. In my view that ruling was correct and was not unreasonable.
2. I am satisfied that all matters related to the proposed development were considered at OH. In particular, matters relating to the impacts on the environment of both construction phase and operation phase of the development were considered. In addition, the potential for unplanned events-loss of integrity of the pipeline, loss of integrity of umbilicals, service cables and outfall pipe were also considered, as was the possibility of an intervention pit being required in the Bay.
3. I am satisfied that sufficient information is available to me and to ABP to enable a decision in respect of the Health and Safety aspects of the proposed development. These aspects and my recommendations to the Board are contained in Chapter 30 of this report.

#### 50.2.9 Chapter 16: Other Issues Raised at OH

1. In the course of the OH much material put forward by observers regarding human rights was ruled not relevant and inadmissible.  
That material related to perspectives shown on TV programmes, film, local video material and articles written about the past conflicts between protestors against the Corrib Development and Gardaí and SEPIL employees or contractors.
2. It is clear that in the conflict situation that exists between the applicant and those who object to the Corrib scheme, community consultation and communication between the parties will not work as well as it might do.
3. SEPIL have demonstrated very clearly that they apply for necessary permissions, licences, approvals and consents for the proposed development. The granting and enforcement of permissions, licences, approvals and consents is a matter for the relevant bodies to consider and to grant or otherwise and then if granted, to enforce.
4. I was not impressed by arguments that previous licences, approvals and consents already issued to SEPIL are invalid, illegal or otherwise considered to be not properly in place.  
Such arguments were made concerning decisions by Mayo County Council, ABP, EPA, DMNR (now DCENR), DEHLG and DAFF.
5. An Taisce submission was made in support of those opposing the development and An Taisce retracted contentions made when they were challenged by SEPIL.
6. SEPIL is a petroleum undertaker and in making these applications to ABP did so with the benefit of a certificate issued by DCENR under section 20(1)(b) of the Gas Act 2000. A copy of that certificate accompanied the initial applications. That complies with Section 182(c)(2) of the Planning and Development (Strategic Infrastructure) Act 2006.



In my view by submitting that certificate, SEPIL have the required standing and ABP must now consider the applications on their merit and, in accordance with the statutory requirements, take a decision on these applications.

7. The consideration of the international performance of SHELL is not in my view a relevant consideration to these applications.
8. I am satisfied that SEPIL have put forward a very substantial response to ABP's invitation to modify the proposed development.
9. I am satisfied on the basis of the information presented by SEPIL in E.I.S. and in evidence and at OH that SEPIL has prepared these applications using necessary expertise and that SEPIL have the required experience to complete this development should ABP decide to approve the proposed development.

#### **50.2.10 Chapter 18: Advantica Report**

1. Notwithstanding the changes in the onshore pipeline scheme since 2002 and that are now incorporated into the 2010 modified proposed development, the Advantica Report continues to be an important technical appraisal reference report in the consideration of the 2010 scheme.
2. The proposed development (2010) is considerably different to that examined by Advantica.
3. The routing distance set out by ABP in the letter of 2/11/2009 follows the most cautious approach to proximity distance as identified by Advantica in The Independent Safety Review of the Onshore Pipeline Section of the Corrib Gas Pipeline.
4. External expert advice is being provided with regard to the 2010 proposed development. Mr. Wright provides this to ABP.
5. Mr. Waite [ENTEC], Mr. Hancock [ENVIRON] and Mr. Keane [KOIL] provide expert advice to DCENR and these experts provided much evidence at the 2010 OH.
6. At the OH, 2010 there was considerable discussion, question and answer and clarification of the issues relating to the proposed development that concern DCENR. Mr. Keane [KOIL] the engineering auditor appointed by DCENR for the offshore operations was available and provided clarification on the DCENR oversight of the project.
7. The CER are now in the process of establishing a risk-based Petroleum Safety Framework within which the safety of designated petroleum activities (Corrib included) will be controlled.

#### **50.2.11 Chapter 19: Selection of Landfall Location**

1. The fact is that consent (2002) was given to the project plan for development, to the foreshore licence application to construct the facilities, and the consent was granted to construct the pipeline both offshore and onshore. Those consents followed the submission of an E.I.S for the original pipeline route. That consent confirms the acceptance of the then regulatory regime of Glengad as a suitable landfall location. That

consent was confirmed following an EIA process by DMNR (now DCENR) as was confirmed in evidence at OH.

2. In considering file 16.GA.0004 for approval, An Bord Pleanála is not in my view constrained by that consent in considering the acceptability or otherwise of the Glengad site as the landfall for the onshore pipeline.
3. The onshore pipeline requires ABP approval in the present regulatory regime. SI Act 2006 in Section 182c (3) says “*The proposed development shall not be carried out unless the Board has approved it with or without modifications*” However the facts that approvals to the plan for development and that the consent to construct a pipeline had been issued and that the foreshore licence had been issued are a significant consideration of which the Board needs to take account in making a decision on the proposed development.
4. I have inspected the potential landfall sites at Inver, Glengad, Garter Hill, Portacloy, and Glinsk. I have reviewed the 2001 E.I.S. Route Selection carried out. It is my view that a suitable landfall had been identified at Glengad in 2001.
5. The proposed development at Glengad must be acceptable from a proper planning and from an environmental impact position on the same basis as the other parts of the proposed development.
6. The suitability of the site does not in itself constrain ABP in considering all aspects of the onshore pipeline proposed development.  
The suitability and the full examination of the proposed development is set out in the following chapters.
  - i. The impact of the proposed development at Glengad on the environment (Chapter 38 Natural Environment)
  - ii. The impact of the Glengad Landfall on the proper planning and sustainable development of the area and the Health & Safety of the community (Chapters 27-30 Safety)
  - iii. The visual impact of the proposed development at Glengad. (Chapter 42 Landscape and Visual Impact).
  - iv. Traffic (Chapter 44 Haul Routes and Traffic Plan)

#### 50.2.12 Chapter 20: Regulation of Pipeline

The conclusions in my 2009 report are valid and repeated below updated to reflect all submissions received by ABP from DEHLG, DCENR, Mayo County Council and CER.

1. Observer’s very real concerns contain a recognition by observers that a substantial safety regime and thorough and independent system for regulating the proposed development is what is required throughout the lifetime of the development.
2. The procedures for evaluating and approving design, construction, testing commissioning and operation of the proposed onshore pipeline were outlined by DCENR

in some detail in 2009 by way of submissions to ABP and in evidence at the 2009 OH.

3. These procedures were subject to much more detailed submissions by DCENR and the consultants advising DCENR on the section 40 application in submissions and in a lengthy question and answer section at the OH in 2010.
4. The Petroleum (Safety) Act 2010 has provided that the CER will be responsible for safety of the upstream gas pipelines.
5. The procedures being established by CER in the Petroleum Safety Framework will provide a comprehensive system of regulation for the proposed development. In my view the system as outlined will provide for the protection of the public. The system will be designed to govern design, construction, operation, maintenance, modification and decommissioning of petroleum infrastructure and to prescribe and control the operation of petroleum infrastructure to the applicable standards and codes of practice for the designated petroleum activation.

#### 50.2.13 Chapter 21: Extensification of Well Field

1. It is clear that there will be control through the Petroleum Lease, through the Plan for Development for the Corrib Gas Field Development and through the Consent to Construct a Pipeline on any proposed extensification or any addition of a new gas field into the upstream pipeline.
2. It is also clear that there will be control through the Petroleum Safety Framework being established by CER and through the Safety Permit system on any additional connection into the upstream pipeline.
3. In recommending below, that control of the use of the onshore pipeline and a requirement for appropriate planning permission to be obtained before connecting any new Gas Field to the proposed development I am conscious:
  - i. That the ABP has other options should the Board decide to grant planning permission for the 2010 modified proposed onshore pipeline development.
  - ii. The Board could (a) leave open the question of control of potential future Gas Field discoveries and/or (b) control such potential connections through a condition requiring DCENR and CER approval/consent before such potential future gas field discoveries could be connected.
4. In recommending that a planning approval be required I am conscious SEPIL have clearly stated the current permission is required for the Corrib Gas Field Development and nothing more. I am also conscious that the concerns of observers and in some ways the strength of opposition to the proposed modified development of the onshore pipeline is as a result of a fear that the process and decision-making machinery will work without adequate regard for local community and the issues of concern to the safety of that community and that such decision making will not be transparent.
5. The need for appropriate planning approval will, in my view, address these concerns in a manner that is not restrictive in any way in respect of the current applications that are before the Board for decision.

#### 50.2.14 Chapter 22: Project Splitting

1. In summary I find that the objection of project splitting is not well founded. The original approval to the Corrib Field Plan of Development in 2002 included an EIA procedure. The present application for the proposed development includes an E.I.S. which will be assessed by ABP. In relation to matters under construction on site I find that these are outside of my remit and they are not in my view relevant considerations for ABP in arriving at a decision on 16.GA.0004.
2. I have reviewed again the consideration of project splitting in Chapter 22 of my 2009 Report. I conclude that the issues involved were adequately addressed in that Report.
3. The project has to be progressed in discrete parts all integrated within the overall scheme but each such part relating to a particular statutory requirement for consent or permission. Project splitting has not taken place in my view.
4. The Applications before the Board 16.GA.0004 and 16.DA.0005 include a full E.I.S. and ABP will in due course perform the Environment Impact Assessment on the modified onshore pipeline development as proposed in the 2010 E.I.S.
5. There are aspects of the observers concerns which though expressed as one of project splitting are in my view more properly related to project monitoring and control on the construction activities of the applicant SEPIL. I will deal with those aspects in Chapter 41 Other Issues in the context of the proposal that a Project Monitoring Committee be established to oversee the construction of the project should ABP decide to approve the applications.

#### 50.2.15 Chapter 23: Boundaries of Permission

1. There were a number of matters raised which I have no authority to examine and I do not propose to do so:
  - i. 2002 EIA process
  - ii. The 2002 section 40 consent
  - iii. Construction of the offshore pipeline
  - iv. Undertakings given to the High Court in SEPIL v McGrath and Others
  - v. Issue relating to material widening of a means of access to a public road at Aghoos and that relate to the 2002 proposed development.
2. I am satisfied that ABP was correct in requesting revised drawings "...which fully describe the full extent of the onshore pipeline from the HWM to the terminal..." It was confirmed by SEPIL that works related to the construction of the onshore pipeline will extend into the areas between the chainage 83+400 cliff face and the HWM chainage 83+380 i.e. site works and fencing and the laying of the drainage pipe from the LVI and the head wall at the cliff face.
3. SEPIL's position, that the 2002 consent is valid in respect of the gas pipeline and such parts of the umbilicals and outfall pipeline as are laid at Glengad is concerned has been clarified by reference to the provision of section 22 subsection 3 of the Energy

Miscellaneous Act 2006 and by the decision of the High Court in the O'Donnell vs SEPIL case. However those parts of the proposed development that were not included in the 2002 consent i.e. the LVI and drainage pipeline for the LVI compound and associated construction works up to the HWM are properly part of the onshore pipeline and need to be included in this application. This has now been clearly done.

4. I am satisfied that it is construction practice that there be an overlap between the construction of the offshore and the onshore pipelines at Glengad where the offshore pipeline comes ashore. I am satisfied in regard to this overlap the offshore pipeline which has been laid at Glengad extends onshore and does so on the basis of the consent granted in 2002. I am also satisfied that the modified proposed development, the subject of these applications extends beyond the cliff face and as far as the HWM.

This proposed development as I have said above includes the LVI and associated drainage works and the works required for their construction.

5. The important point in regard to this overlap is that there is full clarity for all, for applicant, for ABP, for landowners, for general public, for the planning authority, for prescribed bodies, of the extent of development proposed in the application under consideration.

This is now fully clarified and I am satisfied that there is no uncertainty regarding the applications before the Board as it relates to the point of commencement and extent of the development.

6. I am satisfied that sufficient clarity of information has been made available between the 2009 EIS, the additional information provided at the 2009 OH (DRN OH2009 44) in particular) and the 2010 EIS together with the additional information provided at the 2010 OH to enable me to assess the issues involved.

7. I note for the record here the DCENR position that the Minister is of the view that the section 40 consent issued on 15/04/2002 is valid.

8. I note for the Board's information the High Court decision of 22/07/2010 (233 MCA/2009):

*“that there has to be a provision in law whereby if a matter changes, such as, as is argued in this case, the bringing into force of the Strategic Infrastructure Act 2006, that it is a matter of necessary implication of law that what has been permitted up to that point continues in force unless the new Act in some way affects it. But even if that were not the case, by reason of ordinary or necessary implication, it seems to me also to be clear that by reason of Section 22 of the Energy (Miscellaneous Provisions) Act 2006, the Oireachtas expressly provided for the continuance of previous consents whereby the continuing of a project under the Gas Act, 1976, was to be regarded as being lawful, notwithstanding the fact that in the meantime the Act which I have mentioned the Strategic Infrastructure Act, came into force, and that by reason of that planning permission need to be applied to, as it has now been applied to in relation to the land ward side of this, to An Bord Pleanála.*

*Part 8, Section 22, states that: “no approval shall be required in relation to a development referred to at Section 182C if-in the case of a development so referred to it has been subject to the grant of a consent under Section 39A or 40 of the Gas Act of*

*1976 before the commencement of this section and that consent is in force immediately before such commencement”*

*That is, it seems to me, a prophylactic measure which is probably not necessary as a matter of law, to state that where a new Act comes into force, and the new Act being the Strategic Infrastructure Act, does not specifically affect, by its expressed terms, a permission that has hitherto been given, that in fact once the permission has been given it has no effect at all on the permission, and that the permission continues to be valid as a matter of law”. Mr. Justice Charleton High Court 22/7/2010*

11. I am satisfied that the Advertisement placed by SEPIL properly describes that the development extends to the HWM.
12. Following on from the above conclusions, I do not accept the observer’s contention regarding that part of the offshore pipeline laid onshore that it requires a retention permission.

#### **50.2.16 Chapter 24: Protection of Prinking Water Sources**

1. While concern was expressed that a well on Mr. Philbin’s land at Rossport may be affected by the proposed development, I am satisfied that there should be no impact on this well. The proposed development is located a long distance from lands at Rossport and the construction proposed is located a minimum of 5.5m below the bed of Sruth Fada Conn. The construction will be within a tunnel under the Bay and the tunnel will be grouted on completion. On the basis of these factors I believe it is reasonable to conclude that should be no impact on Mr. Philbin’s well.

#### **50.2.17 Chapter 25: Construction Method and Programme**

I am satisfied with the consideration given to cliff face erosion by the applicant. I accept Mr. O’Donnell’s opinion that some form of natural coastal protection should be included in the works at the cliff face to prevent erosion. This matter also affects the foreshore as well as the cliff face.

The construction of the offshore pipeline pull in has involved a large excavation through the cliff at Glengad. The reinstatement of this cliff face has not been detailed. The Applicant does not expect the sand martin colony along this section of the cliff face to be able to use the restored site.

The beach apart from the immediate area at the base of the cliff face and to the HWM is outside of the site relevant to this application and comes within the remit of the DEHLG and the Foreshore Licence granted by DEHLG (now has responsibility for Foreshore Licencing) for the works concerned.

Any restoration plan that is required should be agreed with the appropriate authority DEHLG in respect of the Foreshore Licenced part of the overall site for the Corrib Gas Field Development.



1. I believe these revised proposals will reduce the environmental impact and these modifications represent a significant minimisation of impacts on the environment on the Glenamoy Bog Complex cSAC and the Broadhaven Bay pSPA.
2. The narrow bog rampart and residential roads in Rossport which will not now be traversed at all by construction traffic and the lengthened programme means that the Pollathomais and Glengad traffic on the L1202 will be of lower intensity.
3. The longer programme will allow the contractors involved to plan transportation and to include local community everyday events, funerals, etc. more fully within the programme of work.
4. I am satisfied with the methodology proposed for construction of the modified scheme.
5. I am satisfied following the analysis by Mr. O'Donnell in 2009 that the stone road technique is an acceptable method for providing access and for providing stability for the pipeline through the peat lands.
6. I am satisfied that SEPIL's proposal to tunnel underneath Sruth Fada Conn is a substantial mitigation on the overall impact of the development on the environment and on the local community.
7. I am satisfied that SEPIL's proposed tunnel is a superior method to the alternatives considered for that section of the pipeline.
8. SEPIL have demonstrated that tunnels have been used successfully for this type of pipeline requirement.
9. I am satisfied that the programme is now a practical programme and is achievable.

#### 50.2.18 Chapter 26: Security

The proposal to construct a tunnel under Sruth Fada Conn and to base the construction at Aghoos and to tunnel in one direction has a profound impact on a number of factors.

1. Security – All activity relating to the tunnel will now be secured on the Aghoos site which is located on L1202 and approached from R314 away from residential dwellings.
2. Length of Construction Site in Community – Effectively the length of the overall linear pipeline has been reduced by 0.9km, because the 2010 route is shorter than 2009 route by 0.9km, and by 4.9km because the new modified route will be underground and as such will only impact indirectly on the community as compared to the original proposal where an open cut trench was proposed through the Rossport Linear Residential Area. In overall terms then the impact of construction and securing that construction for 5.8km has been removed in 2010 scheme.
3. I am satisfied that the safety of the public from any risk due to third party intentional damage is protected by the design of the scheme.
4. The safety of the public from any risk to the pipeline from intentional third party damage is the central issue here, once that is acceptable then other secondary issues such as potential loss of production and/or potential environmental damage from third party interference can be assessed.

5. The security of the proposed development is a matter for SEPIL. They have indicated that a security review conducted by them after the event of 05/06/2010 has assessed that the gas pipeline is safe from foreseeable intentional third party damage. I am satisfied the issue has been fully considered by SEPIL in the E.I.S.
6. In the event that at any time SEPIL or DCENR or CER consider that there is a potential threat to production or security of supply then SEPIL can at that time take any appropriate course of action required to rectify that situation. Such is not the case here where DCENR has indicated:

***“Physical Security of Energy Installations***

*The Department undertook to clarify its role in relation to a Directive concerning the security of strategic energy infrastructure. Directive 2008/114/EC deals with the identification and designation of European critical infrastructures and the assessment of the need to improve their protection. It relates to energy and transport infrastructure.*

*Within the Directive, ‘European critical infrastructure’ is defined as critical infrastructure located in Member States the disruption or destruction of which would have a significant impact on at least two Member States. While the Directive requires the identification and notification of European critical infrastructure; it does not lay down specific guidelines or measures to be taken for their protection. Infrastructure relating to the Corrib Gas project has not been designated as European critical infrastructure and is unlikely to be so designated in the future, having regard to the fact that such infrastructure must be critical to two EU Member States.*

*As is the case with respect to downstream security, the onus for the physical protection of the infrastructure is the responsibility of the developer in the first instance and this is underpinned by the State security services.”*

7. The CER are only in the process of setting up their safety framework for upstream gas infrastructure under the Petroleum (Safety) Act 2010.

In this set of circumstances I am not prepared to recommend that ABP take any action with regard to the possible modification of the proposed development in this regard. SEPIL in evidence indicated that this was not necessary.

I have concluded that the safety of the public is provided by the design of the 2010 proposed development as submitted by SEPIL. For absolute clarity on this point, in my view the slabbing protection for the umbilicals will not add any further safety control nor will it mitigate or moderate the risks any further. The public are protected by the design of the scheme itself.

### 50.2.19 Chapter 27: Safety – Pipeline Design and Codes of Practice

1. The codes that apply to the pipeline have now been clarified. The design of the pipeline meets the requirements of the codes.
  2. Mr. Wright in his report indicates that he is satisfied with the clarity provided. Mr. Wright recommends that DCENR should issue a confirmatory document confirming DNV-OS-F101 for use on that section of the offshore pipeline onshore. DCENR should also confirm the supplements form IS 328, PD 8010, IS 14161 that apply to DNV-OS-F101.
  3. The 2010 proposed pipeline has the same design pressures [345barg offshore, 144barg onshore] as the 2009 proposed pipeline.
  4. The MAOP's have now been declared 150barg offshore and 100barg onshore. These provide additional factor of safety protection because the stress levels in the pipeline at these MAOPs will be considerably below the stress levels at the design pressures.
  5. The hydro test requirements for LVI and onshore pipeline will be 504barg.
  6. The concerns expressed by observers regarding the safety of the pipeline have been responded to in the 2010 E.I.S. which has a clear and transparent demonstration of the design of the pipeline and how that design protects the safety of the public.
  7. In my view the code requirements and the details of the technologies involved in the proposed development have been clarified and explained in a satisfactory manner in the E.I.S. and in the E.I.A. process which included the OHs of 2009 and 2010.
  8. I conclude that the concerns of observers have been addressed in the revised design in the E.I.S. and in the revised configuration proposed for the pipeline.
  9. Mr. Waite (ENTEC) consultant to DCENR has indicated to ABP at the OH that there are no major concerns sufficient to withhold a permit to construct a pipeline and that he will be advising DCENR accordingly.
  10. I am satisfied that a conservative approach has been taken to the design of the pipeline. I am satisfied that a set of robust technologies have been assembled by SEPIL to address the different design conditions that apply along this pipeline route.
  11. I have examined the design and details of the proposed development in conjunction with Mr. Wright Gas Consultant and with Mr. O'Donnell Geotechnical Consultant. I am satisfied at the information provided and the analysis provided is satisfactory.
- On the basis of Mr. Wright's Reports of 2009 and 2010 and on the basis of Mr. O'Donnell's Report of 2009, I conclude that the design of the pipeline is satisfactory.

### 50.2.20 Chapter 28: Safety – Quantified Risk Assessment

1. The QRA is an acceptable method for evaluating risks near pipelines.
2. The QRA provided in the 2010 E.I.S. is substantially in compliance with the request of ABP of 2/11/2009.
3. QRA analysis is one factor in the decision making process – codes and standards, the Qualitative Risk Analysis, the Consequence Analysis, expertise and experience of designers and experience across the industry has also to be considered in the assessment of the proposed development.

4. While SEPIL's costs have not been considered in this assessment there is very clearly a significant increase in costs in the modified 2010 scheme over the 2009 scheme because of the tunnel proposed.
5. I accept and agree with Mr. Wright's conclusion that the margin of safety between the risk levels calculated ( $2.9 \times 10^{-9}$  per year at pipeline,  $1.8 \times 10^{-11}$  per year at nearest house) and the level set by ABP as broadly acceptable ( $1 \times 10^{-6}$  per year) is necessary to cater for any potential uncertainties that may have occurred by adopting a composite database.
6. The Advantica Report recognised that there were uncertainties in the risk analysis and that there were societal concerns. Advantica as a result recommended 144barg for the onshore pipeline.
7. In my view, the uncertainties have now been addressed by the modified 2010 scheme MAOPs, offshore well overpressure protection system, LVI overpressure protection system, the reliability standards adopted for the overpressure protection system and particularly by the ABP routing distance standard.
8. The Qualitative Risk Analysis provided by SEPIL demonstrates that SEPIL have a comprehensive system that will manage the operational phase of the proposed development – the PIMS.

#### 50.2.21 Chapter 29: Safety – Landfall Valve Installation

The following conclusions are based on the assessment that has been conducted of the LVI as presented in the 2010 E.I.S. and on details provided by SEPIL at both 2009 and 2010 OHs. My conclusions are informed by Mr. Wright's analysis and by his Reports in 2009 and 2010.

1. I am satisfied with the clarity and transparency and completeness of the information provided.
2. The part of the site nearest LVI where ALARP risk levels apply (between  $10^{-5}$  to  $10^{-6}$ ) is within a 63m radius of the LVI.
3. The pipeline and LVI are located at a satisfactory distance from existing dwellings at LVI and in Glengad. Compare 216m consequence hazard distance to 246m (distance to pipeline) existing house proximity and 280m nearest house to LVI.
4. I am satisfied that SEPIL have provided satisfactory justification for their proposed configuration of the system which includes LVI and MAOP offshore and onshore.
5. I am satisfied that SEPIL have considered the alternative configurations of venting at Glengad and/or locating the LVI directly on the 20inch gas pipeline itself rather than on a loop. SEPIL consider that these alternatives are not materially superior to the proposed configuration. In the end of the day SEPIL must configure the scheme and ABP must then assess the configuration as proposed by them. I am satisfied with the configuration as now proposed.
6. I am satisfied that concerns of observers have been included in considerations and design of the scheme as now presented in the revised E.I.S. The LVI as presented in this application is a high integrity overpressure protection device for the onshore pipeline.
7. I am satisfied that the onshore pipeline and the LVI as set out in the revised E.I.S. does not pose an unacceptable risk to the public.

8. I am satisfied and I have a degree of confidence that the onshore pipeline and LVI does not pose an unacceptable risk to the existing normally occupied dwellings (this effectively means all dwellings except the one SEPIL own at Aghoos).
9. I am satisfied that SEPIL have provided sufficient information to enable me to conclude that an adequate overpressure protection system has been proposed for the LVI. The reliability of the LVI has been independently verified and will be approved or otherwise by DCENR.
10. I am satisfied that SEPIL have provided sufficient information to enable me to conclude that an adequate overpressure protection system has been proposed for the offshore pipeline. The reliability of the offshore overpressure protection system is being examined by specialists for DCENR and will be approved by DCENR.
11. Mr. Wright's Report confirms that the analysis of the LVI carried out by SEPIL provides robust technical justification for the proposed LVI configuration.
12. The impact on the development potential of lands in the immediate vicinity of LVI is not significant. This is because the pipeline and LVI are at a distance from L1202 where such development may take place in the future.

#### 50.2.22 Chapter 30: Safety – Overall Summary on Safety

1. I accept Mr. Wright's Report. I propose to ABP that ABP accept that report.
2. The details of Mr. Wright's Report have been considered under Chapter 27 – Pipeline Design and Codes of Practice, Chapter 28 – QRA/Consequences of failure, Chapter 29 – LVI Adequacy of Proposed Installation. Mr. Wright's Report (2010) provides the basis for my conclusions. Mr. Wright's Report (2009) has also made a substantial contribution to the analysis and overall assessment of the issue of safety of the public from this proposed development.
3. The onshore pipeline proposed has been examined in detail. I find the design of the scheme is acceptable.
4. I am satisfied that the pipeline routing is now acceptable.
5. The proximity distance between the pipeline and the nearest occupied dwelling calculated as the appropriate distance as set out by ABP provides a margin of safety in the event of a worst case scenario full bore rupture of the pipeline.
6. The ABP standard for proximity to houses is not a recognised standard however it is based on Advantica's suggested best practice approach for routing the pipeline in remote low density population areas.
7. The ABP standard is a high standard. I believe this is correct and necessary in this case.
8. The QRA for the proposed pipeline has been examined in detail. I find the QRA as submitted to ABP is acceptable.
9. The risk to the public from the pipeline and from the LVI have been calculated. These risks are low and are acceptable.
10. The consequence of a full bore rupture in the pipeline has been evaluated. All residential dwellings are outside the consequence distance and provide safe shelter as required to comply with the standard set out by ABP in their letter of 2/11/2009.

11. The scheme has been reconfigured with MAOP's being declared and incorporating revised overpressure protection systems. The revised configuration is acceptable.
12. The design of the LVI has been re-examined. I find that the risk to the public from the LVI is low and is acceptable. The configuration of the LVI proposed is considered acceptable.
13. Mr. Wright has concluded that the proposed development does not pose an unacceptable risk to the public. Mr. Wright has concluded that the risk to the public from the LVI and from the pipeline is low and is acceptable.
14. In my view, ABP can now decide to approve the pipeline with confidence that it does not pose a threat to the safety of the public nor a threat to the safety of the local community.

#### 50.2.23 Chapter 31: Waste

1. I believe it should be a requirement of any permission being considered for the project that the E.M.P. contain a method statement whereby the waste for disposal be minimized as part of the Waste Management Plan.
2. I also believe that stone for disposal should be the subject of a separate agreement with Mayo County Council and rather than be disposed, the stone should be reprocessed for re-use as part of that agreement, the location and function of re-use to be part of that agreement also.
3. For the absence of any doubt on this, I do not agree that stone be left in place at the request of the landowner (as had been proposed in 2009). This would have the affect of patchwork reinstatement and would have a significant and long term impact on the visual environment. I therefore recommend that reinstatement of lands be fully carried out as part of the proposed works in accordance with details contained in the E.I.S. 2010.
4. I am satisfied with the proposals as outlined in the E.I.S. for management of waste generated during the construction project.
5. I am satisfied that the proposal to use the Environment Management Plan to detail the ongoing management of wastes is the appropriate way for this to be achieved.

#### 50.2.24 Chapter 32: Outfall Pipe

1. The outfall pipe was considered fully in the 2009 Inspectors Report.
2. The consideration of this outfall discharge pipeline in 2009 was complete and the recommendations from that previous report are repeated below.
3. The additional analysis requested by ABP has been included in the modified E.I.S.
4. I am satisfied that no further issues arise in respect of the outfall discharge pipeline.

#### 50.2.25 Chapter 33: Umbilical

I am satisfied that SEPIL have provided the analysis requested by ABP and that the robustness of the umbilicals, service cables and ducts have been demonstrated satisfactorily in that analysis



### 50.2.26 Chapter 35: The Tunnel

1. I am satisfied that investigation of the soils/geology under Sruth Fada Conn Bay have been presented. In my view a sufficient set of information is available to ABP on which to base a decision.
2. I am also satisfied that the soils/geology of the tunnel have been placed in the context of deposits within the overall geological context of the area.  
E.I.S. reference – Chapter 15.1, Figure 15.1
3. The tunnel proposed through Sruth Fada Conn is in my opinion the best route for the proposed development when considered under the proper planning and sustainable development of the area.
4. The tunnel proposal has a profound effect on reducing the impact of the construction project on the residents in the area and on the environment in the area.
5. The Aghoos compound site is well suited and very well located both from visual point of view, from being outside the Natura 2000 sites point of view and from an access point of view for traffic.
6. The method of construction of the grouted pipeline in the tunnel has been demonstrated to be a substantial and satisfactory method for constructing the pipeline underneath Sruth Fada Conn Bay.

### 50.2.27 Chapter 36: Peat Stability

1. Mr. O Donnell in 2009 in his examination of the then proposed development in the peat lands concluded that it was acceptable.
2. SEPIL have now provided an integrated set of design documentation as required by ABP.
3. I am satisfied that this documentation provides confirmation for the 2010 scheme that the pipeline can be constructed successfully without generating peat instability.
4. I am satisfied that the construction of the 12 m wide stone road in lieu of a 9 m stone road will not pose any risk of peat instability. I am also satisfied that Mr. O Donnell in his analysis and report 2009 satisfied himself with the method proposed for the stone road construction.
5. I also note that the side casting of peat as proposed has been assessed by SEPIL using the qualitative risk assessment methodology proposed by Mr. O Donnell and is considered acceptable. I noted on my site visits that that portion of stone road constructed between 90+700 and 91+500 near the terminal varies in width 11 m and more and that side casting of peat in this area has been used.

#### 50.2.28 Chapter 37: Stone Road Method

1. The 2009 Inspectors Report largely dealt with the stone road issues.
2. Mr. O'Donnell's report [Reference Appendix 3 to the Inspectors 2009 Report] dealt very fully with the stone road construction proposed.
3. I have reviewed again the recommendations in Mr. O'Donnell's report and my recommendations below have been made to give effect to Mr. O'Donnell's recommendations.
4. I am satisfied that the 12m width for the stone road as proposed is acceptable, it will provide a greater width for construction of the pipeline in the peat lands.
5. I am also satisfied that the reduced working width of 9m in the intact Blanket Bog habitat is a positive mitigation measure for that area. It is also proposed that construction and backfill including returving will be conducted in this section at as early a time as possible in the programme to reduce the impact of the development on this section of blanket bog and to assist in restoration of vegetation there as quickly as possible.
6. The stone road is an acceptable method for construction in peat lands. The work needs to be carried out by an experienced contractor and under the supervision of an experience Geotechnical Engineer. The work also needs to be conservatively designed. All these recommendations from Mr. O'Donnell's report are included below.

#### 50.2.29 Chapter 39: Habitats Directive Assessment

1. In light of the extent of the proposed development and in light of the extent of the site involved, the technology proposed for the construction, the duration of the proposed construction works, the Natura 2000 designated sites in that location, ABP need to carry out an appropriate assessment.
2. SEPIL have presented sufficient information in the E.I.S. and in the additional information provided to ABP to enable the appropriate assessment to be carried out.
3. Observers concerns that the proposed development is likely to have a significant impact on the integrity of Natura 2000 sites, in particular Blacksod/Broadhaven Bay SPA Glenamoy Bog Complex cSAC Broadhaven Bay cSAC is not accepted.
4. It is accepted that the proposed development has the potential threats which could cause negative impacts. However, the development as proposed in my view provides the construction technology and construction techniques required so that those potential threats of negative impacts can be managed, controlled and mitigated without significant impacts on the sites. In my view, as proposed, the development is not likely to have a significant impact on the integrity of the sites.

The potential threats include:

- The potential requirement for an intervention pit
- The potential risk of peat instability
- The potential for spillage and contamination arising from the construction works at Aghoos Compound
- The potential impact from Noise/lighting/air quality threats at Aghoos

### 50.2.30 Chapter 40: Peat Deposition Srahmore

1. The haulage of peat and the deposition at Srahmore is similar to that activity whereby 450,000m<sup>3</sup> of peat were moved and deposited from the terminal site.
2. The method used on the previous occasion was by general agreement successful and managed satisfactorily. This is also borne out by a lack of any negative comment or objections at both OH.

### 50.2.31 Chapter 41: Other Relevant Considerations

1. The National Framework for Major Emergencies has been put in place and sets a high standard for preparedness for emergencies. The fact that this is an up to date framework and that independent audit of the framework have taken place, provides confidence that is required in regard to how a major emergency on this proposed development will be responded to by all the agencies. I am satisfied that a comprehensive emergency planning regime will apply to the proposed development.
2. It is clear that the Sevesco Directive does not apply to the onshore gas pipeline.
3. SEPIL have indicated that the Emergency Response Plan will be incorporated within the Corrib asset-wide documented emergency response planning and provisions – i.e. integrated with the Terminal Emergency Response Plan.
4. I note the requirement that in the case of Sevesco sites, the internal emergency plans for an establishment site involve consultation with the workers there. The external emergency plans involve consultation with the public [Article 11(3) 96/82/EC].
5. It is clear that the Emergency Response Plan and the adoption and approval of that plan is not a matter for ABP approval as part of the consideration of these applications that are before the Board for decision.
6. The 2010 scheme is very different in impact as regards development potential of lands to the 2009 scheme. In my view there is very little impact.
7. I do not accept the argument that this development will lead to an exodus of local people. I see no reason for this to be the case.
8. The development potential of lands in Glengad, Pollathomais and Aghoos will not in my view be diminished or impacted by the proposed development.
9. I expect that family members wishing to locate near to their family owned land/residence will be able to do so subject to the normal planning criteria that will apply to such development.
10. I am not convinced by arguments that the proposed development will affect the insurability of dwellings at Glengad. I expect this may have more to do with the landslides in 2003. Insurance companies understand risk and risk levels and can factor these into their evaluation of the insurable risk. I accept SEPIL's position on this issue.

### 50.2.32 Chapter 44: Haul Routes and Traffic Plan

I have considered the information provided in detail. I am satisfied that a comprehensive assessment of the traffic involved has been carried out. I am satisfied that a comprehensive assessment of the traffic carrying capacity of the existing road network to handle the volumes

of traffic involved has been carried out. I am also satisfied that an adequate assessment of the peak hour volumes of traffic has been prepared for the junctions on the haul route.

I have obtained clarification of the sight distances and signage details proposed at the Access A and B at Aghoos tunnelling compound and at the entrance to the Srahmore peat deposition site.

The 2010 Traffic Management Plan is a big improvement on that proposed in 2009. In particular the decision to tunnel under Sruth Fada Conn and a tunnel in one direction from Aghoos has reduced very significantly the traffic impacts on Pollathomais and Glengad.

I am impressed that the longer time programme now envisaged (26 months) will provide flexibility for the applicant to respond to community derived traffic needs be they (1) school drop off pick up times, (2) local funerals, (3) use of the L1202 by community bus or service vehicles, (4) vulnerable people using the road as pedestrians cyclists etc.

I am impressed that the revised 2010 proposed development includes stronger Traffic Management and Control logistics and a good management structure to deliver the transportation requirements of the project.

I am also impressed that adequate measures to mitigate the impact of the traffic use on the Haul Route are being adopted – speed controls, full radio contact with vehicles, breakdown plan for HGV's, driver code of conduct and training and monitoring regime.

I am satisfied that the R313, R314, L1204 and L1202 from its junction with R314 to Pollathomais junction with L5243-0 have been improved to a good standard and that these roads and the junctions involved can cope with the traffic proposed for the construction of this project.

As regards the L1202 from its junction with L5243-0 through Pollathomais and to Glengad, I note parts of this road have not been widened. I note that much reduced level of HGV traffic estimated for this road in the 2010 proposal. I am satisfied that the convoy system is a workable system. I am satisfied with the speed control measures proposed for his section of road.

I am satisfied with the proposals regarding those areas at McGraths Public House and McEleneys where properties are close to the road.

I am satisfied with the monitoring proposals for vibrations and for control of vibrations from HCV's - road surface quality to be maintained, speed reductions to be implemented and vibration monitoring to be verified.

I conclude that the Traffic Management Plan and Haul Route proposals are satisfactory.

## 50.2.33 Chapter 45: Route Selection

### 50.2.33.1 On Route Selection and Tunnel Chainage 83+880 to 88+770

1. Glengad as the landfall was confirmed by SEPIL following reconsideration by them of the options available in 2007.
2. SEPIL confirmed in [2009 OH] evidence that the landfall itself is not part of this 16.GA.0004 application. In other words SEPIL believe the Glengad location for landfall has been established and is a constraint on ABP in considering 16.GA.0004.
3. In my view the proposed development, including the landfall at Glengad, must satisfy the same planning requirements in respect of the onshore pipeline at Glengad as elsewhere along the pipeline route. In reality then I do not accept that the landfall at Glengad constitutes a restraint on ABP from considering the proper planning and sustainable development of the area and the impact of the proposed development on the environment. The landfall must pass these tests if it is to be acceptable.
4. The 2002 consents are significant considerations for the Board to have regard to as required under Section 143 of the P & D Act 2000.
5. The planning permission that exists for the terminal is a significant consideration for the Board.
6. I find that the route selected for the 2010 modified proposed development is one which is respectful of the community concerns regarding proximity to dwellings. The route is now located at a distance from dwellings which effectively means that the dwellings and those who live there would be safe even in the event of a worst case scenario, a full bore rupture of the pipeline.
7. I find that the route selected meets the requirements of ABP invitation of 2/11/2009 in the following manner:
  - i. SEPIL have selected a route generally up underneath Sruth Fada Conn Bay, i.e. Route C
  - ii. The proximity distance standard against which ABP indicated that the proposed development would be assessed has been demonstrated in E.I.S. to have been achieved. I am satisfied that it has been achieved. Mr. Wright in his report (and as discussed in Chapter 30 under Safety) has assessed this and he has found that SEPIL have achieved that proximity standard.
  - iii. The revised operating pressures MAOP and the revised route have reduced the risk to the public a low risk level and to an acceptable level. The risks are set out in Chapter 28 QRA. In fact by the standards used by the gas industry, the risks to the public from Corrib Onshore Pipeline are conservative.
8. I also find that the construction method proposed – an underground segmented lined tunnel bored in one direction from a tunnelling compound at Aghoos – has the following important characteristics:
  - i. The tunnel method underneath Glenamoy Bog Complex cSAC and Blacksod Broadhaven Bay pSPA is a proven construction method that will have only slight impact on the ecology and little or no impact on the conservation objectives of these sites.

- ii. The tunnelling compound at Aghoos is not within a Natura 2000 site. While the compound is adjacent to the cSAC and pSPA the proposals for managing the site will in my view and in the view of Mr. O’Sullivan who has assessed the impacts of the proposed development on the Natural Environment mitigate any potential impacts satisfactorily. This compound will be restored at the end of construction so any impacts (noise, light, visual in particular) from the compound will be temporary.
- iii. The concentration of construction activity for 4.9km of the linear construction project at the Aghoos compound and which can be reached over a haul network of good well improved roads L1202, L1204, R314 and in an area that is not residential has reduced significantly the traffic impacts of the proposed development on the rural linear residential areas – Glengad, Pollathomais, Rosspport.
- iv. The concentration of 4.9km of construction activity at Aghoos removes this activity from within the community and consequently all the other non traffic impacts on community are also reduced.

#### **50.2.33.2 Landfall and Glengad Pipeline Route to chainage 83 + 880**

The selection of Glengad as the landfall site has been dealt with in Chapter 19 above.

The landfall is acceptable from a Natural Environment point of view (Chapter 38). The landfall is acceptable from a ground stability point of view (Chapters 34 and 38). The landfall is acceptable from a landscape and visual impact point of view (Chapter 42). I am now satisfied regarding the safety of the public in Glengad from the risks posed by the pipeline and from the LVI. These have been discussed in Chapters 27-30 where the overall conclusion is that the risk to the public from the pipeline at Glengad is low and is acceptable. The risk to the public from the LVI at Glengad is low and is acceptable.

Accordingly I am now satisfied that the route including the landfall itself from landfall at HWM to chainage 83+880 (tunnel reception pit) is acceptable. This section of the route is in my view in accordance with the proper planning and sustainable development of the area. This section of the route will have an impact on the environment, that impact will be slight negative (loss of habitat at LVI compound) and is acceptable.

#### **50.2.33.3 Section from Chainage 88+770 to Chainage 91+720**

I am now satisfied regarding the safety of the public from the risks posed by the pipeline in that area between the tunnel launch pit and the terminal. These risks have been discussed in Chapters 27-30 where the overall conclusion is that the risk to the public from the pipeline is low and is acceptable.

Accordingly, I am satisfied that the route from Aghoos tunnel launch pit back to the connection into the terminal is acceptable. This section of the route in my view is in accordance with the proper planning and sustainable development of the area. This section of



the route will have an impact on the environment, that impact will be slight negative and is acceptable.

#### 50.2.34 Chapter 46: Environment Impact Assessment

1. SEPIL present a strong argument that vibrations will not cause any problems and will be well within acceptable ranges.
2. Evidence has been provided in respect of TBM vibrations and vibrations from traffic convoy and the vibrations from pile driving at the reception and launch pits and rock breaking at the reception and launch pits.
3. Observers concerns have been raised on waterbourne vibrations, marine mammals and fish, Dooncarton susceptibility to vibrations, property damage issue and traffic damage issues.
4. Mr. O'Sullivan has been satisfied with the information provided in the E.I.A. process regarding the characterisation of noise predictions and regarding the range/frequencies detectible by marine mammals and fish. He has concluded that the proposed development is acceptable in this regard.
5. I am satisfied that SEPIL's proposal to carry out pre-construction structural surveys and vibration monitoring on an ongoing basis these measures will provide control data on vibrations.
6. As outlined in Chapter 34 Landslides at Dooncarton I am satisfied that the proposed development does not pose a threat to the stability of Dooncarton Mountain.
7. I conclude that an appropriate condition on vibration monitoring is the appropriate control for the proposed development.

#### 50.2.35 Chapter 49: Acquisition Order

I have examined the proposed development in detail and I have come to the following conclusions.

1. SEPIL, in modifying the proposed development in response to the invitation by ABP, has reduced very much the extent of the Compulsory Acquisition of rights over lands involved.
2. The rights over lands being acquired are well removed from the residential dwellings of the landowners and are well removed from the L1202 from which the landowners affected obtain access to their lands.
3. The areas affected and the rights being acquired are minimal and will have very limited impacts on the farming activities of those landowners involved. The impacts will be simply a loss of use of the area of land affected for a period of up to 26 months in total.
4. The areas affected are at or near the end of the fields in questions and so the impact on the remainder of the holding will be minimal.
5. The rights over lands that are sought are reasonable and not excessive taking into account the development that is proposed. They are a minimum requirement in my view to enable the construction of the project.

6. I find that overall the proposed development is acceptable.
7. I can see no reason why ABP should not confirm this Acquisition Order.
8. As discussed in Chapter 33, the spare umbilical, outlet pipe, fibre optic cable and electrical cable should be extended through the sites of each of the lands over which rights are proposed to be acquired. Accordingly, I believe ABP should modify the order to allow the construction of these spare services.

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## Chapter 51 Recommendations 182c Application

### 51.1 Overall Recommendations

I have examined the files relating to the Corrib Gas Pipeline 16.GA.0004 and 16.DA.0005. I have conducted the Oral Hearing. I have received the reports of Mr. Stephen O'Sullivan on Natural Environment, Mr. Nigel Wright on Design and Safety and Mr. Conor O'Donnell on Ground Movement and Peat Stability.

This report presents my assessment of the issues involved as detailed on a chapter by chapter basis. Each chapter contains my conclusions on the issues considered there. Each chapter contains my recommendations on the issues considered in that chapter. For quick reference I present below at 51.2 each of the recommendations. I have consolidated the conditions into one set under category headings in Chapter 52.

I have concluded my examination of this file. I have conducted the Oral Hearing in 2009 and 2010. I have considered the E.I.S. submitted and all the submissions received by the Board as well as all the additional information presented at the Oral Hearing. I have prepared as detailed and as brief a report as possible on the issues that I consider need to be addressed by ABP.

My overall recommendation to ABP is that ABP should now decide to:

- 1) Accept the report of Mr. Stephen O'Sullivan on the Natural Environment.
- 2) Accept the report of Mr. Nigel Wright on Design and Safety of the Pipeline.
- 3) Accept the report of Mr. Conor O'Donnell on Ground Movement and Peat Stability.
- 4) Confirm that the ABP are satisfied that the development meets the standards as set out by ABP in its letters of 21/11/2009 and 21/01/2010 and against which ABP indicated that the development would be assessed.
- 5) Declare that the risk posed by the proposed development to the public is low and is acceptable.
- 6) Conclude in the E.I.A. that the project is acceptable and does not pose a risk to the environment.
- 7) Conclude that following an Appropriate Assessment under Article 6(3) of the Habitats Directive, that the proposed development is not likely to have a significant impact on the integrity of the Natura 2000 Sites (1) Glenamoy Bog Complex cSAC, (2) Blacksod Broadhaven Bay pSPA and (3) Broadhaven Bay cSAC.
- 8) Decide not to invite the Applicant SEPIL to modify the scheme by the construction of slabbing to protect the umbilicals.
- 9) Decide to inform the applicant, SEPIL, that ABP will be prepared to consider an application under Section 146B of the Planning and Development Acts 2000-2006 for modification of slabbing in the event that SEPIL decide to make such an application.
- 10) Decide to invite SEPIL to modify the scheme by extending the spare duct, spare umbilical, spare fibre optic cable and spare electrical cable to Landfall and to the Terminal from the respective ends of the tunnel.

- 11) Decide to fix a substantial Community Gain Condition on this development to provide a fund to support the development of facilities and services and local community needs and which would constitute a substantial gain to the community.
- 12) Approve the modified proposed development as set out in the 2010 E.I.S.
- 13) Decide to approve the application subject to the conditions set out in Chapter 52.
- 14) Decide to approve the Acquisition Order.
- 15) Decide to modify the Acquisition Order as set out to align with the modification proposed at Recommendation 10 above in respect of the spare services.

**Signature:** \_\_\_\_\_  
**Martin Nolan, Inspector**

**Dated: 3<sup>rd</sup> January 2011**

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## 51.2 Chapter by Chapter Recommendations

The following are the individual recommendations as set out in each chapter. These are set out below for quick reference. It is important to note that in certain cases the recommendation really needs to be read in the context of the discussion that leads up to the recommendation.

### 51.2.1 Chapter 17: Project Monitoring

SEPIL shall be requested to establish a group within the Project Monitoring Committee structure and reporting to the PMC and subject to the agreement of Mayo County Council. The group would work to provide a local liaison function for communications feedback and review of ongoing issues on the construction site.

- (a) Representatives of the local community who are prepared to represent their community to the best of their ability.
- (b) Management of SEPIL who will be prepared to be responsive to issues of concern locally.

**Reason:** To establish a direct system of local liaison between the applicant and the local community

### 51.2.2 Chapter 17: Video/Photography Control

SEPIL shall establish a system whereby all photography and video footage taken by SEPIL employees, contractors, anyone associated with the proposed development, be controlled. The system and method of control shall be set out for agreement in the EMP. SEPIL shall pay to Mayo County Council the costs involved in putting in position a person who will verify that the control system for images is working properly and that a system for destroying such images is put in place. While this condition will be onerous on all concerned, the uncontrolled use of photo and image footage would not be an acceptable impact of the proposed development.

**Reason:** To manage and protect the privacy of the local community from any unnecessary impact from photo or video imagery.

### 51.2.3 Chapter 20: DCENR Confirmation of Satisfactory Completion

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 satisfaction of the competent authority DCENR. Confirmation to be provided accordingly to Mayo County Council Planning Authority 14 days before the pipeline commences operating.

**Reason: 1.** In order to ensure that before the pipeline becomes operational that the

development has been completed properly to the satisfaction of the competent authority DCENR.

2. In the interests of protecting the Health and Safety of the Public

#### 51.2.4 Chapter 20: Safety Permit

Prior to commencement of operations of the Corrib Gas Field Development the Petroleum Undertaker SEPIL shall obtain a safety permit from CER (or DCENR as appropriate at that time). A copy of the safety permit shall be submitted to Mayo County Council the Planning Authority 14 days before commencement of operations.

**Reason:** In the interests of protecting the Health and Safety of the Public.

#### 51.2.5 Chapter 20: Emergency Plan

Prior to the commencement of the operation of the pipeline SEPIL shall obtain the agreement of the Planning Authority for a plan for the control of traffic close to the terminal close to the LVI and in the vicinity of the route of the pipeline for use in the event of a major accident.

**Reason:** In the interest of Health & Safety.

(see also Chapter 41)

#### 51.2.6 Chapter 21: Regulate Gas Constituents

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 onshore pipeline shall be the subject of an appropriate planning approval.

**Reason:** To ensure proper regulation of the development and to protect the integrity of the onshore pipeline.

#### 51.2.7 Chapter 24: Protect Drinking Water Sources

I recommend that prior to construction, the location of wells which serve as water supply sources shall be identified and that these wells shall be monitored before, during and after construction.

**Reason:** To protect existing wells in the area.



SEPIL shall include in the EMP a detail method statement for construction of surface water drainage and discharge from the construction site in the chainage 91+420 to chainage 91+720 area approximately, i.e in the Carrowmore Lake Catchment. The EMP shall be agreed by Mayo County Council. Surface water from the construction project shall not discharge into the Carrowmore Lake Catchment.(Chainages given here refer to the 2010 chainages)

**Reason:** To protect the Carrowmore Lake Water Supply

#### 51.2.8 Chapter 25: Cliff Face at Glengad

SEPIL shall, as part of the EMP, set out a detail method statement for the reinstatement works to be implemented on the beach between the HWM and the cliff face at Glengad. This shall be agreed with Mayo County Council and DEHLG foreshore section.

A drawing should be prepared detailing the heights of materials and elevation treatment of the reinstatement of this cliff face for approval by Mayo County Council.

**Reason:** To ensure that the restoration of the cliff face is constructed in appropriate materials and to a satisfactory standard for combating erosion and for visual treatment of the reinstated cliff face.

#### 51.2.9 Chapter 25: Beach at Glengad

SEPIL shall make arrangements such that access to the beach at Glengad will not be unduly restricted for the duration of the construction works and while the construction spread is in situ across the traditional access to the beach at Glengad.

**Reason:** To ensure that the amenity of the beach at Glengad is protected for public use during the construction works.

#### 51.2.10 Chapter 25: LVI and Access Road to LVI

Sufficient care and attention is taken in the final reinstatement of the road side margins and that the work is supervised by the project ecologist

**Reason:** To ensure that the integrity of the cSAC is maintained in the reinstatement work

The Measures to mitigate the visual impact of the proposed development set out in Chapter 10 of the modified E.I.S. on Landscape and Visual Assessment and submitted with the application shall be implemented in full in the course of the development.

**Reason:** To protect the visual amenity and character of the area.

#### 51.2.11 Chapter 26: Modification (Slabbing Protection)

My view is that ABP should not request this modification of the proposed development (slabbing to protect umbilicals).

### 51.2.12 Chapter 26: Alternative Consideration

In the event that ABP decide to approve the proposed development and in the event that ABP wish to take a wider perspective of this issue then in my view ABP will require (a) proper details of the proposal to include engineering details, specification details, location details and construction methods; (b) proper consideration of the likely impacts of the proposed slabbing protection for the umbilicals and service cables. This should include environmental considerations and the assessment of same; (c) justification for the construction of this slabbing now and the implications for proper planning and development of the area if this slabbing is not constructed now but is required at a later time; (d) analysis of potential settlements of the slabbing and the potential for differential settlements to stress the gas pipeline itself. In such an event ABP may wish to inform SEPIL as follows:

- i. The Board is not prepared to request a modification of the proposed development in relation to slabbing protection for the umbilicals under 182C 5(b) as was suggested by SEPIL at OH;
- ii. The Board is prepared to consider an application made under Section 146B for an alteration to be made to the development should SEPIL decide to request such alteration.

### 51.2.13 Chapter 30: Safety

These are based on Mr. Wright's Report and are in effect his recommendation on safety.

1. The complete onshore pipeline shall be hydrotested to 504barg pressure.
2. SEPIL shall obtain from DCENR a document confirming the code supplements that apply to DNV.OS.F101 when used for the onshore sections of the offshore pipeline. Note this was confirmed at the OH but needs to be formally documented.
3. The security of the LVI compound at Glengad should be modelled on a standard that reflects its national importance to the energy supplies of Ireland and the public profile of the Corrib Gas Pipeline.  
SEPIL should redesign the security fencing at the LVI to include a double high security fence and gates with a suitable flood lit zone between the inner and outer fence. The outer fence should be electrified for additional protection.  
Note: I believe this can be accommodated within the area of the LVI set down and I believe this additional fence can be laid out so as not to be visually intrusive in the landscape.
4. SEPIL should set up the required instrumentation to measure ground movements at the areas of concern. These are at the landfall valve offshore pipe interface, at the transition areas between the grouted pipe in the tunnel and the buried sections, in the stone road at the deep peat sections and at the interface between the newly laid sections of the stone road. Also SEPIL should deploy stable strain gauges (including vibrating wire gauges with protective housings) on the pipeline to verify the maximum predicted stress levels on the pipe and confirm the modeling accuracy. The instrumentation needs to remain

insitu until steady state levels are confirmed and a sufficient period of time has elapsed to ensure exposure to a variety of environmental conditions.

5. The reliability rating of the offshore pipeline overpressure protection system shall be verified by the external independent source or the Regulator, DCENR or CER as the case may be.
6. The reliability of the onshore pipeline overpressure protection system shall be verified by the independent source or by the Regulator, DCENR or CER as the case may be.
7. An Annual Pipeline Report shall be made, submitted to the independent Regulator for the pipeline, DCENR or CER as appropriate and a summary of this report shall be submitted to Mayo County Council and made available to the public.

#### 51.2.14 Chapter 31: Waste and Pollution Control

The surface water system for the construction site shall be redesigned to cater for a storm event of 1/100 year return frequency.

**Reason:** To prevent flooding the excavation works and to protect the water quality in Sruwaddacon Bay.

Prior to the commencement of development, the developer shall obtain the agreement of the planning authority for an Environmental Management Plan (EMP), specific to the construction of the pipeline, tunnelling and LVI sites. The EMP shall include as a minimum the following –

- i. Management and Reporting Structure.
- ii. Schedule of Environmental Objectives and Targets, including objectives for the minimization of suspended solids movement to surface water systems, and effective management of all silt and settlement pond flow discharges during periods of high precipitation.
- iii. An Environmental Management Programme.
- iv. Corrective Action Procedures.
- v. Awareness and Training Programme.
- vi. Communications Programme.
- vii. Details of surface water management during construction to prevent runoff from the site onto the public roads, unnatural flooding and/or the occurrence of any deleterious matter in existing watercourses in accordance with CIRIA “Technical Guide: Control of Water Pollution from Liner Construction Projects” (C648, 2006). The developer shall implement the agreed EMP for the duration of the earthworks and construction phase of the development. On written request by the planning authority, the developer shall submit a report on any specific environmental matter or an environmental audit.

**Reason:** In the interest of environmental protection and the proper planning and sustainable development of the area.

The EMP shall be the subject of an annual review by the planning authority, following consultation with the Project Monitoring Committee. The developer shall modify the EMP in accordance with any reasonable requirement of the planning authority, at any stage.

**Reason:** In the interest of environmental protection and the proper planning and sustainable development of the area.

The EMP shall provide for monitoring of surface water, dust and noise. The monitoring shall be undertaken in accordance with the requirements of Mayo County Council and, in respect of surface water, shall be in accordance with CIRIA “Technical Guidance: Control of Water Pollution from Linear Construction Projects” (C648, 2006).

Any alterations to the agreed monitoring regime shall be subject to agreement with the planning authority, following consultation with the PMC. Such monitoring shall be carried out by the developer throughout the construction of the pipeline, tunnelling and LVI (to the date of commissioning of the pipeline and LVI).

The monitoring plan contained in the EMP shall provide details of right of access to MCC appointed staff to carry out environmental monitoring checks as required, or as requested by the PMC. Costs incurred by the planning authority in carrying out any necessary monitoring, monitoring checks, inspections and environmental audits, shall be reimbursed by the developer.

**Reason:** In the interest of proper environmental control during the earthworks and construction phase.

Results shall be submitted to the planning authority on a fortnightly basis or at other such intervals specified by the planning authority (following consultation with the Project Monitoring Committee). All results shall be made available for public inspection within seven days of receipt.

**Reason:** To prevent water pollution.

All surface waters to be discharged from the site shall be monitored for suspended solids and any other parameter at the required frequency as determined by Mayo County Council the planning authority before discharge from the site.

Monitoring results shall be submitted on a weekly basis to the planning authority initially and this may be varied by agreement with the planning authority. The results shall be placed on public display by SEPIL within seven days of receipt of the results.

Prior to discharge all surface waters shall receive appropriate sedimentation and filtration. The details of sedimentation, filtration and attenuation proposals shall be agreed with the planning authority prior to commencement of the excavation. These details shall include maintenance routines for the sedimentation and filtration facilities.

The surface water from the construction site that lies within the Carrowmore Lake catchment shall be collected, attenuated and taken through silt settlement ponds before being discharged into the Leenamore River Catchment.

The detailed arrangements for management and monitoring the surface water shall be documented separately and agreed to in writing with Mayo County Council.

The existing surface water system that serves the applicant's site and that discharges into the Carrowmore Lake Catchment shall be monitored initially on a daily basis and then at a frequency to be agreed with Mayo County Council for a full range of parameters to be agreed with Mayo County Council before commencement of construction works and continuing during the construction works.

**Reason:** it is necessary to put in place a full monitoring programme and control system for the surface water discharge to prevent water pollution and to protect the drinking water supply source at Carrowmore Lake.

### **Liquid Wastes**

All tank and drum storage areas on the sites shall, as a minimum, be bunded to a volume not less than the greater of the following –

- 110% of the capacity of the largest tank or drum within the bunded area, or
- 25% of the total volume of substance which could be stored within the bunded area.

**Reason:** To prevent surface and ground water pollution.

All fuel storage areas and cleaning areas, particularly for trucks, shall be rendered impervious to the stored or cleaned materials and shall be constructed to ensure no discharges will cause pollution to ground waters.

**Reason:** To prevent surface and ground water pollution.

The developer shall maintain on the sites for the duration of the construction period, oil abatement kits comprising of booms and absorbent materials. The precise nature and extent of the kits shall be agreed in writing with the planning authority prior to commencement of development.

**Reason:** To prevent water pollution.

### **Waste Disposal**

The Applicant shall include a waste minimisation plan in the EMP for the solid waste emanating from the construction works site.

The Applicant shall enter into an agreement with Mayo County Council regarding the disposal of the estimated 62,200m<sup>3</sup> of stone from the site. The agreement shall provide for the storage and/or reprocessing if necessary of the stone for appropriate reuse.

**Reason:** To minimise waste arising from the proposed development.

No waste material, other than material being transferred to a licenced waste facility, generated on the sites during the construction phase shall be removed off the sites without the prior agreement of the planning authority.

**Reason:** To provide for the appropriate management of waste and in the interest of protecting the environment.

Prior to commencement of development, the developer shall submit, and obtain the agreement of the planning authority to a plan containing details for the management of waste (and, in particular, recyclable materials) within the development, including the provision of facilities for the storage, separation and collection of waste and, in particular, recyclable materials, and for the ongoing operation of these facilities

**Reason:** To provide for the appropriate management of waste and, in particular, recyclable materials, in the interest of protecting the environment.

### **Sanitary Waste Facilities and Management**

Sanitary facilities shall be installed in the compounds and on the site of the construction works and on the site of the peat deposition area for the duration of the construction project. All waste generated from such facilities shall be disposed of by a licenced waste contractor to an appropriate approved treatment works. The facilities provided, the transportation of the sanitary waste and the disposal, shall be agreed with the planning authority, Mayo County Council.

**Reason:** In the interest of public health.

All sanitary facilities on site shall be managed effectively to ensure that no nuisance and no discharge or pollution arises from the use, operation transport and movement of these facilities to and from the site and what in operation on the site.

**Reason:** In the interest of public health

### **Tunnel Arisings**

Prior to disposal of materials from site that have derived from tunnel arisings testing shall be carried out on the materials to confirm appropriate waste disposal options.

**Reason:** To protect the environment.

### **51.2.15 Chapter 32: Outfall Discharges**

Any discharges through the outfall pipe shall be in accordance with the IPPC licence (P0738-01) (P0738-02) granted by the EPA or any revision that may be granted to such licence.

**Reason:** To ensure that an adequate system of control will apply to any such discharges.

The surface water discharge pipe at the LVI shall not be used for any other purpose than the discharge of surface water from the LVI site.

**Reason:** To Protect the environment and to prevent any contamination from being discharged.



### 51.2.16 Chapter 33: Modifications

ABP should decide in accordance with 185c 5(b) to invite SEPIL to modify the proposed development by including in the construction for the spare duct, spare umbilical, spare electrical signal cable, spare fibre optic cable from the terminal to the landfall valve site.

**Reason:** In the interests of proper planning and sustainable development of the area.

### 51.2.17 Chapter 34: Vibration Control

Vibration monitoring should be carried out during construction as provided in the E.I.S. – generally and in the specific detail provided at Oral Hearing [DRN OH 25].

The monitoring shall include:

- 1) Monitoring at the Aghoos Tunnel Launch Pit Area
- 2) Monitoring at the Glengad Tunnel Reception Pit Area
- 3) At each site monitoring vibration from (a) Piling activity (b) Rock Excavation activity (c) Tunnel Boring Machine activity. In the case of the Glengad site as the TBM makes its way towards the site.
- 4) Monitor at 25m and 50m from the source on two orthogonal planes aligned parallel and perpendicular to the predominant foliation or schistosity of the rock or as close to parallel and perpendicular as may be practicable.
- 5) The monitoring should serve to characterize the site specific ground response to these construction activities and shall provide verification data for review of the model predicted vibrations.
- 6) An interpretative report and the data of the monitoring activity to be provided to Mayo County Council and to the PMC and published via web in accordance with monitoring procedures established.
- 7) Vibration shall not exceed the standards set out in NRA Guidelines for Treatment of Noise and Vibration in National Road Schemes as follows:

Allowable vibration velocity (PPV) at the closest part of any property to the source of vibration at a frequency of

Less than 10Hz For all vibrations >10Hz

8 mm/sec 12.55 mm/sec

**Reason:** This is necessary to provide control on vibrations and to provide control information on the dissipation of vibration and to ensure there is no impact arising from such excavation works.

### 51.2.18 Chapter 35: Lighting Control

#### Night Lighting at Glengad

General works at Glengad shall be carried out in normal daytime working hours. Where work is required outside normal working hours at Glengad the approval of Mayo County Council, the Planning Authority shall be obtained for such period of work on each occasion.

**Reason:** To control the impact of the development on the residential amenity of the area

Where night lighting is proposed to be used at Glengad the impact of these lights on the area outside the work areas shall be mitigated in the same way as is proposed at Aghoos – selection of appropriate lanterns, downward, inward facing lights, baffle boards at lights at periphery, lights to be switched off when not required.

**Reason:** To protect the residential amenity of the area.

Monitoring of lighting impacts at the residential properties nearest and at those most likely to be impacted by night lighting shall be carried out on completion of the lighting installation and any necessary adjustments shall be made so that light nuisance is not caused at those residential properties.

**Reason:** To protect the residential amenity of the area.

### 51.2.19 Chapter 36: Peat Stability

Prior to construction of the Stone Road in the peat lands pre-construction examination of the site by experienced Engineer/Geologist as provided in the E.I.S. and Risk Register shall take place.

In particular in relation to those areas identified in the qualitative assessment of relative potential for peat failure of medium potential and high potential the following should apply:

- a. The design of the Stone Road proposed and the design of the stone compound at Aghoos shall be reviewed and confirmed in light of the examination and the conditions of the site at the time of construction.
- b. Side casting of peat should be restricted as follows:
  - No side casting of peat shall take place in those areas of relative high potential for peat failure
  - No side casting of peat shall take place at any location ahead of the completed Stone Road i.e. where side casting peat, the area on which the peat is being placed shall lag behind the area where the Stone Road is being constructed so that peat is not sidecast adjacent to an open or partially backfilled excavation.
  - No side casting of peat shall take place either where the slope on the surface or at the base of the peat is greater than 3 degrees
  - No side casting of peat shall take place within 25m back from a break in slope greater than 3 degrees.

Notwithstanding the above, the designer shall carry out the necessary site investigation, design and analysis to confirm that the stability of the peat repository will be acceptable at the time of construction. Specific consideration shall be given to areas where the alignment of the road is perpendicular to the slope contours which means that it will not be possible to sidecast upslope from the stone road. In these areas the peat repository will

not be supported by the stone road and will be 'floating' on the existing surface of the peat.

Within the stone road, the rockfill below the trench for the gas pipeline and umbilical shall extend beyond a minimum 1V:1H influence line from the sides of the trench at pipe invert level down to the base of the peat.

**Reason:** To ensure stability of peat and to protect the environment from any peat slide damage.

The pre-construction site investigation shall be carried out as provided in the E.I.S.

Method statements for construction works in the peat lands shall be developed using conservative design values and applying conservatively the risk mitigation measures set out in the E.I.S. risk register.

The work shall be supervised by an experienced Geotechnical Engineer with specific experience in peat lands construction. An experienced contractor with specific experience of construction in peat shall be used for the construction.

**Reason:** To protect against peat instability.

#### 51.2.20 Chapter 37: Stone Road

I recommend that ABP accept Mr. Wright's recommendations as follows:

*"It is recommended that SEPIL set up the required instrumentation to measure ground movements at the areas of concern. These are; landfall valve site interface with offshore pipeline, at the transition areas between the grouted pipe in the tunnel and the buried sections, in the stone road at the deep peat sections and at the interface between the existing and newly laid sections of the stone road. Also SEPIL should deploy stable strain gauges (including vibrating wire gauges with protective housings) on the pipeline to verify the maximum predicted stress levels on the pipe and confirm the modelling accuracy. The instrumentation needs to remain insitu until steady state levels are confirmed and a sufficient period of time has elapsed to ensure exposure to a variety of environmental conditions."*

**Reason:** In the interest of protection of the Health and Safety of the public.

In the construction of the pipeline care shall be taken in those areas where the pipeline is being laid within the stone road and below the peat in the mineral soil. In those areas peat plugs shall be installed across the stone road section at either end of those sections and at centres in between not greater than 100m apart.

**Reason:** To prevent the stone road and pipeline construction acting as a preferential drain in the peat.

### 51.2.21 Chapter 38: Natural Environment

All mitigation measures described in sections 12, 13 and 14 of main volume of the environmental impact statement submitted to the board on 31<sup>st</sup> May 2010, in the addendum to that statement and in the submissions from the applicant to the oral hearing convened at Belmullet on 24<sup>th</sup> August 2010, shall be carried out in full during the course of development.

**Reason:** In order to protect the natural heritage of the area.

In the event that an intervention pit becomes necessary, this shall only proceed with agreement of NPWS regarding the management of the construction and restoration works on the site.

**Reason:** To protect the natural environment.

In the event that an intervention pit becomes necessary the agreement of the Dept. Of Agriculture, Fisheries and Food shall be obtained to the construction and restoration works on the site and to any works in the vicinity of the licenced beds in Sruth Fada Conn Bay.

**Reason:** To protect the environment of the licenced beds.

Should an intervention pit be required it is recommended that a condition of any permission for the development should be to agree timing and methodology to be used for the intervention pit with NPWS, Inland Fisheries Ireland, and relevant regulatory authorities prior to commencement of works to ensure that impacts on passage of migratory fish and relevant qualifying interests of designated Natura 2000 sites in the areas are minimized.

- Liaison with these Agencies should continue throughout the construction period.
- The Leenamore open cut crossing should be discussed with NPWS and Inland Fisheries with regard to proposed construction methodologies prior to commencement of construction.
- The recommendations are submitted without prejudice to the outcome of the Separate Foreshore Licence Application process and are for the purposes of meeting the Department's obligations under the Planning and Development Acts.

**Reason:** To protect the Natural Environment

**Intervention Pit:** In the event of an intervention pit being required in the SPA then mitigation as proposed in the EIS shall be implemented in full and the NPWS shall be notified in advance of construction disturbance in the Natura 2000 sites to be minimized and potential noise impacts must be fully evaluated and mitigated to minimize impact on marine mammals.

**Habitat Reinstatement:** To minimize the potential disturbance to waterbirds, the Leenamore crossing should be completed in as short a time as possible and the habitat reinstatement measures in section 6.2.1.4 must be implemented in full.

**Site Compounds:** Mitigation as per section 6.4 (minimize disturbance) must be implemented in full including acoustic screening and implementation of a lighting regime that minimizes intensity and extent of light into the SPA.

Only the nominated entry exit points shall be used away from the seashore and activity outside the compounds during tunnelling works must be kept to a minimum.

**Tunnel Boring Machine:** Mitigation measures in Section 14.5 must be fully implemented.

**Rock Breaking at Glengad:** No blasting to occur as a method of rock breaking.

**Environmental Management Plan:** The EMP should be circulated to the DEHLG for comment.

**Reason:** To protect the Natural Environment.

During vegetation clearance required for the carrying out of the development, the developer shall monitor all areas of dense vegetation affected by the development which could not be thoroughly searched during the ecological surveying. Such monitoring shall be carried out by appropriate ecological experts.

**Reason:** In order to provide necessary faunal monitoring.

No development shall take place until method statements, including construction and access details, details of mitigation measures, an appropriate scale plan showing ecologically sensitive areas where any construction activities are restricted and where protective measures will be installed or implemented, details of protective measures (both physical and sensitive working practices) to avoid impacts during construction, and a timetable to show phasing of works, including a schedule of sensitive periods for wildlife when works should cease or be curtailed should be prepared and agreed in writing with the relevant authorities.

**Reason:** In order to protect the ecology of the area.

Prior to commencement of development, the developer shall obtain the agreement of the planning authority for an ecological monitoring plan to ensure that all mitigation measures proposed in the Environmental Impact Statement submitted to An Bord Pleanála relating to the protection of habitats, flora and fauna are carried out. Monitoring shall be carried out by a suitably qualified ecologist who shall liaise with the Project Monitoring Committee.

**Reason:** In the interest of protecting the environment

### 51.2.22 Chapter 39: Appropriate Assessment

I have examined the proposed development, the site proposed and I have considered Mr. Stephen O'Sullivan's report on the issue of an appropriate assessment as required by Article 6(3) of the Habitats Directive. I recommend that ABP accept Mr. O'Sullivan's Report

I have examined the proposed development and I have assessed the site, the observers submissions and the prescribed bodies submissions. I recommend that it would be in order for

ABP to conclude following appropriate assessment that the proposed onshore pipeline development is not likely to have a significant impact on the integrity of the Natura 2000 sites in the area.

I also recommend that it would be in order for ABP to conclude that subject to conditions the proposed development in light particularly of the proposal to tunnel in one direction from Aghoos under the Bay will not cause any likely impacts that will affect the integrity of the Natura 2000 sites, Glenamoy Bog Complex cSAC and Blacksod/Broadhaven Bay pSPA, Broadhaven Bay cSAC.

#### 51.2.23 Chapter 40: Peat Deposition Srahmore

“The deposition of peat at the site at Srahmore authorised by this permission shall be carried out in accordance with the description of development provided in volume 3 of the Environmental Impact Statement submitted with the application and all the mitigation measures described therein shall be carried out in full.

**Reason:** In order to clarify the scope of the authorised development and to protect the environment and amenities of the area”.

Before peat haulage commences, the developer shall obtain the agreement of the planning authority, with regard to the following –

- i. Regular survey of the road surface along the haul route during the haulage and construction period. At minimum, a survey shall be carried out on a weekly basis during peat haulage during the remainder of the construction period.
- ii. Target tolerances for the road surfaces and response times for repairs.
- iii. Liaison with the Project Monitoring Committee.

In the event of target tolerances being exceeded and in the absence of necessary maintenance of the road surface, the planning authority (following consultation with the Project Monitoring Committee) may require the cessation of all haulage activities or construction traffic directly related to the development.

**Reason:** To ensure the proper maintenance of road surfaces during the construction and haulage periods in the interest of traffic safety.

All vehicles leaving the construction areas of the sites shall pass through an appropriate wheel cleansing area. The details of wheel cleansing which shall include full wheel wash where appropriate shall be set out and agreed with the roads authority in the EMP.

The developer shall take all reasonable measures to ensure that no material shall leak or fall from vehicles transporting waste from the terminal site. Before haulage of waste commences, the developer shall obtain the agreement of the planning authority in relation to details of vehicles and methodologies to be used to ensure the prevention of such leakage.

**Reason:** In the interest of amenity, the proper planning and sustainable development of the area, and traffic safety.



The haul route and schedule of haulage for the construction phase of the development shall be clearly documented and published in a manner to be agreed with the planning authority. All HCV's and other commercial vehicles visiting the sites on a regular basis (twice a week or more), shall have a clear notice visible to the public identifying involvement with the development and the vehicle reference number identifying each such HGV.

**Reason:** In the interest of traffic management and to make provision for control and review of vehicles.

An independent safety audit on the upgraded haul route shall be carried out and agreed with the planning authority prior to the commencement of haulage of peat. The audit shall have regard to:

- (a) The proposed 60 km/hr speed limit for HGV's.
- (b) The spacing of HGV's in convoy.
- (c) Pedestrian use of the haul route.
- (d) School traffic at Pollatoma's and the proposed stand down of haulage during pick-up and drop-off times at the school.
- (e) The operational aspects of the Traffic Management Operatives.
- (f) Vehicle break-down incident management.
- (g) Emergencies and full access for emergency vehicles to the route at all times.

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

#### 51.2.24 Chapter 41: Local liaison within Project Monitoring Committee

In the event that ABP decide to grant permission for this development I therefore recommend that SEPIL be requested to establish a group within the Project Monitoring Committee structure and reporting to the PMC and subject to the agreement of Mayo County Council. The group would work to provide a local liaison function for communications feedback and review of ongoing issues on the construction site and haul route.

- (a) Representatives of the local community who are prepared to represent their community to the best of their ability.
- (b) Management of SEPIL who will be prepared to be responsive to issues of concern locally.

**Reason:** To establish a direct system of local liaison between the applicant and the local community within the monitoring structure of any planning approval.

#### 51.2.25 Chapter 41: Project Monitoring Committee

Mayo County Council should implement an appropriate project monitoring committee for the construction phase of this development.

The PMC should have two representatives from Kilcommon Parish elected in accordance with procedures and conditions to be decided by Mayo County Council. This should include procedures which will enable the PMS to operate effectively in all foreseeable circumstances for the duration of the construction phase of the development.

Within the PMC structure a local liaison should be maintained between SEPIL management and the local community. The purpose of this local liaison group would be to provide (1) two-way communication locally on issues arising with construction and traffic such as local funerals, school events, or other community activities that may be impacted by construction and traffic (2) to provide feedback and input from the community on these issues (3) to enable review of the issues arising following the feedback to take place by SEPIL and SEPIL's contractors.

#### 51.2.26 Chapter 41: Emergency Plan

The onshore upstream pipeline shall not be operated for the purpose of bringing gas onshore from the Corrib Gas Field until such time as an emergency response plan has been prepared for the area between Glengad, Rossport, Aghoos and Bellanaboy. The plan shall have been agreed by HSE, Mayo County Council and Gardaí and shall be in compliance with any requirements set down in the Major Emergency Plan for the area.

The preparation of the Corrib Pipeline Emergency Response Plan shall include consultation with the public on the details to be contained in the plan.

**Reason:** In order to ensure that a fully detailed emergency plan is in place in the interests of public health and safety in the area.

#### 51.2.27 Chapter 42: Visual and Landscape Amenity

The perimeter fence proposed at the site in Aghoos shall be carefully planned, detailed and constructed such that a regular even line in height, texture and alignment shall be achieved.

**Reason:** To mitigate the appearance of the fence in this landscape.

All boundary fencing at Aghoos and at the Glengad compound sites shall be coloured (dark green or brown is suggested) and shall be subject to approval of Mayo County Council.

**Reason:** To mitigate the visual impact of the fencing in the landscape.

The lighting control within the compound at Aghoos and the compounds in Glengad shall be designed such that lighting can be switched off at night in those areas of the compound where lighting is not required at night.

**Reason:** To mitigate the impact of lighting in the landscape at night.

The measures to mitigate the visual impact of the proposed development set out in section 10 of the environmental impact statement submitted to the board on the 31<sup>st</sup> May 2010 and in the submissions made by the applicant to the oral hearing which convened at Belmullet on 24<sup>th</sup> August shall be implemented in full in the course of the development.

**Reason:** To protect the visual amenity and character of the area.

### 51.2.28 Chapter 43: Hydrology

The SC2 reception pit construction shall be protected from inundation by a severe storm event and from any overflow of Channel 2.

**Reason:** To prevent any damage to the Environment that may result from an overflow of this channel.

The mitigation measures proposed for the construction of the stone road in peat lands as set out in the E.I.S. Section 15.4.3 and in Tables 15.4 and 15.5 shall be implemented in full.

That particular attention be taken in the final detailing of the stone road where it approaches the Leenamore river and the two streams and ditches to ensure that permeability barriers to restrict free drainage through the stone road itself are installed at those locations.

The construction detail for the compounds regarding drainage and restoration in the peat lands shall be similar to that used for the stone road.

**Reason:** To ensure that the impact of the stone road on hydrology of the peat lands is minimised.

That a conservative approach be taken to the S.W. drainage system which should be redesigned to cater for a 1/100 year event.

**Reason:** This will reduce the risk of surface water contributing to any peat instability. This will also reduce the risk of potential pollution arising in Sruwaddacon Bay or in the freshwater river and stream systems where the surface water will discharge.

All the construction work in the peat land shall be supervised by an experienced geotechnical engineer who should liaise with the eco-hydro geologist to ensure that hydraulic paths in the peat are identified, marked and reinstated satisfactorily.

**Reason:** To ensure that the impact of the stone road on hydrology and eco hydrogeology of the peat lands is minimised.

### 51.2.29 Chapter 44: Traffic and Haul Route

On the L1202 between Pollathomais and Glengad the maximum speed for HCVs working on the project shall be 50km/hour. The lower speed restrictions as set out on 6013-1015 and in respect of McGrath's Bar (20km/hour) shall also apply.

**Reason:** In the interests of road safety on L1202.

The visibility at the site junctions proposed at Aghoos and the visibility at the existing entrance to Srahmore Deposition site shall be in accordance with NRA standards in the revised details provided at the OH [DRN OH 133].

**Reason:** To ensure that road safety standards are achieved at these junctions.

Before development commences, other than works directly associated with preconstruction surveys, the owners/developers (and their successors in title) shall enter into legally binding agreement(s) with the planning authority under section 47 of the Planning and Development Act, 2000. The agreement(s) shall provide for the following:

- a) the satisfactory landscaping of the LVI site, including the maintenance and provision of planting and site restoration, in accordance with the Landscape details contained in the E.I.S. and subject to agreement with the planning authority. These works to be supervised by the project ecologist.
- b) payment to the planning authority of all costs incurred by Mayo County Council in relation to the repair, maintenance and rehabilitation of the road network arising from the construction of the development, determined by the Road and Bridge survey to be carried out prior to and post construction in accordance with a further condition of this permission; the amount of such costs shall be as agreed between Mayo County Council and the developer or, in default of agreement, shall be determined by An Bord Pleanála,
- c) restoration of the LVI site and way leave to the satisfaction of the planning authority following the cessation of gas transportation, including the removal of items of equipment over ground and removal of facilities to grade level,
- d) full implementation of the Traffic Management Plan, contained in the E.I.S. and as may be amended by the conditions of this permission or by agreement of the Mayo County Council and Gardai.
- e) payment of the planning authority's reasonable costs in engaging transportation personnel to monitor the Traffic Management Plan, and the provision of office accommodation and telecommunications facilities on site for such personnel, and
- f) payment of the planning authority's reasonable costs in engaging environmental personnel to monitor implementation of the Environmental Management System, required by way of further condition, and the provision of office accommodation and telecommunications facilities on site for such personnel.

**Reason:** To ensure satisfactory control of the development in the interest of the proper planning and sustainable development of the area.

All agreements with the planning authority, required by way of the conditions in this permission, shall be in writing and copies of such agreements shall be made available for public inspection during normal office hours at the planning authority's offices, and at the developer's offices in Belmullet.

Monitoring results required under the conditions of this permission shall be submitted to the planning authority electronically and in hard copy form, and shall be made available for public inspection during normal office hours at the planning authority's offices, and at the developer's offices in Belmullet. The developer shall develop a computerised database for the recording and transfer of monitoring data; the design of the database shall be subject to agreement with the planning authority.

**Reason:** In the interest of clarity and transparency, and to facilitate ease of interpretation of all monitoring data collected and recorded.

### **Transportation and Traffic Management**

The following traffic management measures shall apply –

- (a) Haulage of all excavated peat from the site to the Deposition site shall be restricted to the designated Haul Route, and the return of all unladen haulage vehicles shall be along the haul route. No haulage of peat shall commence until such time as those improvements required by Mayo County Council of the relevant section of the Haul Route have been completed
- (b) The maximum number of Heavy Commercial Vehicle (HCV) movements along the haul route shall not exceed as set out in the scheme documents. The developer shall keep a record of all traffic movements into and out of the sites, and a copy of this shall be available for inspection by the planning authority and the Project Monitoring Committee on request.
- (c) All signage detailed in the Traffic Management Plan shall be erected prior to the commencement of the haulage of peat or construction materials and equipment and shall be maintained during construction works. Prior to this, or during the haulage period, the developer shall erect any other signage required by the planning authority to facilitate the safe haulage of construction materials.
- (d) A school traffic warden shall be engaged to travel on each of the school buses or to travel in tandem with the school bus using the Haul Route so as to facilitate the safe embarking/alighting and road crossing by children at all times during the haulage of peat. Arrangements shall be put in place that the HCV traffic using the Haul Route shall stand by at the drop off times and pick up times at the schools.
- (e) The potential impact of traffic management proposals and the convoy system shall be monitored on the bus schedules.

**Reason:** In the interest of efficient traffic management, road safety and public safety.

The developer shall be responsible for the carrying out of a Road and Bridge survey before and after the construction period. The extent and precise content of the survey, which may be carried out by Mayo County Council at the developer's request and which shall generally relate to the road network directly and indirectly affected by the proposed development, shall be subject to agreement with the planning authority.

**Reason:** To facilitate the determination of damage attributable to the proposed development, and to ensure the proper maintenance and reinstatement of roads and bridges following construction.

### **Construction Programme:**

An E.M.P shall be agreed 2 weeks before commencement of the proposed onshore upstream pipeline. That the E.M.P shall contain among other matters, details of the pre construction surveys and method statements for construction, and shall detail how seasonally sensitive works are to be accommodated in the programme. The E.M.P shall contain details of the updated programme for the proposed works.

**Reason:** To ensure adequate time is provided for the agreement of the EMP and to protect the environment.

Prior to the commencement haulage on any section of the haul route, the roads comprising that section of the haul route shall be improved and strengthened and maintained as may be required by Mayo County Council in accordance with an agreement to be entered into with Mayo Co, which agreement shall include any other such works for the haul route as Mayo County Council or Gardai may require.

**Reason:** In the interests of Road Safety.

### 51.2.30 Chapter 45: Route Selection

I recommend to ABP that the route selected for the onshore upstream Corrib Gas Pipeline development as proposed in the 2010 E.I.S. be accepted. The route and the proposed configuration of the development is acceptable and the risk posed to the public by this route and by this configuration of the proposed development as set out in the 2010 E.I.S. is low and is acceptable.

### 51.2.31 Chapter 46: Archaeology

DEHLG National Monuments Section recommend that Monitoring be carried out at this site and included as a condition of any permission that may issue

Archeological Monitoring shall consist of the following:

- Applicant shall engage the services of a suitably qualified Archaeologist
- The Archaeologist should monitor ground disturbance works associated with the development
- This should include all areas outlined in the EIS. The mitigation measures outlined in Table 16.7 should be implemented in full
- 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 Heritage and Planning Division 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

In the event that ABP decide to grant a permission for this development then I recommend the following condition:

The mitigation measures outlined in Section 16.5 of the E.I.S. should be implemented in full.

**Reason:** To ensure that where archaeological material is uncovered the appropriate notification of DEHLG takes place and that agreement is confirmed on the best way to preserve the material uncovered.



The developer shall facilitate the planning authority in the archaeological appraisal of the site and in preserving and recording or otherwise protecting archaeological materials or features which may exist within the site. In this regard the developer shall

- (a) Notify the planning authority in writing at least four weeks prior to the commencement of any site operation (including any further hydrological and geotechnical investigations) relating to the proposed development.
- (b) Employ a suitably qualified archaeologist with relevant experience in peatland archaeology prior to commencement of development. The archaeologist, who shall work under licence, shall assess the site and monitor all site development works.
- (c) Provide satisfactory arrangements for the recording and removal of any archaeological material which may be considered appropriate to remove. The archaeologist shall be responsible for reporting any finds, without delay, to the planning authority. In such event, works shall cease in the affected area and shall not recommence until such a time as mitigation measures (if any) agreed with the planning authority have been carried out, and
- (d) Submit a report to the planning authority detailing the results of the monitoring.

**Reason:** In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site. [Mayo County Council Submission]

### 51.2.32 Chapter 46: Noise

#### Glengad

All construction work shall be programmed as far as possible to avoid working between 19.00p.m. and 07.00a.m. Where night working at Glengad becomes necessary the programme shall be agreed with Mayo Co. Co. Only essential works shall be carried out. Audible tones and impulsive noise should be avoided at night. Noise generation at night shall be controlled on site and kept to the lowest possible achievable levels.

#### Noise Levels

<i>Day</i>	07.00a.m. – 20.00p.m.	65dB L <sub>AEQ</sub>	
<i>Night</i>	20.00p.m. – 07.00a.m.	Target level for design:	35dB
		Calm night maximum level:	40dB
		Overall maximum level:	45dB

#### Aghoos

Only essential work shall be carried out between 17.00p.m. and 07.00a.m. Audible tones and impulsive noise should be avoided at night. Noise generation at night shall be controlled on site and kept to the lowest possible achievable levels. Noise levels at the nearest noise sensitive receptor (dwelling) shall not exceed

<i>Day</i>	07.00a.m. – 20.00p.m.	65dB L <sub>AEQ</sub>	
<i>Night</i>	20.00p.m. – 07.00a.m.	Target level for design:	35dB
		Calm night maximum level:	40dB
		Overall maximum level:	45dB

**Reason:** To protect the residential amenity of the area.

During construction and haulage, noise levels shall be kept to a minimum. Any activity that will result in a significant increase in the ambient noise levels, for example, piling or rock breaking, shall be notified to the Project Monitoring Committee in advance. Advance notice of the schedule of such activity shall be made available to the general public by way of public advertisement.

**Reason:** In the interest of public health and residential amenity.

### 51.2.33 Chapter 46: Environmental Impact Assessment

I find the modifications proposed by SEPIL in response to ABP invitation acceptable and I recommend that ABP conclude this EIA process by deciding that the proposed development is acceptable, that the risk posed by this development to the general public is acceptable, that the impact of the proposed development on the environment is associated largely with the construction phase, that such impact will be temporary and that where there is a residual or permanent impact that it is acceptable.

### 51.2.34 Chapter 48: Community Gain

SEPIL shall provide a Community Gain Investment Fund over each of the 5 years for the benefit of the community in the area of the proposed development.

The Investment shall be paid to Mayo County Council on an annual basis commencing in the year that ABP decide to approve the proposed development.

Mayo County Council shall, through the County Development Board agree on a Community Development Plan for the Area. The plan and the area to be covered by the plan shall be subject to wide consultation and should be put in place within 9 months of the grant of any approval by ABP. The plan shall be proposed by the County Development Board and adopted by Mayo County Council. The plan shall be independent of the Investment Fund. The objectives, services and actions contained within the plan shall provide the context against which the Investment Fund will be disbursed and against which application for funding will be considered.

Nothing in this condition shall be interpreted as an exclusion of the Local Grants Programme, the Scholarship Programme, the Corrib Natural Gas Erris Development Fund Projects from receiving support from this new Community Gain Investment Fund.

The Investment shall be €1.7 Million per annum, a total of €8.5 Million over the life of this Community Gain Investment Fund.

Nothing in this condition shall prevent SEPIL from continuing to invest in the local community after 5 years.

**Reason:** To provide substantial community gain for the area in which the development is located and which has wide needs for social and community services and support.

The developer shall make a contribution of €20,000 to the Regional Arts Centre at Belmullet in a form to be agreed with Mayo County Council.

**Reason:** To provide for community facilities in accordance with section 182D (6) of the Planning and Development Acts 2000-2006.

#### 51.2.35 File 16.DA.0004

#### **Inspectors Recommendation on the submission made by Casey & Co. Solicitors on behalf of Ms Muller 13<sup>th</sup> September 2010.**

ABP should in my opinion finalize the position with regard to File 16.DA.0004 the acquisition order and the letter of 31/5/2010 from SEPIL seeking to withdraw the application. The options available to the Board are in my view as follows:

- To accept or reject the letter of withdrawal from SEPIL,  
In this regard ABP letter of notification of having received a letter of withdrawal to affected parties is noted. ABP may have already decided to accept the letter of withdrawal and ABP may now consider that application withdrawn and no longer before ABP for decision. This I think needs to be clarified as it is not clear from the File 16.DA.0004 at this point in time.
- In a case where the Board decide to reject the letter from SEPIL which seeks to withdraw the FILE 16.DA.0004 application then ABP may take a decision on the acquisition order File 16.DA.0004.  
In this regard my recommendation (2009 above) will assist the Board.

Or

The Board may defer finalization of its decision on File 16.DA.0004 until the Board is in a position to consider my report on File 16.DA.0005 and in light of its consideration at that time take its decision on File 16.DA.0004 in association with its decision on File 16.DA.0005.

#### 51.2.36 Chapter 49: Acquisition Order File Reference 16.DA.0005

ABP should approve the Acquisition Order.

In the event that ABP decide to approve the project and to approve this acquisition order, I recommend that ABP in approving the acquisition order decide to modify the order as follows:

Add the following into Paragraph 3(2)(a) of the order:

*“The construction works shall include the construction of a spare duct, spare umbilical, spare electrical signal cable and spare fibre optic cable.”*

Add the following at the end of Paragraph 4 of the specification:

*“The construction works shall include the construction of a spare duct, spare umbilical, spare electrical signal cable and spare fibre optic cable.”*

*For inspection purposes only.  
Consent of copyright owner required for any other use.*

## Chapter 52 Conditions

### 52.1 Consolidated Set of Conditions 182c Approval

The following conditions have been consolidated from the recommendations within the report, from recommendations put forward by Mayo County Council which I have accept and from recommendations of the prescribed bodies DEHLG, NPWS, Inland Fisheries Ireland and EPA which I have accepted.

#### 52.1.1 General Conditions

##### 1. Clarification of Extent of Development

- The development shall be carried out in accordance with the following plans and particulars except as may be amended by any of the conditions attached to this approval
  - i. The modified EIS 2010 as submitted to An Bord Pleanála on the 31<sup>st</sup> May 2010, the mitigation measures contained therein together with the original letter of application that was part of the original 12<sup>th</sup> of February, 2009 application. The E.I.S. includes the Drawings and Detailing of May 2010 for the Corrib Onshore Gas Pipeline and for the Peat Deposition Site at Srahmore.
  - ii. Amendments and elaboration of the modified submission by way of the additional and documented Information submitted to the Board during the proceedings of the Oral Hearing 2010. The relevant documents are contained in the Schedule of Documents submitted by SEPIL to the 2010 Oral Hearing and as attached to these conditions.

**Reason:** To clarify the development to which this permission relates, and in the interest of the proper planning and sustainable development of the area.

##### 2. Provide for Agreements with Planning Authority

- Before development commences, other than works directly associated with preconstruction surveys, the owners/developers (and their successors in title) shall enter into legally binding agreement(s) with the planning authority under section 47 of the Planning and Development Act, 2000. The agreement(s) shall provide for the following:
  - i. payment to the planning authority of all costs incurred by Mayo County Council in relation to the repair, maintenance and rehabilitation of the road network arising from the construction of the development, determined by the Road and Bridge survey to be carried out prior to and post construction in accordance with a further condition of this permission; the amount of such costs shall be as agreed between Mayo County Council and the developer or, in default of agreement, shall be determined by An Bord Pleanála,

- ii. full implementation of the Traffic Management Plan, contained in the E.I.S. and as may be amended by the conditions of this permission or by agreement of the Mayo County Council and Gardaí.
- iii. payment of the planning authority's reasonable costs in engaging transportation personnel to monitor the Traffic Management Plan, and the provision of office accommodation and telecommunications facilities on site for such personnel, and
- iv. payment of the planning authority's reasonable costs in engaging environmental personnel to monitor implementation of the Environmental Management System, required by way of further condition, and the provision of office accommodation and telecommunications facilities on site for such personnel.
- v. restoration of the LVI site and way leave to the satisfaction of the planning authority following the cessation of gas transportation, including the removal of items of equipment over ground and removal of facilities to grade level.
- vi. provision and programme for supply of water by Mayo County Council to the project.

**Reason:** To ensure satisfactory control of the development in the interest of the proper planning and sustainable development of the area.

### 3. Agreements in Writing

- All agreements with the planning authority, required by way of the conditions in this permission, shall be in writing and copies of such agreements shall be made available for public inspection during normal office hours at the planning authority's offices, and at the developer's offices in Belmullet.

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

### 4. Provide for an Environmental Management Plan

- An E.M.P shall be agreed 2 weeks before commencement of the proposed onshore upstream pipeline. The E.M.P shall contain among other matters, details of the pre construction surveys and method statements for construction, and shall detail how seasonally sensitive works are to be accommodated in the programme. The E.M.P shall contain details of the updated programme for the proposed works.

**Reason:** To ensure adequate time is provided for the agreement of the EMP and to protect the natural environment.

- 5. Prior to the commencement of development, the developer shall obtain the agreement of the planning authority for an Environmental Management Plan (EMP), specific to the construction of the pipeline, tunnelling and LVI sites and deposition site at Srahmore. The EMP shall include as a minimum the following –
  - i. Management and Reporting Structure.
  - ii. Schedule of Environmental Objectives and Targets, including objectives for the minimization of suspended solids movement to surface water systems, and



effective management of all silt and settlement pond flow discharges during periods of high precipitation.

- iii. An Environmental Management Programme.
- iv. Traffic and Transportation Management Plan
- v. Monitoring Programme
- vi. Corrective Action Procedures.
- vii. Emergency Response Procedures for Environmental or Other Incidents
- viii. Awareness and Training Programme.
- ix. Proposed SEPIL/Community Liaison
- x. Communications Programme.
- xi. Waste Management Plan

Details of surface water management during construction to prevent runoff from the site onto the public roads, unnatural flooding and/or the occurrence of any deleterious matter in existing watercourses in accordance with CIRIA “Technical Guide: Control of Water Pollution from Liner Construction Projects” (C648, 2006). The developer shall implement the agreed EMP for the duration of the earthworks and construction phase of the development. On written request by the planning authority, the developer shall submit a report on any specific environmental matter or an environmental audit.

**Reason:** In the interest of environmental protection and the proper planning and sustainable development of the area.

## 6. Annual Review of EMP

- The EMP shall be the subject of an annual review by the planning authority, following consultation with the Project Monitoring Committee. The developer shall modify the EMP in accordance with any reasonable requirement of the planning authority, at any stage.

**Reason:** In the interest of environmental protection and the proper planning and sustainable development of the area.

## 7. Complaints Register

- A complaints register shall be maintained by the developers at their offices in Belmullet; this shall relate to all written complaints made regarding any aspect of the earthworks and construction phase of the development. The register, which shall be available for public inspection on request during normal office hours, shall include:
  - i. the name of the complainant
  - ii. the nature of the complaint
  - iii. the date and time of the complaint
  - iv. actions taken as a result of the complaint

**Reason:** In the interest of the proper monitoring of the development.

## **Security**

8. SEPIL shall comply with the Security of Network Standards as may be determined from time to time by DCENR (or CER as appropriate) in respect of the facilities at LVI in Glengad.

**Reason:** To ensure that this strategic infrastructure site meets national standards for such a facility.

### **52.1.2 Public Safety**

9. 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 satisfaction of the competent authority DCENR. Confirmation to be provided accordingly to Mayo County Council Planning Authority 14 days before the pipeline commences operating.

**Reason:** (a) In order to ensure that before the pipeline becomes operational that the development has been completed properly to the satisfaction of the competent authority DCENR.

(b) In the interests of protecting the Health and Safety of the Public

10. Prior to commencement of operations of the Corrib Gas Field Development the Petroleum Undertaker SEPIL shall obtain a safety permit from CER (or DCENR as appropriate at that time). A copy of the safety permit shall be submitted to Mayo County Council the Planning Authority 14 days before commencement of operations.

**Reason:** In the interests of protecting the Health and Safety of the Public.

11. Prior to the commencement of the operation of the pipeline SEPIL shall obtain the agreement of the Planning Authority for a plan for the control of traffic close to the terminal close to the LVI and in the vicinity of the route of the pipeline for use in the event of a major accident.

**Reason:** In the interest of Health & Safety.

12. The use of the onshore pipeline shall be confined to the transportation of natural gas from the Corrib Gas Field.

**Reason:** To ensure proper regulation of the development and to protect the integrity of the onshore pipeline.

13. Any proposal to connect additional gas fields to the onshore pipeline shall be the subject of an appropriate planning approval.

**Reason:** To protect the integrity of the onshore pipeline.

14. It is recommended that SEPIL set up the required instrumentation to measure ground movements at the areas of concern. These are; landfall valve site interface with offshore

pipeline, at the transition areas between the grouted pipe in the tunnel and the buried sections, in the stone road at the deep peat sections and at the interface between the existing and newly laid sections of the stone road. Also SEPIL should deploy stable strain gauges (including vibrating wire gauges with protective housings) on the pipeline to verify the maximum predicted stress levels on the pipe and confirm the modelling accuracy. The instrumentation needs to remain insitu until steady state levels are confirmed and a sufficient period of time has elapsed to ensure exposure to a variety of environmental conditions.

**Reason:** In the interest of protection of the Health and Safety of the public.

15. The onshore upstream pipeline shall not be operated for the purpose of bringing gas onshore from the Corrib Gas Field until such time as an emergency response plan has been prepared for the area between Glengad, Rosspoint, Aghoos and Bellanaboy. The plan shall have been agreed by HSE, Mayo County Council and Gardaí and shall be in compliance with any requirements set down in the Major Emergency Plan for the area. The preparation of the Corrib Pipeline Emergency Response Plan shall include consultation with the public on the details to be contained in the plan.

**Reason:** In order to ensure that a fully detailed emergency plan is in place in the interests of public health and safety in the area.

16. The complete onshore pipeline shall be hydro tested to 504 barg pressure.

**Reason:** in the interest of proper planning and sustainable development of the area

17. SEPIL shall obtain from DCENR a document confirming the code supplements that apply to DNV.OS.F101 when used for the onshore sections of the offshore pipeline.

**Reason:** In the interest of proper planning and sustainable development of the area

18. The security of the LVI compound at Glengad should be modelled on a standard that reflects its national importance to the energy supplies of Ireland and the public profile of the Corrib Gas Pipeline.

SEPIL should redesign the security fencing at the LVI to include a double 2.8m high security fence and gates with a suitable flood lit zone between the inner and outer fence. The outer fence should be electrified for additional protection.

**Reason:** To prevent unauthorised access into the area.

19. The reliability rating of the offshore pipeline overpressure protection system shall be verified by the external independent source or the Regulator, DCENR or CER as the case may be.

20. The reliability of the onshore pipeline overpressure protection system shall be verified by the independent source or by the Regulator, DCENR or CER as the case may be.

21. An Annual Pipeline Report shall be made, submitted to the independent Regulator for the pipeline, DCENR or CER as appropriate and a summary of this report shall be submitted to Mayo County Council and made available to the public.

### 52.1.3 Traffic Management Plan

22. The following traffic management measures shall apply :
- Haulage of all excavated peat from the site to the Deposition site shall be restricted to the designated Haul Route, and the return of all unladen haulage vehicles shall be along the haul route. No haulage of peat shall commence until such time as those improvements required by Mayo County Council of the relevant section of the Haul Route have been completed
  - The maximum number of Heavy Commercial Vehicle (HCV) movements along the haul route shall not exceed as set out in E.I.S. as amended by documents submitted at OH. The developer shall keep a record of all traffic movements into and out of the sites, and a copy of this shall be available for inspection by the planning authority and the Project Monitoring Committee on request.
  - All signage detailed in the Traffic Management Plan shall be erected prior to the commencement of the haulage of peat or construction materials and equipment and shall be maintained during construction works. Prior to this, or during the haulage period, the developer shall erect any other signage required by the planning authority to facilitate the safe haulage of construction materials.
  - A school traffic warden shall be engaged to travel on each of the school buses or to travel in tandem with the school bus using the Haul Route so as to facilitate the safe embarking/alighting and road crossing by children at all times during the haulage of peat. Arrangements shall be put in place that the HCV traffic using the Haul Route shall stand by at the drop off times and pick up times at the schools.
  - The potential impact of traffic management proposals and the convoy system on the bus schedules shall be monitored and any necessary adjustments shall be made.

**Reason:** In the interest of efficient traffic management, road safety and public safety.

23. The developer shall be responsible for the carrying out of a Road and Bridge survey before and after the construction period. The extent and precise content of the survey, which may be carried out by Mayo County Council at the developer's request and which shall generally relate to the road network directly and indirectly affected by the proposed development, shall be subject to agreement with the planning authority.

**Reason:** To facilitate the determination of damage attributable to the proposed development, and to ensure the proper maintenance and reinstatement of roads and bridges following construction.

24. In the event of target tolerances for road surfaces being exceeded and in the absence of necessary maintenance of the road surface, the planning authority (following consultation with the Project Monitoring Committee) may require the cessation of all haulage activities or construction traffic directly related to the development.

**Reason:** To ensure the proper maintenance of road surfaces during the construction and haulage periods in the interest of traffic safety.

25. All vehicles leaving the construction areas of the sites shall pass through an appropriate wheel cleansing area. The details of wheel cleansing which shall include full wheel wash where appropriate shall be set out and agreed with the roads authority in the EMP. The developer shall take all reasonable measures to ensure that no material shall leak or fall from vehicles transporting waste from the terminal site. Before haulage of waste commences, the developer shall obtain the agreement of the planning authority in relation to details of vehicles and methodologies to be used to ensure the prevention of such leakage.

**Reason:** In the interest of amenity, the proper planning and sustainable development of the area, and traffic safety.

26. The haul route and schedule of haulage for the construction phase of the development shall be clearly documented and published in a manner to be agreed with the planning authority. All HCV's and other commercial vehicles visiting the sites on a regular basis (twice a week or more), shall have a clear notice visible to the public identifying involvement with the development and the vehicle reference number identifying each such HGV.

**Reason:** In the interest of traffic management and to make provision for control and review of vehicles.

27. An independent safety audit on the upgraded haul route shall be carried out and agreed with the planning authority prior to the commencement of haulage of peat. The audit shall have regard to:

- The proposed 60 km/hr, 50km/hr, 30km/hr, 20km/hr speed limit zones for HCVs.
- The spacing of HCVs in convoy.
- Pedestrian and cyclist use of the haul route.
- School traffic at Pollathomais and the proposed stand down of haulage during pick-up and drop-off times at the school.
- Arrangements regarding Funerals, Church Services at Pollathomais
- The operational aspects of the Traffic Management Operatives.
- Vehicle break-down incident management.
- Emergencies and full access for emergency vehicles to the route at all times.

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

28. On the L1202 between Pollathomais and Glengad the maximum speed for HCVs working on the project shall be 50km/hour. The speed restrictions as set out on Drawing 6013-1015 and in respect of McGrath's Bar (20km/hour) shall also apply as set out in the E.I.S.

**Reason:** In the interests of road safety on L1202.

29. The visibility at the site junctions proposed at Aghoos and the visibility at the existing entrance to Srahmore Deposition site shall be in accordance with NRA standards in the revised details provided at the OH [DRN OH 133].

**Reason:** To ensure that road safety standards are achieved at these junctions.

#### 52.1.4 Establish Project Monitoring Committee

30. Prior to commencement of development, a Project Monitoring Committee (PMC) shall be established to monitor the progress on construction of the project. The PMC shall monitor all aspects of the construction and including geotechnical risks as set out in the Geotechnical Risk Register or any further revision of the risk register following preconstruction site investigations, surface water run-off, drainage control, traffic management and road maintenance, implementation of the reinstatement plan and other environmental issues. The PMC shall comprise two representatives of the developer, two representatives of Mayo County Council, and an invitation shall be extended to the North West Regional Fisheries Board, the Department of the Environment, Heritage and Local Government (an NPWS representative), DCENR, EPA and Bord na Móna to provide one representative each for the committee. In addition, two representatives of the local community, selected in accordance with procedures to be agreed with the planning authority, shall be invited to serve on this committee. The PMC shall have the right to co-opt other members as required. The Mayo County Manager or his/her nominee shall chair the PMC.

31. Mayo County Council should implement an appropriate project monitoring committee for the construction phase of this development.

The PMC should have two representatives from Kilcommon Parish elected in accordance with procedures and conditions to be decided by Mayo County Council. This should include procedures which will enable the PMS to operate effectively in all foreseeable circumstances for the duration of the construction phase of the development.

32. Within the PMC structure a local liaison should be maintained between SEPIL management and the local community. The purpose of this local liaison group would be to provide (1) two-way communication locally on issues arising with construction and traffic such as local funerals, school events, or other community activities that may be impacted by construction and traffic (2) to provide feedback and input from the



community on these issues (3) to enable review of the issues arising following the feedback to take place by SEPIL and SEPIL's contractors.

**Reason:** To establish a direct system of local liaison between the applicant and the local community within the monitoring structure of any planning approval.

33. Details of the mode of operation for the committee, including frequency of meetings, reporting and liaising arrangements with other persons and bodies, shall be agreed with the planning authority before development commences.

**Reason:** To ensure effective monitoring during construction in the interest of the proper planning and sustainable development of the area.

### 52.1.5 Monitoring and Control of the Construction

34. Monitoring results required under the conditions of this permission shall be submitted to the planning authority electronically and in hard copy form, and shall be made available for public inspection during normal office hours at the planning authority's offices, and at the developer's offices in Belmullet. The developer shall develop a computerised database for the recording and transfer of monitoring data; the design of the database shall be subject to agreement with the planning authority.

**Reason:** In the interest of clarity and transparency, and to facilitate ease of interpretation of all monitoring data collected and recorded.

35. SEPIL to establish a system whereby all photography and video footage taken by SEPIL employees, contractors, anyone associated with the proposed development, be controlled. The system and method of control shall be set out for agreement in the EMP. SEPIL shall pay to Mayo County Council the costs involved in putting in position a person who will verify that the control system for images is working properly and that a system for destroying such images is put in place. While this condition will be onerous on all concerned, the uncontrolled use of photo and image footage would not be an acceptable impact of the proposed development.

**Reason:** To manage and protect the privacy of the local community from any unnecessary impact from photo or video imagery.

36. The EMP shall provide for monitoring of surface water, dust and noise. The monitoring shall be undertaken in accordance with the requirements of Mayo County Council and, in respect of surface water, shall be in accordance with CIRIA "Technical Guidance: Control of Water Pollution from Linear Construction Projects" (C648, 2006). Any alterations to the agreed monitoring regime shall be subject to agreement with the planning authority, following consultation with the PMC. Such monitoring shall be

carried out by the developer throughout the construction of the pipeline, tunnelling and LVI (to the date of commissioning of the pipeline and LVI).

The monitoring plan contained in the EMP shall provide details of right of access to MCC appointed staff to carry out environmental monitoring checks as required, or as requested by the PMC. Costs incurred by the planning authority in carrying out any necessary monitoring, monitoring checks, inspections and environmental audits, shall be reimbursed by the developer.

**Reason:** In the interest of proper environmental control during the earthworks and construction phase.

37. Results shall be submitted to the planning authority on a weekly basis or at other such intervals specified by the planning authority (following consultation with the Project Monitoring Committee). All results shall be made available for public inspection within seven days of receipt.

**Reason:** To prevent water pollution.

38. All surface waters to be discharged from the site shall be monitored for suspended solids and any other parameter at the required frequency as determined by Mayo County Council the planning authority before discharge from the site.

Monitoring results shall be submitted on a weekly basis to the planning authority initially and this may be varied by agreement with the planning authority. The results shall be placed on public display by SEPIL within seven days of receipt of the results.

Prior to discharge all surface waters shall receive appropriate sedimentation and filtration. The details of sedimentation, filtration and attenuation proposals shall be agreed with the planning authority prior to commencement of the excavation. These details shall include maintenance routines for the sedimentation and filtration facilities.

The surface water from the construction site that lies within the Carrowmore Lake catchment shall be collected, attenuated and taken through silt settlement ponds before being discharged into the Leenamore River Catchment.

The detailed arrangements for management and monitoring the surface water shall be documented separately and agreed to in writing with Mayo County Council.

The existing surface water system that serves the applicant's site and that discharges into the Carrowmore Lake Catchment shall be monitored initially on a daily basis and then at a frequency to be agreed with Mayo County Council for a full range of parameters to be agreed with Mayo County Council before commencement of construction works and continuing during the construction works.

**Reason:** it is necessary to put in place a full monitoring programme and control system for the surface water discharge to prevent water pollution and to protect the drinking water supply source at Carrowmore Lake.

39. Vibration monitoring should be carried out during construction as provided in the E.I.S. – generally and in the specific detail provided at Oral Hearing [DRN OH 25].

The monitoring shall include:

- Monitoring at the Aghoos Tunnel Launch Pit Area and Monitoring at the Glengad Tunnel Reception Pit Area
  - i. At each site monitoring vibration from (a) Piling activity (b) Rock Excavation activity (c) Tunnel Boring Machine activity. In the case of the Glengad site as the TBM makes its way towards the site.
  - ii. Monitor at 25m and 50m from the source on two orthogonal planes aligned parallel and perpendicular to the predominant foliation or schistosity of the rock or as close to parallel and perpendicular as may be practicable.
- The monitoring should serve to characterize the site specific ground response to these construction activities and shall provide verification data for review of the model predicted vibrations.
- An interpretative report and the data of the monitoring activity to be provided to Mayo County Council and to the PMC and published via web in accordance with monitoring procedures established.
- Vibration shall not exceed the standards set out in NRA Guidelines for Treatment of Noise and Vibration in National Road Schemes as follows:
- The maximum allowable vibration velocity (PPV) at the closest part of any property to the source of vibration shall be as follows:

Less than 10Hz	For all vibrations >10Hz
8 mm/sec	12.55 mm/sec

**Reason:** This is necessary to provide control on vibrations and to provide control information on the dissipation of vibration and to ensure there is no impact arising from such excavation works.

40. The SC2 reception pit construction shall be protected from inundation by a severe storm event and from any overflow of Channel 2.

**Reason:** To prevent any damage to the Environment that may result from an overflow of this channel.

41. That a conservative approach be taken to the S.W. drainage system which should be redesigned to cater for a 1/100 year event.

**Reason:** This will reduce the risk of surface water contributing to any peat instability. This will also reduce the risk of potential pollution arising in Sruwaddacon Bay or in the freshwater river and stream systems where the surface water will discharge.

42. The hazards listed on the Geotechnical Risk Register in the EIS submitted to An Bord Pleanála shall be the subject of ongoing monitoring throughout the development. A qualified engineer with appropriate experience shall carry out the monitoring. During the excavation and construction phase, the developer shall submit a report in relation to the Risk Register, on a two monthly basis, to the planning authority and the Project Monitoring Committee. The report shall describe the progress of monitoring the hazards listed on the Register and shall detail any specific difficulties encountered and contingencies employed. The reports shall be made available for public inspection within

seven days of submission at both the developer's offices in Belmullet and the planning authority's offices.

**Reason:** In the interest of safety and the proper planning and sustainable development of the area.

#### **Tunnel Sruth Fada Conn**

43. The Applicant shall include in the Environment Management Plan details of noise and vibration monitoring proposed to control noise and vibration and the impact of rock excavation and tunnelling on the area.

**Reason:** To protect the amenity of the area.

44. The Applicant shall as part of the EMP set out for the agreement of the Planning Authority details of how issues arising from any disturbance or complaints related to 24 hour tunnelling operation are to be mitigated and managed.

**Reason:** To protect against nuisance in the area.

45. All lands shall be reinstated as set out in E.I.S.

**Reason:** To ensure that the visual impact of the project on the landscape is controlled.

#### **52.1.6 Financial Conditions**

46. Prior to commencement of development, the developer shall lodge with Mayo County Council a cash deposit, a bond or an insurance company, or other agreed security to provide for the satisfactory re-instatement of the site upon the cessation of use of the pipeline and LVI coupled with an agreement empowering Mayo County Council to apply such security or part thereof to the satisfactory reinstatement of the site. The form and amount of the security shall be as agreed between Mayo County Council and the developer or, in default of agreement, shall be determined by An Bord Pleanála.

**Reason:** To ensure the satisfactory reinstatement of the site.

47. SEPIL shall provide a Community Gain Investment Fund over each of the 5 years for the benefit of the community in the area of the proposed development.

The Investment shall be paid to Mayo County Council on an annual basis commencing in the year that ABP decide to approve the proposed development.

Mayo County Council shall, through the County Development Board agree on a Community Development Plan for the Area. The plan and the area to be covered by the plan shall be subject to wide consultation and should be put in place within 9 months of the grant of any approval by ABP. The plan shall be proposed by the County Development Board and adopted by Mayo County Council. The plan shall be independent of the Investment Fund. The objectives, services and actions contained within the plan shall provide the context against which the Investment Fund will be disbursed and against which application for funding will be considered.

Nothing in this condition shall be interpreted as an exclusion of the Local Grants Programme, the Scholarship Programme, the Corrib Natural Gas Erris Development Fund Projects from receiving support from this new Community Gain Investment Fund. The Investment shall be €1.7 Million per annum, a total of €8.5 Million over the life of this Community Gain Investment Fund.

Nothing in this condition shall prevent SEPIL from continuing to invest in the local community after 5 years.

**Reason:** To provide substantial community gain for the area in which the development is located and which has wide needs for social and community services and support.

48. The developer shall make a contribution of €20,000 to the Regional Arts Centre at Belmullet in a form to be agreed with Mayo County Council.

**Reason:** To provide for community facilities in accordance with section 182D (6) of the Planning and Development Acts 2000-2006.

#### 52.1.7 Conditions on Waste

49. All tank and drum storage areas on the sites shall, as a minimum, be bunded to a volume not less than the greater of the following –

- 110% of the capacity of the largest tank or drum within the bunded area, or
- 25% of the total volume of substance which could be stored within the bunded area.

**Reason:** To prevent surface and ground water pollution.

50. All fuel storage areas and cleaning areas, particularly for trucks, shall be rendered impervious to the stored or cleaned materials and shall be constructed to ensure no discharges will cause pollution to ground waters.

**Reason:** To prevent surface and ground water pollution.

51. The developer shall maintain on the sites for the duration of the construction period, oil abatement kits comprising of booms and absorbent materials. The precise nature and extent of the kits shall be agreed in writing with the planning authority prior to commencement of development.

**Reason:** To prevent water pollution.

52. The Applicant shall include a waste minimisation plan in the EMP for the solid waste emanating from the construction works site.

The Applicant shall enter into an agreement with Mayo County Council regarding the disposal of the estimated 62,200m<sup>3</sup> of stone from the site. The agreement shall provide for the storage and/or reprocessing if necessary of the stone for appropriate reuse.

**Reason:** To minimise waste arising from the proposed development.

53. Prior to disposal of materials from site that have derived from tunnel arisings testing shall be carried out on the materials to confirm appropriate waste disposal options.

**Reason:** To protect the environment.

54. No waste material, other than material being transferred to a licenced waste facility, generated on the sites during the construction phase shall be removed off the sites without the prior agreement of the planning authority.

**Reason:** To provide for the appropriate management of waste and in the interest of protecting the environment.

55. Prior to commencement of development, the developer shall submit, and obtain the agreement of the planning authority to a plan containing details for the management of waste (and, in particular, recyclable materials) within the development, including the provision of facilities for the storage, separation and collection of waste and, in particular, recyclable materials, and for the ongoing operation of these facilities

**Reason:** To provide for the appropriate management of waste and, in particular, recyclable materials, in the interest of protecting the environment.

#### **Sanitary Waste Facilities and Management**

56. Sanitary facilities shall be installed in the compounds and on the site of the construction works and on the site of the peat disposition area for the duration of the construction project. All waste generated from such facilities shall be disposed of by a licenced waste contractor to an appropriate approved treatment works. The facilities provided, the transportation of the sanitary waste and the disposal, shall be agreed with the planning authority, Mayo County Council.

**Reason:** In the interest of public health.

57. The applicant shall ensure that where liquid wastes are being disposed at appropriate treatment works that there is adequate capacity at that works to take the loadings from the liquid waste.

**Reason:** To protect fish and aquatic environment from consequential pollution.

58. All sanitary facilities on site shall be managed effectively to ensure that no nuisance and no discharge or pollution arises from the use, operation transport and movement of these facilities to and from the site and what in operation on the site.

**Reason:** In the interest of public health



59. Any discharges through the outfall pipe shall be in accordance with the IPPC licence (P0738-01) (P0738-02) granted by the EPA or any revision that may be granted to such licence.

**Reason:** To ensure that an adequate system of control will apply to any such discharges.

60. The surface water discharge pipe at the LVI shall not be used for any other purpose than the discharge of surface water from the LVI site.

**Reason:** To Protect the environment and to prevent any contamination from being discharged.

61. The developer shall appoint a suitably qualified and experienced Environmental Officer for the period of the construction of the pipeline and LVI. As part of his/her duties, the Environmental Officer shall liaise with the Project Monitoring Committee in relation to implementation of the required environmental monitoring, and shall be responsible for reporting to that committee and the planning authority as follows:

- any malfunction of any environmental system,
- any occurrence with the potential for environmental pollution,
- any emergency

which could reasonably be expected to give rise to pollution of waters. The Environmental Officer shall maintain a record of any such occurrences and action takes; this record shall be available for public inspection at the developer's office at Belmullet during normal office hours.

**Reason:** In the interest of proper environmental control during the earthworks and construction phase.

#### **Bentonite**

62. The Environment Management Plan shall contain a method statement for the use and control of Bentonite during the tunnelling operations. The Results of the monitoring carried out on the Bentonite control system shall be provided to Mayo County Council on a weekly basis and shall be reviewed by the monitoring committee.

**Reason:** To protect the water quality in Sruwaddacon Bay

### **52.1.8 Conditions to Protect the Natural Environment**

63. The surface water system for the construction site shall be redesigned to cater for a storm event of 1/100 year return frequency.

**Reason:** To prevent flooding the excavation works and to protect the water quality in Sruwaddacon Bay.

64. All mitigation measures described in sections 12, 13 and 14 of main volume of the environmental impact statement submitted to the board on 31<sup>st</sup> May 2010, in the addendum to that statement and in the submissions from the applicant to the oral hearing

convened at Belmullet on 24<sup>th</sup> August 2010, shall be carried out in full during the course of development.

**Reason:** In order to protect the natural heritage of the area.

**Intervention Pit**

65. In the event that an intervention pit becomes necessary, this shall only proceed with agreement of NPWS regarding the management of the construction and restoration works on the site.

**Reason:** To protect the natural environment.

66. In the event that an intervention pit becomes necessary the agreement of the Dept. Of Agriculture, Fisheries and Food shall be obtained to the construction and restoration works on the site and to any works in the vicinity of the licenced beds in Sruth Fada Conn Bay.

**Reason:** To protect the environment of the licenced beds.

67. Should an intervention pit be required for the development the timing and methodology to be used for the intervention pit shall be agreed with NPWS, Inland Fisheries Ireland, and relevant regulatory authorities prior to commencement of works to ensure that impacts on passage of migratory fish and relevant qualifying interests of designated Natura 2000 sites in the areas are minimized. Liaison with these Agencies should continue throughout the construction period.

**Reason:** To protect the Natural Environment

68. The Leenamore open cut crossing should be discussed with NPWS and Inland Fisheries with regard to proposed construction methodologies prior to commencement of construction.

**Reason:** To protect the Natural Environment

69. **Intervention Pit:** In the event of an intervention pit being required in the SPA then mitigation as proposed in the EIS shall be implemented in full and the NPWS shall be notified in advance of construction disturbance in the Natura 2000 sites to be minimized and potential noise impacts must be fully evaluated and mitigated to minimize impact on marine mammals.

**Protection of Natural Environment**

70. **Habitat Reinstatement:** To minimize the potential disturbance to waterbirds, the Leenamore crossing should be completed in as short a time as possible and the habitat reinstatement measures in section 6.2.1.4 must be implemented in full.

**Site Compounds:** Mitigation as per section 6.4 (minimize disturbance) must be implemented in full including acoustic screening and implementation of a lighting regime that minimizes intensity and extent of light into the SPA.

Only the nominated entry exit points to the Aghoos Compound shall be used away from the seashore and activity outside the compounds during tunnelling works must be kept to a minimum.

**Tunnel Boring Machine:** Mitigation measures in Section 14.5 must be fully implemented.

**Rock Breaking at Glengad:** No blasting to occur as a method of rock breaking.

**Environmental Management Plan:** The EMP should be circulated to the DEHLG for comment.

**Reason:** To protect the Natural Environment.

71. During vegetation clearance required for the carrying out of the development, the developer shall monitor all areas of dense vegetation affected by the development which could not be thoroughly searched during the ecological surveying. Such monitoring shall be carried out by appropriate ecological experts.

**Reason:** In order to provide necessary faunal monitoring.

72. No development shall take place until method statements, including construction and access details, details of mitigation measures, an appropriate scale plan showing ecologically sensitive areas where any construction activities are restricted and where protective measures will be installed or implemented, details of protective measures (both physical and sensitive working practices) to avoid impacts during construction, and a timetable to show phasing of works, including a schedule of sensitive periods for wildlife when works should cease or be curtailed should be prepared and agreed in writing with the relevant authorities.

**Reason:** In order to protect the ecology of the area.

73. Prior to commencement of development, the developer shall obtain the agreement of the planning authority for an ecological monitoring plan to ensure that all mitigation measures proposed in the Environmental Impact Statement submitted to An Bord Pleanála relating to the protection of habitats, flora and fauna are carried out. Monitoring shall be carried out by a suitably qualified ecologist who shall liaise with the Project Monitoring Committee.

**Reason:** In the interest of protecting the environment.

74. In accordance with 185c 5(b) SEPIL are invited to modify the proposed development by including in the construction for the spare duct, spare umbilical, spare electrical signal cable, spare fibre optic cable from the terminal to the landfall valve site.

**Reason:** To protect the Natural Environment and in the interests of proper planning and sustainable development of the area.

75. Prior to commencement of construction the applicant shall carry out pre-construction site examination and investigation and baseline ecological surveys of the site at that time as proposed in the E.I.S.

**Reason:** To monitor faunal activity and to protect the natural heritage of the area.

76. On confirmation of the site conditions and following the completion of the detailed method statements for the construction work these shall be submitted for the written agreement of the National Parks and Wildlife Service.

**Reason:** To protect the natural heritage of the area.

77. SEPIL shall carry out the satisfactory landscaping of the LVI site, including the maintenance and provision of planting and site restoration, in accordance with the Landscape details contained in the E.I.S. and subject to agreement with the planning authority. These works shall be supervised by the project ecologist.

**Reason:** To protect the Natural Heritage of the area.

78. Prior to commencement of development, the developer shall obtain the agreement of the planning authority for a monitoring plan to ensure that all mitigation measures proposed in the Environmental Impact Statement and Additional Information provided at the oral hearing for the Board relating to the protection of habitats, flora and fauna are carried out. Monitoring shall be carried out by a suitably qualified ecologist who shall liaise with the Project Monitoring Committee.

**Reason:** In the interest of protecting the environment.

#### 52.1.9 Conditions on Construction in Peat Lands

79. Prior to construction of the Stone Road in the peat lands pre-construction examination of the site by experienced Engineer/Geologist as provided in the E.I.S. and Risk Register shall take place.

In particular in relation to those areas identified in the qualitative assessment of relative potential for peat failure of medium potential and high potential the following should apply:

- The design of the Stone Road proposed and the design of the stone compound at Aghoos shall be reviewed and confirmed in light of the examination and the conditions of the site at the time of construction.
- Side casting of peat should be restricted as follows:

- No side casting of peat shall take place in those areas of relative high potential for peat failure
- No side casting of peat shall take place at any location ahead of the completed Stone Road i.e. where side casting peat, the area on which the peat is being placed shall lag behind the area where the Stone Road is being constructed so that peat is not side cast adjacent to an open or partially backfilled excavation.
- No side casting of peat shall take place either where the slope on the surface or at the base of the peat is greater than 3 degrees
- No side casting of peat shall take place within 25m back from a break in slope greater than 3 degrees.

Notwithstanding the above, the designer shall carry out the necessary site investigation, design and analysis to confirm that the stability of the peat repository will be acceptable at the time of construction. Specific consideration shall be given to areas where the alignment of the road is perpendicular to the slope contours which means that it will not be possible to sidecast upslope from the stone road.

**Reason:** To ensure stability of peat and to protect the environment from any peat slide damage.

80. Within the stone road, the rock fill below the trench for the gas pipeline and umbilical shall extend beyond a minimum 1V:1H influence line from the sides of the trench at pipe invert level down to the base of the peat.

**Reason:** To ensure stability of peat and the pipeline and to protect the environment from any peat slide damage.

81. In the construction of the pipeline care shall be taken in those areas where the pipeline is being laid within the stone road and below the peat in the mineral soil. In those areas peat plugs shall be installed across the stone road section at either end of those sections and at centres in between not greater than 100m apart.

**Reason:** To prevent the stone road and pipeline construction acting as a preferential drain in the peat.

82. The deposition of peat at the site at Srahmore authorised by this permission shall be carried out in accordance with the description of development provided in volume 3 of the Environmental Impact Statement submitted with the application and all the mitigation measures described therein shall be carried out in full.

**Reason:** In order to clarify the scope of the authorised development and to protect the environment and amenities of the area.

83. The mitigation measures proposed for the construction of the stone road in peat lands as set out in the E.I.S. Section 15.4.3 and in Tables 15.4 and 15.5 shall be implemented in full.

That particular attention be taken in the final detailing of the stone road where it approaches the Leenamore river and the two streams and ditches to ensure that permeability barriers to restrict free drainage through the stone road itself are installed at those locations.

The construction detail for the compounds regarding drainage and restoration in the peat lands shall be similar to that used for the stone road.

**Reason:** To ensure that the impact of the stone road on hydrology of the peat lands is minimised.

84. All the construction work in the peat land shall be supervised by an experienced geotechnical engineer who should liaise with the eco-hydro geologist to ensure that hydraulic paths in the peat are identified, marked and reinstated satisfactorily.

**Reason:** To ensure that the impact of the stone road on hydrology and eco hydrogeology of the peat lands is minimised.

85. The pre-construction site investigations shall be carried out as provided in the EIS

Method statements for construction works in the peat lands shall be developed using conservative design values and applying conservatively the risk mitigation measures set out in the EIS risk register or as may be set out in any revision of the risk register following preconstruction surveys and confirmation of method of construction and during the construction of the project.

The work shall be supervised by an experienced Geotechnical Engineer with specific experience in peat lands construction. An experienced contractor with specific experience of construction in peat shall be used for the construction.

**Reason:** To protect against peat instability.

#### 52.1.10 Archaeology

86. The developer shall facilitate the planning authority in the archaeological appraisal of the site and in preserving and recording or otherwise protecting archaeological materials or features which may exist within the site. In this regard the developer shall

- Notify the planning authority in writing at least two weeks prior to the commencement of any site operation (including any further hydrological and geotechnical investigations) relating to the proposed development,
- Employ a suitably qualified archaeologist with relevant experience in peatland archaeology prior to commencement of development. The archaeologist, who shall work under licence, shall assess the site and monitor all site development works,
- Provide satisfactory arrangements for the recording and removal of any archaeological material which may be considered appropriate to remove. The archaeologist shall be



responsible for reporting any finds, without delay, to the planning authority. In such event, works shall cease in the affected area and shall not recommence until such a time as mitigation measures (is any) agreed with the planning authority have been carried out and

- Submit a report to the planning authority detailing the results of the monitoring.

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

87. Monitoring for Archaeological Materials or Remains shall be carried out at this site in accordance with the requirements of the DEHLG National Monuments Section as follows:

- Applicant shall engage the services of a suitably qualified Archaeologist
- The Archaeologist should monitor ground disturbance works associated with the development
- This should include all areas outlined in the EIS. The mitigation measures outlined in Table 16.7 should be implemented in full
- 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 Heritage and Planning Division 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
- The mitigation measures outlined in Section 16.5 of the E.I.S. should be implemented in full.

**Reason:** To ensure that where archaeological material is uncovered the appropriate notification of DEHLG takes place and that agreement is confirmed on the best way to preserve the material uncovered.

#### 52.1.11 Protect Drinking Water Sources

88. Prior to construction, the location of wells which serve as water supply sources shall be identified and that these wells shall be monitored before, during and after construction.

**Reason:** To protect existing wells in the area.

89. SEPIL shall include in the EMP a detail method statement for construction of surface water drainage and discharge from the construction site in the chainage 91+420 to chainage 91+720 area approximately, i.e. in the Carrowmore Lake Catchment. The EMP shall be agreed by Mayo County Council. Surface water from the construction project

shall not discharge into the Carrowmore Lake Catchment (Chainages given here refer to the 2010 chainages)

**Reason:** To protect the Carrowmore Lake Water Supply

### 52.1.12 Noise Lighting and Air Quality Control

90. General works at Glengad shall be carried out in normal daytime working hours. Where work is required outside normal working hours at Glengad the approval of Mayo County Council, the Planning Authority shall be obtained for such period of work on each occasion.

**Reason:** To control the impact of the development on the residential amenity of the area

91. Where night lighting is proposed to be used at Glengad the impact of these lights on the area outside the work areas shall be mitigated in the same way as is proposed at Aghoos – selection of appropriate lanterns, downward, inward facing lights, baffle boards at lights at periphery, lights to be switched off when not required.

**Reason:** To protect the residential amenity of the area.

92. Monitoring of lighting impacts at the residential properties nearest and at those most likely to be impacted by night lighting shall be carried out on completion of the lighting installation and any necessary adjustments shall be made so that light nuisance is not caused at those residential properties.

**Reason:** To protect the residential amenity of the area.

93. The lighting control within the compound at Aghoos and the compounds in Glengad shall be designed such that lighting can be switched off at night in those areas of the compound where lighting is not required at night.

**Reason:** To mitigate the impact of lighting in the landscape at night.

94. **Glengad:** All construction work shall be programmed as far as possible to avoid working between 19.00p.m. and 07.00a.m. Where night working at Glengad becomes necessary the programme shall be agreed with Mayo County Council. Only essential works shall be carried out at night. Audible tones and impulsive noise should be avoided at night. Noise generation at night shall be controlled on site and kept to the lowest possible achievable levels. Noise levels at the nearest noise sensitive receptor (dwellings) shall not exceed:

#### Noise Levels

Day	07.00a.m. – 20.00p.m.	Overall maximum level:	65dB L <sub>AEQ</sub>
Night	20.00p.m. – 07.00a.m.	Target level for design:	35dB
		Calm night maximum level:	40dB
		Overall maximum level:	45dB

### **Aghoos**

Only essential work shall be carried out between 17.00p.m. and 07.00a.m. Audible tones and impulsive noise should be avoided at night. Noise generation at night shall be controlled on site and kept to the lowest possible achievable levels. Noise levels at the nearest noise sensitive receptor (dwellings) shall not exceed

#### **Noise Levels**

Day	07.00a.m. – 20.00p.m.	Overall maximum level:	65dB L <sub>AEQ</sub>
Night	20.00p.m. – 07.00a.m.	Target level for design:	35dB
		Calm night maximum level:	40dB
		Overall maximum level:	45dB

**Reason:** To protect the residential amenity of the area.

95. During construction and haulage, noise levels shall be kept to a minimum. Any activity that will result in a significant increase in the ambient noise levels, for example, piling or rock breaking, shall be notified to the Project Monitoring Committee in advance. Advance notice of the schedule of such activity shall be made available to the general public by way of public advertisement.

**Reason:** In the interest of public health and residential amenity.

96. Dust levels shall not exceed 350mg/m<sup>2</sup> per day (TA Luft Air Quality Standard) when levels are averaged over thirty days and as measured at the site boundaries. Any activity which could reasonably be expected to exceed that dust level, and proposed mitigation measures, shall be notified to the planning authority and the Project Monitoring Committee in advance, and shall be made available to the general public by way of public advertisement.

**Reason:** In the interest of public health and residential amenity.

### **52.1.13 Conditions to Protect the Visual Amenity and Amenity of the Area**

97. SEPIL shall, as part of the EMP, set out a detail method statement for the reinstatement works to be implemented on the beach between the HWM and the cliff face at Glengad. This shall be agreed with Mayo County Council and DEHLG foreshore section.

**Reason:** To protect the natural environment of the restored cliff face from erosion.

98. A drawing should be prepared detailing the heights of materials and elevation treatment of the reinstatement of this cliff face for approval by Mayo County Council.

**Reason:** To ensure that the restoration of the cliff face is constructed in appropriate materials and to a satisfactory standard for combating erosion and for visual treatment of the reinstated cliff face.

99. SEPIL shall make arrangements such that access to the beach at Glengad will not be unduly restricted for the duration of the construction works and while the construction spread is in situ across the traditional access to the beach at Glengad.

**Reason:** To ensure that the amenity of the beach at Glengad is protected for public use during the construction works.

100. The Access Road from L1202 to the LVI: (1) Sufficient care and attention shall be taken in the final reinstatement of the road side margins and that the work is supervised by the project ecologist

**Reason:** To ensure that the integrity of the cSAC is maintained in the reinstatement work

101. The measures to mitigate the visual impact of the proposed development set out in section 10 of the environmental impact statement submitted to the board on the 31<sup>st</sup> May 2010 and in the submissions made by the applicant to the oral hearing which convened at Belmullet on 24<sup>th</sup> August shall be implemented in full in the course of the development.

**Reason:** To protect the visual amenity and character of the area.

102. The perimeter fence proposed at the site in Aghoos shall be carefully planned, detailed and constructed such that a regular even line in height, texture and alignment shall be achieved.

**Reason:** To mitigate the appearance of the fence in this landscape.

103. All boundary fencing at Aghoos and at the Glengad compound sites shall be coloured (dark green or brown is suggested) and shall be subject to approval of Mayo County Council.

**Reason:** To mitigate the visual impact of the fencing in the landscape.

#### 52.1.14 Modifications to the Proposed Development

104. ABP should decide in accordance with 185c 5(b) to invite SEPIL to modify the proposed development by including in the construction for the spare duct, spare umbilical, spare electrical signal cable, spare fibre optic cable from the terminal to the landfall valve site.

**Reason:** In the interest of proper planning and sustainable development of the area.

## Documents Submitted by SEPIL at Oral Hearing 2010

These refer to Condition 1:

Document Number	Document Description	Submitted by
2	BOE - Route Selection and Alternatives Considered	Ciaran Butler SEPIL
3	BOE - Construction	Eamon Kelly SEPIL
4	List of briefs/speakers	E Keane SEPIL
5	BOE – Tunneling Construction	Tim Jaguttis SEPIL
6	BOE – Community Issues and Planning Policy Context	Kieran Kennedy SEPIL
7	BOE – Geotechnical Issues	Turlough Johnston SEPIL
8	Addendum of E.I.S Includes Appendix E Foreshore Site Investigation (Aug 2010)	E Keane SEPIL
11	BOE - Overview of Pipeline safety	Gerry Costello SEPIL
12	BOE - Operation of Pipeline – Pipeline Safeguarding	Ian Malcolm SEPIL
13	BOE – Onshore Pipeline and LVI Design	John Gurden SEPIL
14	BOE – Pipeline Protection	S Paterson SEPIL
15	BOE – Qualitative Risk Assessment	Sheryl Hurst SEPIL
16	BOE – Quantified Risk Assessment	Philip Crossthwaite SEPIL
20	Errata E.I.S.	SEPIL
21	BOE - Appropriate Hazard Distance	Gerry Costello SEPIL
22	BOE - Public Safety – Application of Design Codes	Jane Haswell SEPIL
23	BOE – Roads and Traffic	Michael Noonan SEPIL
24	BOE – Landscape and Visual	Raymond Holbeach SEPIL
25	BOE – Ground borne Noise and Vibration	Rupert Thornely-Taylor SEPIL
26	BOE – Noise and Vibration (Works on Land)	SEPIL
27	BOE – Underwater Archaeology	Darragh Kingston SEPIL
28	BOE – Archeology, Architectural Heritage & Cultural	Niall Brady SEPIL
29	Heritage	Liam Courtney SEPIL
30	BOE – Peat land Hydrology & Hydrogeology BOE – Marine and Freshwater Environment Issues	Michael Gill SEPIL Ian Wilson SEPIL
34	Large Drawings Site Investigations, Part 1 (Refer DRN 8)	SEPIL
35	BOE – Terrestrial Ecology	Jenny Neff SEPIL
36	BOE – Cumulative Impacts	Agnes McLaverty SEPIL
58	Foreshore Site Investigation Data Report 1 (August 2010) (see DRN 8 and 34)	SEPIL
73A	Foreshore Site Investigations Report 2 (3 <sup>rd</sup> Sept 2010)	Turlough Johnston SEPIL
73B	Foreshore S.I. Large Drawings	Turlough Johnston SEPIL
73C	Site Investigation Data	Turlough Johnston SEPIL
74	Houses Proximity Map – Glengad	SEPIL
78	Letter from Bob Hanna to G. Costello SEPIL	SEPIL
79	Copy of Foreshore Licence 11 <sup>th</sup> June 2010	SEPIL
80	Responses to Questions subject 1-8 Tunnel Construction	SEPIL
84	& On shore Pipeline Overpressure Protection System (LVI) Reliability	SEPIL

<b>Document Number</b>	<b>Document Description</b>	<b>Submitted by</b>
86	Risk Assessment Matrix Consequence Scale	Ms Hurst SEPIL
86A	Letters between SEPIL and DCENR 22/12/2005	G Costello SEPIL
87	Tunnel Stress Analysis Document	SEPIL
88	LVI Stress Analysis Document	SEPIL
89	Response by Ian Malcolm to Subsea Pressure Protection	SEPIL
90	Stress Sensitivity Analysis Document	SEPIL
91	DCENR correspondence acknowledging S.40 Application 17/06/2010	SEPIL
92	BOE – Application for Compulsory Acquisition Order	Eamon Kelly SEPIL
94	Tunneling Construction Works Aghoos – Additional Noise Attenuation Measures	SEPIL
131	Vibration Monitoring	SEPIL
133	Traffic Sight Lines Srahmore /Aghoos Entrances	SEPIL
134A	EMG Report Near shore Pipe lay and Pull in June 2009	SEPIL
134B	EMG Report Near shore Pipe lay and Pull in September	SEPIL
134C	2009	SEPIL
135	EMG Report Near shore Pipe lay and Pull in October	SEPIL
136	2009	SEPIL
137	Power Supply at Aghoos	SEPIL
138	Total Volume Capacity of Bunded Areas	SEPIL
139	Intervention Pit Clarification	SEPIL
140	Use of Roads and Pier Rosspoint Clarification	SEPIL
141	Biocide for Produced Water	SEPIL
	Outfall Locations and Numbering	
	Noise Monitoring	
145A	Pavement Condition at Mc Eleney's House on L1202	SEPIL
146A	Terminal/Belmullet on Site Weather Station data	SEPIL
146B	Security & Public Safety Clarification (Slabbing Drawing Attached)	SEPIL
147	Pavement Conditions in vicinity of McGraths Bar & Letter from Mayo Co. Co. to SEPIL	SEPIL
153	High Water Mark OSI 1:5,000 Vector Data Site Map	SEPIL
180	Case Law Referred to in Closing Statement by Mr. Keane	Mr. Keane SEPIL



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Appendix 4I	Oral Hearing Submissions Received <ul style="list-style-type: none"> <li>• Part 1: Day 21, 30<sup>th</sup> September 2010, DRN 173-178</li> <li>• Part 2: Day 22, 1<sup>st</sup> October 2010, DRN 179-180</li> </ul>	14

Appendix 5A	<p>Further Supporting Documentation</p> <ul style="list-style-type: none"> <li>• Documents Submitted at the Oral Hearing - Schedule</li> <li>• Natura 2000 Interpretation Manual of E.U. Habitats</li> <li>• Joint Gas Capacity Statement 2010 CER/Utility Regulator</li> <li>• 994/2010/EC Regulation EU Safeguard Security of Gas Supply</li> <li>• 114/2008/EC Designation EU Critical Infrastructure</li> <li>• 55/2003/EC Common Rules for Internal Market for Natural Gas</li> <li>• 67/2004/EC Safeguard Security of Natural Gas Supply</li> <li>• Chapter 6 Irish Aviation Authority Emergency Services</li> </ul>	15
Appendix 5B	<p>Further Supporting Documentation</p> <ul style="list-style-type: none"> <li>• Mapping Mayo County Boundary: 11,3 and 11,4</li> </ul>	16

### Stenography Available

No.	Date
1	26 <sup>th</sup> August 2010
2 (a)	27 <sup>th</sup> August 2010
2 (b)	27 <sup>th</sup> August 2010
3	02 <sup>nd</sup> September 2010
4	07 <sup>th</sup> September 2010
5	08 <sup>th</sup> September 2010
6 (a)	09 <sup>th</sup> September 2010
6 (b)	16 <sup>th</sup> September 2010
7	16 <sup>th</sup> September 2010
8 (a)	22 <sup>nd</sup> September 2010
8 (b)	22 <sup>nd</sup> September 2010
9	29 <sup>th</sup> September 2010
10	30 <sup>th</sup> September 2010
11	01 <sup>st</sup> October 2010

The stenography is not attached to this Report but is separately available.

## Glossary of Terms

<u>Abbreviation</u>	<u>Term</u>
16.DA.0004	The Application for an Acquisition Order before the ABP under section 32 (1A) of the Gas Act 1996
16.GA.0001	An application for an onshore pipeline by SEPIL for Corrib gas field which was withdrawn
16.GA.004	The Application before the ABP for permission under 182C of the Strategic Infrastructure Act 2006 for an upstream onshore pipeline
3 LPP Coating	Three Layer Polypropylene Coating
AADT	Average Annual Daily Traffic
ABP	An Bord Pleanála
ALARP	As Low as Reasonably Practicable. A Risk level that is between intolerable risk level and the tolerable risk level and where it can be demonstrated that the costs of reducing the risk further are disproportionate to the benefit derived. Such Risk is tolerable (ALARP)
BGE	Bord Gáis Éireann
BoE	Brief of Evidence
BPD	Building Proximity Distance
CAO	Compulsory Acquisition Order
CCTV	Closed Circuit Television
CDP	County Development Plan
CER	Commission for Energy Regulation
COMAH	<i>Control of major accident hazards regulations</i>
CP	Cathodic Protection
CS	Closing Statements
cSAC	Candidate Special Area of Conservation
DAFF	Department of Agriculture, Fisheries and Food
DCENR	Department of Communications, Energy and Natural Resources
DEHLG	Department of the Environment, Heritage and Local Government.
DOMNR	Department of Marine and Natural Resources (Now DCENR)
DRN	Document Reference Number relates to the documents submitted to the Oral Hearing
E.I.S. 2001	The EIS prepared by RSK in October 2001 and submitted by Enterprise Energy Ireland Ltd to the Minister for Marine and Natural Resources together with the Section 40 Application for approval to construct a pipeline which was subsequently approved by the Minister on ....
E.I.S. 2009	The Environmental Impact Statement submitted by SEPIL to ABP with Applications 16.GA.0004 and 16.DA.0004
EACS	Ecological Advisory and Consultancy Services
EGIG	European Gas pipeline Incident data Group
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
ESB	Electricity Supply Board

Evidence at OH, 16/6, 11.49	A reference to evidence presented orally at the Oral Hearing on the 16 <sup>th</sup> of June at 11.49am
FEA	Finite Element Analysis
FMECA	Failure Mode, Effects, and Criticality Analysis
FOS	Factor Of Safety
FWD	Falling Weight Deflectometer System
GDP	Gross Domestic Product
GSI	Geological Survey of Ireland
GWS	Group Water Scheme
HDPE	High Density Poly Ethylene
HGV	Heavy Goods Vehicle
HIPPS	High Integrity Pressure Protection System
HSA	Health and Safety Authority
HSE	Health Service Executive
HT Voltage	High Tension Voltage
HWM	High Water Mark
IBEC	Irish Business and Employers Confederation
IGEM	Institution of Gas Engineers and Managers
IP	Intelligent Pig
IPPC	Integrated Pollution Prevention and Control
KOIL	Keane Offshore Integrity
KP	Kilometre Point
kV	kilo-Volts (Unit of voltage)
LNG	Liquid Natural Gas
LUP	Land Use Plan
LVI	Landfall Valve Installation
Machair	Flat sandy plains on the North and West Coasts
MAOP	Maximum Allowable Operating Pressure
Mayo Co Co	Mayo County Council
MDPE	Medium Density Poly Ethylene
NACE	The National Association of Corrosion Engineers
NDP	National Development Plan
NHA	Natural Heritage Area
NPWS	National Parks and Wildlife Service
NRA	National Roads Authority
NSS	National Spatial Strategy
NWRFB	North Western Regional Fisheries Board
OH	Oral Hearing
OPW	Office of Public Works
P&D	Planning and Development
PA	Planning Authority
PAD	Petroleum Affairs Division Department of Communications, Energy and Natural Resources
PAD	Petroleum Affairs Division
PIMS	pipeline integrity management system
PMC	Project Monitoring Committee
POD	Plan of Development
Proximity Distance	Minimum distance permissible between the pipeline and any

	normally occupied building or traffic route as derived by figure 5 & 6 TD/1 definition. Figures 5 & 6 equate with figure 1 & 2 in 1S 328.
QRA	Quantified Risk Assessment
RDX1	Road Crossing 1
ROV	Remotely operated underwater vehicle
RPG	Regional Planning Guidelines
SCR	Selective Catalytic Reactors
SEA	Strategic Environmental Assessment
SEPIL	Shell E&P Ireland Limited
SI Act 2006	Strategic Infrastructure Act....
SPA	Special Protected Area
SW	Surface Water
SWSOS	South West Scotland Onshore System
TAG	Technical Advisory Group with the DCENR
TBM	Tunnel Boring Machine
TDU	Thermal Dose Units
TMO	Traffic Management Operatives
TMP	Traffic Management Plan
UKOPA	United Kingdom Onshore Pipeline Operators' Association
WS	Written Submissions

### Definitions from Petroleum (Exploration and Extraction) Safety Act 2010

Approved Safety Case	A safety case in respect of a designated petroleum activity or activities which has been approved by the Commission pursuant to the provisions of this Part and includes any revision made to a safety case which – <ol style="list-style-type: none"> <li>1. may take effect without prior approval of the Commission, or</li> <li>2. has been approved by the Commission.</li> </ol>
Decommissioning in relation to Petroleum Infrastructure	Taking the facility, structure or installation or any part of such facility, structure or installation permanently out of use with a view to its abandonment <i>in situ</i> or removal.
Designated Petroleum Activity	A petroleum activity which is designated by regulations under section 13D as a petroleum activity which requires a safety permit under section 13P.
Established Petroleum Activity	Means: <ol style="list-style-type: none"> <li>(a) a petroleum activity which, immediately before the coming into operation of this section is being carried on by a petroleum undertaking,</li> <li>(b) is a designated petroleum activity for the purposes of this Part, and</li> <li>(c) continues to be carried on after the coming into operation of this section by a petroleum undertaking.</li> </ol>

Petroleum	Includes: (a) any mineral oil or relative hydrocarbon and natural gas and other liquid or gaseous hydrocarbons and their derivatives or constituent substances existing in its natural condition in strata (including, without limitation, distillate, condensate, casinghead gasoline and other substances that are ordinarily produced from oil and gas wells), and (b) any other substance contained in oil and natural gas brought to the surface with them in the normal process of extraction, but does not include coal and bituminous shales and other stratified deposits from which oil can be extracted by distillation.
Petroleum Undertaking	Any person to whom a petroleum authorisation has been given or granted.
Safety Case	A document describing the components of the safety management system relating to the designated petroleum activity concerned.
Safety Permit	A permit issued under section 13P.

### Definitions from Planning and Development (Strategic Infrastructure) Act 2006

Strategic Downstream Gas Pipeline	Any proposed gas pipeline, other than an upstream gas pipeline, which is designed to operate at 16 bar or greater, and is longer than 20 kilometres in length.
Strategic Gas Infrastructure Development	Any proposed development comprising or for the purposes of a strategic downstream gas pipeline or a strategic upstream gas pipeline, and associated terminals, buildings and installations, whether above or below ground, including any associated discharge pipe.
Strategic Infrastructure Development	Means: (e) any proposed development in respect of which a notice has been served under section 37B(4)(a), (f) any proposed development by a local authority referred to in section 175(1) or 226(6), (g) any proposed development referred to in section 181A(1), (h) any proposed development referred to in section 181A(1), (i) any proposed strategic gas infrastructure development referred to in section 182C(1), (j) any scheme or proposed road development referred to in section 215, (k) any proposed railway works referred to in section 37(3) of the Transport (Railway Infrastructure) Act 2001 (as amended by the <i>Planning and Development (Strategic Infrastructure) Act 2006</i> ), or (l) any compulsory acquisition of land referred to in section



	214, 215A or 215B, being an acquisition related to development specified in any of the preceding paragraphs of this definition.
Strategic Upstream Gas Pipeline	So much of any gas pipeline proposed to be operated or constructed – (a) as part of a gas production project, or (b) for the purpose of conveying unprocessed natural gas from one or more than one such project to a processing plant or terminal or final coastal landing terminal, as will be situate in the functional area or areas of a planning authority or planning authorities.

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An Bord Pleanála Ref.: 16. GA0004

Report on certain aspects of the application for approval under Section 182C of the Planning and Development Acts 2000-2006 for the onshore upstream gas pipeline facility relating to the Corrib Gas Field Project, Co Mayo, as modified in response to the letter issued to the applicant by An Bord Pleanála on 2<sup>nd</sup> November 2009 and described in the Environmental Impact Statement submitted to the board on 31<sup>st</sup> May 2010

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Stephen O'Sullivan,  
Senior Planning Inspector

## **1.0 Introduction**

### **1.1 Brief of assignment**

This report is a supplement to the report that I submitted to Mr Martin Nolan on 19<sup>th</sup> August 2009 in response to the instructions in the brief of assignment approved by An Bord Pleanála on 20<sup>th</sup> April 2009 in relation to the application for approval under section 182C of the Planning and Development Acts 2000-2007 by Shell E&P Ireland Ltd. for an onshore, upstream gas pipeline facility to serve the overall Corrib Gas Field Project. It addresses those issues which were set out in the brief of assignment inasmuch as they relate to the modified proposal that was submitted to the board for approval on 31<sup>st</sup> May 2010 in response to the board's letter to the applicant dated 2<sup>nd</sup> November 2009. It was prepared following my inspection of the site, a review of the environmental impact statement submitted with the modified application, other documents and submissions made in relation to it and attendance at the oral hearing which was convened at Belmullet, Co. Mayo on 24<sup>th</sup> August 2010. It is submitted to Mr Martin Nolan, the person appointed pursuant to section 182D(1)(a) of the acts to conduct the oral hearing and make a report and recommendation on the modified application to the board.

This report should be read in conjunction with my previous report. The comments in the latter should be regarded as relevant to the modified proposal unless the contrary is stated in this supplementary report. This report does not attempt to summarise the parts of the 2010 EIS which are similar to corresponding parts of the 2009 EIS, or the entire content of written or oral submissions made in connection with the modified proposal which do not contain new material.

### **1.2 Contents**

The layout follows that of my previous report –

- Section 2 Legislation and other consents relevant to the proposed development
- Section 3 Impact of the proposed pipeline on natural heritage
- Section 4 Impact of the proposed pipeline on the landscape
- Section 5 The proposed peat deposition at Srahmore
- Section 6 Possible contribution for community gain
- Section 7 Summary of conclusions

## 2.0 Legislation and other consents relevant to the proposed development

### 2.1 European Legislation

In the case of *Sweetman vs. An Bord Pleanála and Ireland and the Attorney General and the Minister for the Environment, Heritage and Local Government and Galway County Council and Galway City Council*, “the Galway Outer By-pass case” (2009 IEHC 599), the Supreme Court has decided that a question should be referred to the European Court of Justice regarding the interpretation of Article 6 of the Habitats Directive, in particular the meaning of ‘integrity of the site’ for the purposes of appropriate assessment. The determination of the matter might require a negative conclusion for an appropriate assessment of a project that would result in the permanent loss of any Annex I habitat. However the conclusions on the issue set out in my previous report are consistent with the decision of the High Court on the case which stands for the time being.

Submissions from a prescribed body stated that article 4 (4) of the Birds Directive would apply to an assessment of the proposed development. For completeness’ sake the article 4 of the directive is copied below –

*1. The species mentioned in Annex I shall be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. In this connection, account shall be taken of:*

- (a) species in danger of extinction;*
- (b) species vulnerable to specific changes in their habitat;*
- (c) species considered rare because of small populations or restricted local distribution;*
- (d) other species requiring particular attention for reasons of the specific nature of their habitat.*

*Trends and variations in population levels shall be taken into account as a background for evaluations. Member States shall classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species, taking into account their protection requirements in the geographical sea and land area where this Directive applies.*

*2. Member States shall take similar measures for regularly occurring migratory species not listed in Annex I, bearing in mind their need for protection in the geographical sea and land area where this Directive applies, as regards their breeding, moulting and wintering areas and staging posts along their migration routes. To this end, Member States shall pay particular attention to the protection of wetlands and particularly to wetlands of international importance.*

*3. Member States shall send the Commission all relevant information so that it may take appropriate initiatives with a view to the coordination necessary to ensure that the areas provided for in paragraphs 1 and 2 above form a*

*coherent whole which meets the protection requirements of these species in the geographical sea and land area where this Directive applies.*

*4. In respect of the protection areas referred to in paragraphs 1 and 2 above, Member States shall take appropriate steps to avoid pollution or deterioration of habitats or any disturbances affecting the birds, in so far as these would be significant having regard to the objectives of this Article. Outside these protection areas, Member States shall also strive to avoid pollution or deterioration of habitats.*

## **2.2 National Legislation**

The Petroleum (Exploration and Extraction) Safety Act 2010 will, when commenced, establish a regime whereby the operation of the proposed development would be designated as a petroleum activity, the carrying out of which would require a safety permit from the Commission for Energy Regulation. It will also empower the Commission to establish a risk based safety framework and to specify standards and codes of practice for petroleum activity. Section 13K(2) of the act has already been commenced. It places a duty on undertakers that petroleum infrastructure, which would include the proposed pipeline, is sound and fit for the purpose for which it was designed, and is operating so that the risk of a petroleum incident is as low as is reasonably practicable.

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### **3.0 Impact of the Proposed Pipeline on Natural Heritage**

#### **3.1 Environmental Impact Statement**

##### **3.1.1 Extract from Section 1 of the EIS**

The proposed development includes the deposition of 75,000m<sup>3</sup> of peat at the deposition site at Srahmore, which is the same amount of peat deposition that was described in the 2009 EIS. No specific constraints have limited the assessment of the likely significant impacts on the environment of the development. Section 5.4.5 describes the use of the stone road method for construction in peatland, with the storage and reinstatement of turves occurring for a length of 190m to the east of the Leenamore River between chainages 89.350 and 89.540. Section 5.4.9 states that turves of the area of salt marsh in the immediate vicinity of the Leenamore River will be stored and reinstated. Section 5.5.3.2 states that the tunnelling compound SC3 at Aghoos would cover an area of approximately 24,000m<sup>3</sup>. The area of the compound would be reinstated by removing the surface dressing and 300-600mm of the imported stone and the placement of up to 600mm of disaggregated peat across the area. Section 5.5.1.3 describes the works required to install an intervention pit to remove an obstacle to tunnelling under the bay, if one is required.

##### **3.1.2 Section 12 - Terrestrial Ecology**

The description of the existing environment in section 12.3 notes the reinstatement in autumn 2009 of the topsoil at Glengad that had been stripped for works connected with the laying of the offshore pipeline. The area in which it is proposed to locate the compound for the tunnel reception pit (SC2) is dominated by wet rushy grassland. The area at Glengad at which site compound SC1 would be located is agricultural grassland. The site compound at Aghoos (SC3) that will accommodate the tunnel launch pit would be located in an area of heavily eroding blanket bog. Section 12.3.3.1 states that surveys from 2002 to 2010 showed otter activity all around Sruwaddacon. Three holts were identified in the 2010 survey in the vicinity of the proposed works, including one to the south-west of the landfall at Glengad. None were identified as principal or breeding holts. Section 12.3.4.2 states that a survey in the 2009 breeding season indicates that the two sand martin colonies at Glengad have expanded and did not appear to have been effected by the landfall construction that year. Section 12.4.3.1 refers to the impact on undesignated habitats that are considered to be equivalent to those listed in Annex I of the Habitats Directive. The salt marsh at Glengad will not be effected by the development as the tunnel route will pass underneath it. There would be temporary, direct, localised and moderate impacts during construction on the recovering eroded blanket bog at Aghoos between chainages 89.350 and 89.540. The impact on Annex I habitats within the cSAC would be limited to a direct, localised, temporary impact on the salt marsh at Leenamore. Section 12.3.4.2 states that the development would have a short term impact on otters by restricting their foraging range and disturbance. The impact is characterised as temporary, slight to potentially moderate negative. There would be no potential



significant long term impact on the otter population if no holts with otters present are directly affected. Section 12.5 describes mitigation measures, including the turving and reinstatement of salt marsh at Leenamore and the 190m of recovering eroded blanket bog at Aghoos; pre-construction surveys and the monitoring of the removal of dense vegetation to avoid impact on badger setts or otter holts; if such are found the removal would be by experts under licence from the NPWS; and the restriction of noise and light pollution from the construction compounds to avoid disturbance to birds. Section 12.6 states that no significant, long terms residual impacts are predicted on habitats or species.

### **3.1.3 Section 13 - Freshwater Ecology**

Section 13.4.4 considers the impact of noise from the tunnel boring machine. The sensitivity of salmon to sound is known and has been described in audiograms, and this is compared to the predicted noise output of the tunnel boring machine. It identifies a possibility that there may be an avoidance reaction by smolts within 90m of the tunnel boring machine. However, as the machine would only be operated for 20 minutes in each hour, such avoidance would not have a significant affect on the smolts' migration through Sruwaddacon. 13.4.7 describes a 'worst case' scenario with regard to the impact of the development on freshwater ecology. It refers to siltation in watercourses downstream of the pipeline crossings and the disturbance to migrating salmon from the insertion of an intervention pit or the breakout of bentonite. The likely significance of the latter impact is expected to be low. Section 13.5 describes mitigation measures. The drainage system for the tunnelling compound at Aghoos will divert runoff from the hardstanding, upon which the handling areas for bentonite and grout will be situated, to a storage tank and a filter press to remove solids. The water from this system will be brought off site to a separate licenced waste water treatment plant for disposal. Standard mitigation measures will prevent the run-off of suspended solids into freshwater streams. Section 13.6 states that there will be no residual impact from the development on freshwater ecology.

### **3.1.4 Section 14 - The Marine Environment**

Section 14.3.6 and table 14.8 summarise the results of marine mammal surveys in the area. They indicate that Broadhaven is important for both pinnipeds and cetaceans. No cetaceans were recorded in Sruwaddacon, but occasional forays cannot be ruled out. Pinnipeds have been recorded within Sruwaddacon. Section 14.4 discusses potential impacts of the development. The impact of noise from the tunnel boring machine on marine mammals is expected to be imperceptible, as the majority of the noise energy that it would produce would be below 100Hz. The impact of vibration from the machine on the benthos is expected to include some consolidation of sands, and the retraction or downward migration of polychaetes or other macro-invertebrate species. Downward migration would be limited by the redox discontinuity layer below which oxygen would not be available to fauna. Any such impacts would be localized and temporary. Section 14.5 describes similar mitigation measures to those described in the 2009 EIS. No significant residual impact on the marine environment is likely. Section 14.7 refers to oceanography and hydrography. It includes an expanded discussion

on the variability of the route of the main channel in Sruwaddacon over time which indicates that it is a dynamic environment. The proposed tunnelling under Sruwaddacon would not affect its oceanographic characteristics. An intervention pit could give rise to scour that would effect the channel, with a worst case scenario of a pit in the centre of a channel in the lower estuary giving rise to a scour area of 5,700m<sup>2</sup>. The impact could be mitigated by controlling the size and shape of any pit and the use of scour protection and the back filling of any scoured area. Most of the scour would naturally fill after the removal of the pit. The likely long term impact of any pit on the oceanographic characteristics of Sruwaddacon is therefore assessed as imperceptible to slight.

### 3.1.5 Appendices J, K & L

Appendix J1 is entitled *Ecological Impact Assessment*. It supports the content of section 12 in the main EIS but includes more information of the surveys of the natural environment in the vicinity of the proposed development. Faunal surveys for mammals and other vertebrates were carried out in 2002, 2007, 2008 and in February and March 2010. Bird surveys included those of the sand martin colonies and winter season aquatic birds up to the winter of 2009/2010. A breeding bird survey from 2004 is also cited. Section 6.3.3 details measures to be used to protect otters during construction. Pre-construction surveys would occur c200m either side of the centre line for the pipe. The removal of dense vegetation would also be supervised by persons with appropriate ecological expertise. An exclusion zone with no works will be established around any holts discovered until such time as the holts can be evacuated and then closed by experts under licence from the NPWS. If a holt is a breeding holt then no evacuation procedures shall be carried out until the otters have left the holt of their own accord. Measures will also be put in place to avoid trapping otters in open trenches. Details of the various faunal and habitat surveys supporting the EIS are given in further appendices.

Appendix J2 consists of bird data reports, including a report on the sand martin colony at Glengad and a report on the winter bird activity in Sruwaddacon, both dated March 2010

Appendix K is entitled *Fresh Water Ecology Assessment*. It includes a report which informed section 13 of the main EIS.

Appendix L is entitled *Marine Environment – Supplementary Reports*. It includes several reports which inform the content of section 14 of the main EIS.

### 3.1.6 Appendix P

Appendix P is entitled *Natura Impact Assessment*. It notes that the proposed development would be within two designated European sites – the cSAC for the Glenamoy Bog Complex, sitecode 000500, and the SPA at Broadhaven, sitecode 004307. The NPWS is quoted in section 4.2.1.1 of the appendix regarding the conservation objectives for the designated sites. Those for the cSAC seek to maintain to maintain specified Annex I habitats and Annex II

species. These do not include salt marsh, notwithstanding its status as an Annex I habitat, nor otters nor seals, despite their status as Annex II species. The conservation objectives for the SPA are to maintain at a favourable conservation status certain bird species, namely Ringed Plover, Bar-Tailed Godwit, Sandwich Tern, Great Northern Diver, Common Scoter, Dunlin and wetland and waterbirds. The Brent Goose is also considered to be a species of special conservation interest for the SPA. Potential impacts on habitats and species in the cSAC are described. The development will not affect any qualifying habitat for the cSAC. It would disturb approximately 2,000m<sup>2</sup> of salt marsh around the inlet of the Leenamore River, a non-qualifying Annex I habitat. Atlantic salmon, an Annex II qualifying species, might be effected by the insertion of an intervention pit, a bentonite breakout, the runoff of pollutants from the Aghoos compound or from noise emissions. Otters, an annex II non-qualifying species, may be effected during works by the limitation of their foraging range. A potential impact on species relevant to the SPA might occur due to disturbance of birds from noise and light at the construction compounds or noise and vibration by tunnelling. There may be a slight, localized impact on the feeding resource available in the macrobenthos if it is disturbed by the tunnelling. Ringed Plover is occasionally recorded at Sruwaddacon. However, significant numbers of were not recorded in Sruwaddacon from 2007 to 2010. It is therefore concluded that there are no significant populations of bird species for which the SPA is designated in the vicinity of the proposed works and that the development would not have an impact on any such species. There is no potential for a cumulative impact from other projects on the designated sites.

Mitigation measures will include turving and reinstatement of the salt marsh at Leenamore. Construction methods will include standard mitigation measures to protect otters and other terrestrial mammals. No specific measures are described in respect of marine mammals. The previously described measures to protect the sand martin colony at Glengad will be used. Acoustic screens and light control measures will be used to at the Glengad and Aghoos compounds to mitigate the impact on bird species. No residual impacts on qualifying species or habitats for the cSAC are predicted. The impact of the development on otters would be neutral in the medium to long term. The residual impact on qualifying species and those of importance for the SPA or pSPA at Broadhaven will be neutral. The proposed development will not, therefore, have a significant impact on the designated Natura 2000 sites, individually or in combination with other projects. Nevertheless, adequate information is submitted to allow an appropriate assessment of the project and to support a conclusion that it would have no adverse impact on the integrity of any designated Natura 2000 site.

### 3.1.7 Addendum

The Addendum to the EIS submitted by the applicant to the oral hearing provided additional information regarding the design and construction of a possible intervention pit, including that concerning its potential impact on natural heritage. Potential impacts are described as including loss of sediment within the pit; noise and vibration; scour; release of sediment fines

and/or bentonite; and the loss of habitat at the temporary jetty. Modelling of the impact of a pit on flow of water even at the most sensitive locations in the main channel indicate that the increase in speed would be less than 0.5 knots and so the expected area of scour is likely to be minimal and the level of suspended solids consequently less than that predicted in the main EIS. Vibration from piling will be temporary and intermittent. It would produce an avoidance reaction by salmon, but its intermittent nature would allow migrating fish to pass. A marine mammal observer will be present and will search for pinnipeds and cetaceans prior to piling operations. Any impact on otters would be localised. No significant residual impacts to the marine environment are predicted and there will be no adverse impact on either the cSAC or the SPA.

## **3.2 Submissions to the oral hearing by the applicant**

### **3.2.1 Terrestrial and Freshwater Ecology**

#### **3.2.1.1 Submission**

**Ms Jenny Neff** made a submission to the oral hearing on behalf of the applicant with regard to terrestrial and freshwater ecology. It states that the revision of the pipeline route compared to that proposed with the initial application in 2009 means that it no longer traverses Annex I qualifying habitats for the Glenamoy Bog Complex cSAC. There have been no alterations to the proposal for peat deposition at Srahmore that would alter its ecological impact from that previously assessed in 2009. The landfall occurs within the cSAC at a low cliff of glacial till which has been disturbed by previous work on the offshore pipeline. The route continues across an area of improved grassland. Approximately 600m<sup>2</sup> of the tunnel reception pit at Glengad would be located in the cSAC in an area of wet rushy grassland. The habitats in the cSAC that would be effected by the proposed works are of low ecological value. The habitats associated with the sand dune system to the north would not be effected. There are no machair habitats at Glengad. The tunnel launch pit and compound at Aghoos on the southern side of Sruwaddacon would be outside the cSAC in an area of heavily eroding blanket bog with partial cutover areas. The pipeline stringing area will extend into an area of wet grassland on the slope down to the Leenamore River. The pipeline route would cross an area of salt marsh fringing the river's inlet. It would traverse an area of recovering blanket bog for c190m, before crossing the L1202 road and passing through a conifer plantation to the gas terminal site. The eroding blanket and cutover bog at Aghoos where the tunnelling compound and pipe stringing area would be located is not considered equivalent to any Annex I habitat. The recovering blanket bog to the east of the Leenamore River would be equivalent to an Annex I habitat, although it is not part of the cSAC. The preservation and reinstatement of turves will be used to mitigate the impact of works in this area. Turving will also be used to mitigate the impact of the works on the salt marsh fringing the Leenamore River inlet, although this Annex I habitat is not a qualifying interest for the cSAC. No principal otter holts were discovered in surveys in the vicinity of the site. The proposed works would have no long term impact on otters. A number of confirmed frog breeding

sites will be directly impacted by the development. Survey results from 2009 and early 2010 indicate that the sand martin colony at Glengad has experienced an increase in breeding numbers.

The Natura Impact Statement in Appendix P of the EIS seeks to assist the competent authority by providing the necessary information to determine the significance of the impact of the development on designated European sites, in this instance the Glenamoy Bog Complex cSAC and the proposed Special Protection Area at Blacksod Bay/Broadhaven. The statement is summarised. It had regard to the guidelines for planning authority on appropriate assessment issued by the DoEHLG in 2010, the EU guidance document on the habitats directive issued in 2007, as well as to other documents and the results of consultations with the NPWS. The standard data form for the cSAC was used to identify the qualifying interests for which it was proposed, as well as species of conservation interest there and other species of importance. The proposed development will not impact any qualifying habitat for the cSAC. There will be disturbance to a small area of salt marsh, a non-qualifying Annex I habitat, which will be mitigated by turving. None of the effected habitats at Glengad are qualifying interests or Annex I habitats. No qualifying plant species or plant species of interest for the cSAC were found during surveys. Golden Plover are a bird species of interest for the cSAC but they have not been recorded in significant numbers on Sruwaddacon since 2002/03 and the development is not likely to have a significant impact on that species. No mammals are listed as qualifying species for the cSAC. Badger and Irish Hare are listed as species of importance. Both are widespread in the area. They may be subject to short term disturbance during construction but the development would have no significant long term effect upon them. The Atlantic Salmon is a qualifying species for the cSAC while the Sea Trout is a species of importance. They are not known in the Leenamore River and the proposed tunnelling method will avoid an impact on them in Sruwaddacon. Potential impacts on otters and seal species which appear on Annex II were considered in the statement, even though the species are not listed for the cSAC. The NPWS have advised that the boundary of the pSPA will differ from that of the existing SPA in that it will extend to the nearest definable land feature above Mean High Water and will include any wetland habitat. Of the qualifying species for the pSPA, Bar-Tailed Godwits have not been recorded on Sruwaddacon, while Sandwich Terns have only been recorded occasionally in its outer section. Feeding flocks of Ringed Plover are concentrated in the middle section of the bay, some distance from the proposed compounds. Given their mobile feeding behaviour, any disturbance to the Ringed Plover would not have a significant impact on the population in the pSPA. Light bellied Brent Geese are a species of conservation interest for the pSPA. The impact on them of the proposed works will be less than that described in the 2009 EIS because the revised tunnelling method has resulted in a smaller compound at Glengad set back further from their occasional roost in the dune system. Any impact would be localised and temporary. Other species of interest for the pSPA are discussed. The statement considers other projects in the vicinity which are part of the overall Corrib gas development, but does not identify likely cumulative impacts that would be significant for

the designated sites. The various mitigation measures relevant to the designated sites which are set out in the EIS are summarised.

The statement concludes that there would be no impact on the qualifying habitats or species for the cSAC. If the competent authority decides that an appropriate assessment is necessary, adequate information is provided for such. The authors' view is that the development will have no adverse impact on the designated site and that this can be concluded beyond scientific doubt. It can also be concluded objectively that the development will not have any significant effect on the pSPA. If the competent authority decides that an appropriate assessment is necessary, adequate information is provided for such. The authors' view is that the development will have no adverse impact on the designated site and that this can be concluded beyond scientific doubt.

The submission continues. It is stated again that machair is not present at Glengad. The sands in the dune system are siliceous rather than derived from shells. Species of conservation importance which are not listed as qualifying interests for the Natura 2000 sites were not disregarded and the impact of the development upon them was assessed. Frog translocation is regularly implemented and the key to its success is the choice of a suitable receptor site. Sufficient information has been gathered to enable an assessment of the impact of the proposed development. No significant impact on habitats or species will result from the construction of the proposed onshore pipeline.

In a final remark in her direct submission Ms Neff stated that the proposed to place slabs over the pipeline would not have a significant negative impact on the environment. This comment does not appear in the written brief of evidence.

### 3.2.1.2 *Response to questions*

In response to my question Ms Neff stated that the conclusions in the 2009 EIS regarding those parts of the pipeline route that were common to the 2010 proposal were not affected by the advice in guidelines for planning authorities on appropriate assessment. The 2010 EIS recommends that compatible locally sources stone of a similar pH be used in the construction of the stone road. This complies with the advice of the NPWS that carbonate rock material would not be used.

The applicant responded at length to questions from observers regarding the natural environment. Ms Neff stated that the area at Glengad which had been disturbed by the works to the offshore pipeline in 2009 was regenerating successfully. The cliff face was not restored as a sheer face, as this would be unstable. Ms Neff and Dr Farrell (appearing for the applicant) stated that peatland restoration was a well established process on which a considerable amount of expertise had been developed and that the developer would draw upon that expertise. The area at Aghoos is not undisturbed; it has been subject to drainage and grazing. Peat forming species were not



recorded to the west of the Leenamore River. The status of the final reinstatement of the eroded blanket bog on which the compound and stringing area will be located cannot be definitively described but Dr Farrell was confident that a sphagnum layer could be achieved. The 190m of recovering bog to the east of the Leenamore River will be restored to its pre-existing state. Ms Neff stated that she did not have personal experience of turving salt marsh but the approach was documented for different habitats. The turves of the salt marsh at Leenamore would be stored for only a few days before reinstatement. Ms Neff stated that otters occurred throughout the shoreline of Sruwaddacon and as far as was known no holt would be disturbed by the proposed development, but it was possible that a holt could be created before development commenced. Ms Neff rejected suggestions that machair was present at Glengad. Vegetation surveys and the siliceous nature of the sands there ruled its presence out, notwithstanding the record of machair in the visual survey carried out by the NPWS in 1993. The area which would be effected by the works at Glengad is improved agricultural grassland whose ecological value is limited due to its abundance across the country.

Dr Gavin Fennessy (appearing for the applicant) recounted the bird surveys on which the EIS relied. It is possible that Ringed Plover breed within 200m of the pipeline route on the shingle at Glengad, but the area floods completely and is not an optimal breeding location for the species. There was no record of snipe breeding in the area. The last breeding bird survey was carried out in 2004. The bird surveys for the EIS concentrate on the population of over-wintering birds as these are the qualifying interests for the SPA. The seasonal reinstatement of the compound at Aghoos would not be required to avoid impacts upon the Ringed Plover. Nationally significant numbers of Ringed Plover have not been recorded at Sruwaddacon in recent years. Bird can habituate to constant and predictable noise and vehicular movement and may be less disturbed than if a person or dog entered the intertidal area. The material at the reinstated cliff at Glengad is too gravelly to provide sand martin burrows but the overall numbers in the colony have never been higher.

### **3.2.2. Marine Environment**

#### **3.2.2.1 Submission**

**Mr Ian Wilson** made a submission to the oral hearing on behalf of the applicant regarding the marine environment. It refers to additional survey operations carried out since the previous oral hearing in 2009 which confirmed previous assessments that the biomass within the sandy sediments in Sruwaddacon was low. It also refers to continued monitoring for marine mammals in Sruwaddacon. The revised pipeline route passes through estuarine and inter-tidal habitats, both of which are Annex I habitats but are not qualifying interests for the Glenamoy Bog Complex cSAC. The change in construction methodology to segment lined tunnelling would allow greater access to remove obstacles encountered during the works and so would reduce the likelihood of an intervention pit being required. The depth of the works beneath the sediment render it unlikely that a release of

bentonite would reach the water above. The substance is inert and non-toxic, although it could cause a plume that would cause avoidance behaviour in some fish. The impact of noise and vibration on marine mammals, fish and macro-invertebrates is discussed. Following the information set out in section 14.4 of the EIS significant negative impacts are not predicted in this regard. An intervention pit could effect the marine environment through noise and disturbance, an increase in suspended solids, obstruction to migratory fish, scour, and the loss of habitat beneath the temporary jetty. Mitigation measures would involve keeping the area of habitat disturbance and the duration of operations to a minimum, and the subsequent reinstatement of habitats and sediments. The dimensions of the pit would not affect the flow of water along the main channel and so would not interrupt adult salmon migration. The submission concluded that the proposed works would not have a significant impact on the marine environment. It is highly unlikely that an intervention pit would be required but even if this were the case, its impact would be minimised by mitigation and would be imperceptible. There would be no residual impact on the marine environment once the development was operational.

### 3.2.2.2 *Response to questions*

In response to my question Mr Ian Wilson stated that the typical scour protection measures that would be carried out if an intervention pit was required where the potential for scour was greatest, in or near the main channel, would involve the installation of a concrete mattress c. 15cm thick at the same time as the piling. This would protect the sand outside the pit but would not be large enough to create more scour itself. He referred a question to Mr Jaguttis who confirmed that the revised tunnelling process reduced the likelihood of an intervention pit because the larger segmented tunnel would allow greater access from within the tunnel to remove any obstacles encountered.

Mr Wilson also made a submission which sought to demonstrate that the video shown by Mr Anthony Brogan did not show any breach of proper procedures regarding cetaceans by boats operating on behalf of the applicant. The shots from the video which showed boats and dolphins did not indicate that the boats had unduly encroached or disturbed the dolphins, having regard to the low angle at which the shots were taken. Mr Wilson stated that a break out of grout would not breach the surface of the seafloor because the line of least resistance would be along the annulus of the tunnel. The grout is much more viscous than the bentonite. Any grout exposed by an intervention pit would be several weeks old and thus hardened. There is an active layer of surface sediment ranging in depth from 30-50cm in the lower bay to 2-3cm in the upper bay. The sediments below this layer are quite stable.

### 3.2.3 References to natural heritage in the closing statement from the applicant

Minor defects in the EIS would not undermine the substantial compliance with the requirement for environmental impact assessment. Article 6(4) of the Habitats Directive is not a hybrid with Article 4(4) of the Birds Directive. In any case the latter sets a lower standard which seeks to prevent a serious deterioration of a habitat. Ongoing site investigation and monitoring does not breach any Irish or European law. The integrity of the cSAC and the pSPA would not be adversely affected by the development and so the test in Article 6(4) of the Habitats Directive does not apply. There is no machair at Glengad and the pipeline would not affect the area which has been claimed to be machair. Adequate surveys were carried out for otters and there would be no significant adverse impact on that species. 190m of blanket bog will be allowed to renew. The environmental impact assessment of the possible modification by placing concrete slabs over the pipeline on land was contained in the expert evidence to the oral hearing.

### 3.3 Submissions from Prescribed Bodies

#### 3.3.1 Mayo County Council

The council's written submission states that the development would have a minimal impact on sites designated for natural heritage and would not affect the integrity of those sites. It recommends conditions requiring the monitoring of the clearance of dense vegetation; the prior agreement of method statements and protective measures for construction in ecologically sensitive areas; and an ecological monitoring plan to be carried out by an ecologist in liaison with the project monitoring committee. The report of the council's heritage office is included with the submissions. The report states that the mitigation measures described in the EIS should be carried out; that construction should be monitored by ecologists in agreement with the NPWS and the fisheries board; that no development should take place until method statements have been agreed with the relevant authorities; and that a detailed environmental management plan be prepared and implemented.

#### 3.3.2 Department of the Environment, Heritage and Local Government

##### 3.3.2.1 *Written Submission*

The comments from the **Foreshore Unit** stated that the construction of the tunnel as proposed is not likely to have direct significant negative impacts on the foreshore but that the methodology for the construction of any intervention pit and of the crossing of the Leenamore River should be agreed with the NPWS and the Inland Fisheries Ireland.

The comments from the **National Parks and Wildlife Service** state that Sruwaddacon is part of the SPA at Blacksod Bay/Broadhaven, site code 4037 which was designated under SI 31 of 1995 for wintering waterbirds and breeding terns. The department intends to re-designate an SPA at

Blacksod Bay/Broadhaven. It has not yet commenced the statutory notification procedures for such designation but on the basis of counts of wintering waterbirds between 1995 and 2000, a 1995 survey of tern and a census of breeding seabirds in 2000, it has identified the bird species of Ringed Plover, Bar-tailed Godwit and Sandwich Tern as qualifying interests for the site. Certain other bird species and the wetland habitat in the area are identified as special conservation interests for the site. Light-bellied Brent Geese did not exceed the threshold for national importance and so was not listed as a special conservation interest but should be so regarded for the purposes of this assessment as other surveys have recorded them in significant numbers in Sruwaddacon. That bay is also important for Ringed Plover, but that species was not recorded in nationally important numbers there from 2007/08 to 2009/10. The proposed tunnelling method is the preferred option from an SPA management perspective because it does not involve cutting a trench across the bay. The submission identifies the potential impacts of the development of the SPA as arising from the possibility of an intervention pit; cutting a trench across the Leenamore River; displacement of birds due to light and noise at the construction compounds at Glengad and Aghoos; and the impact of vibration from the tunnel boring machine through sediments on feeding waterbirds, particularly Ringed Plover. The mitigation measures listed in section 14.5 of the EIS and sections 6.2 to 6.4 of Appendix J1 should be implemented in full. If these are implemented the department's considered opinion is that the potential impacts are unlikely to have a significant impact on the species of conservation interest for this SPA or their habitats.

The submission states that the proposed works are unlikely to have a significant impact on marine habitats or marine mammals, and that the department is satisfied that the proposed works will not have a significant impact of the terrestrial or freshwater habitats or species if all mitigation measures outlined in the EIS are fully implemented. In conclusion the department is of the view that the development as proposed is unlikely to be significant adverse effect on the SPA or cSAC and it therefore unlikely to have an adverse impact on the integrity of either site, provided the mitigation measures outlined in the proposal and recommended by the department are implemented in full. The latter measures require habitat disturbance to be kept to a minimum; that the construction period should be as short as possible but designed to have minimum impact on the conservation objectives of the site; that the surface sediments in Sruwaddacon shall be reinstated if impacted; that any scour areas be in-filled; that bentonite usage be monitored and any leaks to the water column reported to the department; that no rock breaking occur at Glengad; and that all mitigation measures described in the EIS be implemented.

#### 3.3.3.2 *Response to questions*

The National Parks and Wildlife Service of the Department of the Environment, Heritage and Local Government was represented at the oral hearing by Mr Pat Warner who responded to questions regarding bird protection, Dr Elizabeth Sides who responded to question regarding the terrestrial environment, and Dr Eamon Kelly who responded to questions

regarding the marine environment. Mr Warner stated that the proposed re-designation of the SPA would involve its boundary being at the nearest landward feature that could be mapped, as opposed to the mean high water mark as at present. The formal process for re-designation had yet to be launched. In response to my questions Dr Sides stated that the department's submission did not refer to Atlantic salmon and that Inland Fisheries Ireland was the appropriate body to comment on that species. Mr Warner stated that the conservation objectives and qualifying interests for the cSAC and SPA were published on the department's website.

The service responded to questions from observers at length. Dr Sides stated that only a proportion of any Annex I habitat in the state is designated for protection. The European Commission has expressed a view that an adequate area of blanket bog habitat had been designated in Ireland. The degraded bog at Aghoos is not an Annex I habitat. The salt marsh at Leenamore is not a qualifying interest for the cSAC. There is no machair habitat at Glengad. No Annex I priority habitat would be effected by the proposed development. The cSAC does not contain any marine qualifying interest. Salmon are protected in freshwater. Detailed site specific conservation objectives have not been developed for the cSAC. The generic conservation objectives copied at Appendix P of the EIS are applicable. A derogation licence could be issued in respect of otters if it was demonstrated that the proposed disturbance would not have a significant impact on its population. Adequate mitigation measures and monitoring were set out in the EIS with respect to otters. The state must report the issuing of any such licence to the European Commission, but does not normally make them public. The department's code of conduct regarding marine mammals does not require boats to maintain the normal separation distance from cetaceans if the cetaceans have approached the boats. This situation is not unusual, given the natural curiosity of several cetacean species. Dr Sides expressed her confidence in the qualifications of the persons carrying out the survey work described in the EIS and the proposals for peat deposition at Srahmore. Dr Sides accepted that previous reports from the service on associated projects had indicated a working window in Sruwaddacon from late March to early August to avoid impact on over-wintering birds.

Mr Warner stated that the department was satisfied with the bird surveys which had been carried out. Bird counts since the early 1990's did not show any desertion by species, including the Ringed Plover, which would justify concerns regarding previous works associated with the overall Corrib gas project. Dr Kelly stated that he was satisfied with the proposed grouting. He was also satisfied with the borehole activity in Sruwaddacon. There would be little fauna more than 15cm beneath the sea floor. The introduction of lime cement cores into Sruwaddacon as part of the borehole activity would not affect the feeding resources or food chain in the bay supporting birds. The EIS contained comprehensive information on the benthic environment. The intertidal habitat at Sruwaddacon would not be hospitable for cetaceans. Adequate proposals have been made by the applicant for the monitoring of marine mammals.

The National Parks and Wildlife Service submitted documents to the oral hearing including a list of species for which the proposed SPA at Blacksod Bay/Broadhaven should be selected, including Light-bellied Brent Geese and Ringed Plover, and other species which would be of special conservation interest for the site. The service stated that the public consultation process for the proposed SPA designation would begin in September 2010. The submission included a copy of the service's comments, dated 2<sup>nd</sup> March 2010, on the application for a foreshore licence by the applicant for borehole activity in Sruwaddacon. It recommended mitigation measures to prevent pollution of the waters and to avoid disturbance to marine mammals. Mr Warner stated that the service did not have any record of communications regarding interference with cetaceans.

### **3.3.3 Inland Fisheries Ireland – Ballina**

A written submission to the board on 27<sup>th</sup> July 2010 stated that wastewater from the compound at Aghoos be treated in a treatment plant that has adequate capacity to deal with additional loadings to avoid discharge of partially treated/raw sewage into the fisheries environment. Subject to this, the body is satisfied that all fishery concerns associated with the project have been addressed in the EIS.

### **3.3.4 Department of the Marine, Energy and Natural Resources**

On behalf of the environmental consultants for the department, ENVIROS, Mr Jonathon Hancox made a submission to the oral hearing which stated that the firm's role was to assess the submitted EIS, review third party submissions to the department, and to propose relevant conditions that should be considered for inclusion in any ministerial consent which may issue on foot of the application for consent under section 40 of the Gas Act, 1976. It has had reviewed the revised Onshore EIS from 2010, the Offshore EIS from 2001 and the Offshore Update report from 2010. Further information had been sought from the applicant on a series of issues relating to the 2010 Onshore EIS.

### **3.3.5 An Taisce**

The submission to the oral hearing from An Taisce stated that the presentation of significant additional information, including the borehole log data, at the oral hearing by the applicant without public notification and a further opportunity to make submissions contravenes the participation requirements of article 6(3)a) of the EIA directive. The current application does not provide the board with adequate information on which to assess the development.

The application is out of time because significant further information was submitted after the deadline of 29<sup>th</sup> June 2010 set by the board, as well as at oral hearing. The application is invalid because there is no application for the retention of elements of the development that have been constructed, and which required planning permission but did not receive it, namely the



pipeline from the high water mark to the landfall at Glengad. The work to construct that part of the development was not exempt development. The work also require environmental impact assessment and so consent for it cannot be granted after construction. The EIS submitted for the 2002 application for consent under section 40 of the Gas Act 1976 did not describe the pipeline constructed from the high water mark and the breach of the cliff at Glengad and so it has not previously been the subject to EIA. The previous section 40 consent cannot be amended. The board cannot grant permission for that section of the pipeline that has no consent under section 40 and the matter cannot be addressed by submitting an application for a new section 40 consent. The foreshore licence for the borehole survey in Sruwaddacon is invalid because no EIA or appropriate assessment was carried out for it. Therefore the borehole data submitted to the hearing was obtained illegally. For the above reasons the board cannot grant permission on foot of the current application.

The borehole survey being carried out by the applicant in Sruwaddacon is development for which no permission was sought or given. The applicant constructed development at Glengad in a different location from that described in the EIS submitted for the section 40 consent. The applicant has made application for consent to retain development and variations without prior consent. On the basis of the previous conduct of the applicant the board should consider making an application to the High Court under section 35 of the Planning and Development Act 2000 in respect of this application.

The consideration of alternatives to the development in the EIA to carried out by the board has been unduly constrained by the location of the landfall at Glengad and the terminal at Bellanaboy and by the modification invited by the board's letter of 2<sup>nd</sup> November 2009. Any decision other than refusal would therefore not accord with the EIA and Habitats Directives.

The submission refers to Directive 2009/147/EC – the Birds Directive, and Directive 92/43/EEC – the Habitats Directive. The outstanding issue regarding the definition of the phrase 'site-integrity' overrides all other arguments about article 6 (3) & (4) of the habitats directive. Because the boundaries of the SPA at Broadhaven are being re-drawn the site reverts to a pSPA and the more restrictive provisions of article 4(4) of the birds directive apply which rule out justifying an impact on a site on the basis of economic considerations. Therefore, having regard to the evidence of adverse impacts to the sites governed by the habitats directive the board cannot grant permission for the development. With regard to the outstanding matters in the Galway Outer By-pass case concerning the interpretation on the phrase 'integrity of the site' and the lack of site specific conservation objectives for the cSAC and pSPA as well as the precautionary principle, a refusal of the scheme is the only option. The board cannot provide evidence that something will not be adversely effected until it knows that that thing actually is. Any such uncertainty would require the procedures of article 6(4) of the directive to be invoked, following the ECJ judgement on the Waddenzee case and as stated on the guidelines issued by the European Commission on the implementation of the habitats directive. The

consideration of alternatives to the development have been unduly constrained and so their absence cannot be ascertained as required by article 6(4). As the cSAC hosts a priority habitat, an opinion from the European Commission would be required as the proposed development would not be justified by imperative reasons of overriding public interest based on considerations of human health or public safety or beneficial consequences of primary importance for the environment.

Furthermore, the phrasing of Article 7 of the habitats directive which applies the controls in article 6 of the directive to the sites classified under the birds directive only applies after the latter are classified. Therefore, the proposed SPA at Broadhaven is subject to the controls in article 4 of the Birds Habitat instead, which requires member states “to take appropriate steps to avoid pollution or deterioration of habitats or any disturbances affecting the birds, in so far as these would be significant having regard to the objectives of this Article”. Objective 2 of article 4 requires member states to pay particular attention to the protection of wetlands. Therefore it is not legally permissible for the board to grant permission for a development which could cause pollution or deterioration of habitats or any disturbances affecting the birds. The proposed development would give rise to such effects on the basis of the potential requirement for the intervention pit, the light pollution and associated peripheral effort it would cause. The proposed reduction of the site at Leenamore cannot be justified on economic grounds. The ECJ has ruled in *Commission vs Germany* C57/89 and *Commission vs Spain* C355/90, and other cases, economic or recreational interests cannot be balanced against the ecological interest on this point. Thus the applicant cannot justify the project, nor can the board authorize it, on economic grounds. Therefore the board cannot grant permission for the project under the provisions of the habitats and birds directives.

The lack of an emergency response plan and the possibility of an intervention pit threaten the status of the Natura 2000 sites. The proposed post consent conditions suggested by the NPWS are illegal under the Lough Rynn judgement of the ECJ, C283/05, as stated in circular NPWS 01/07 from the Department of the Environment. Section 3.4.1.5 of the 2009 EIS stated that trenchless tunnelling under the bay for a distance of greater than 1km would be difficult to complete without frequent surface intervention. The re-use of the tunnel arisings in the bog and in the vicinity of the Leenamore River inlet would have unknown environmental consequences. The 12m wide trench proposed outside the recovering bog at Leenamore would leave a vacant area beside the pipe. The recovering bog should be regarded as active blanket bog. The EIS does not address the impact of the proposed stone road construction method on the hydrology of the area. The compromise of any bog which is active or capable of becoming such a priority habitat is a serious concern. A paper from the Convention on the Conservation of Migratory Species of Wild Animals is cited as to the effect of light pollution on wild animals and birds. Inadequate survey work was carried out to identify the characteristics of the otter population in the vicinity of the proposed development and inadequate details were given of the proposed construction methods to support a conclusion in the EIS that

the proposed development would not have a negative impact on otters. As otters are an Annex IV species, a derogation licence under article 16 of the Habitats Directive would be required to kill or capture them, or to disturb them or their breeding or resting places. Such a derogation licence should have been sought in advance of the application. It cannot be the subject of a post consent condition. Furthermore such a licence could not be provided at this time because of the decline of the species and the consequential absence of favourable status for it.

In response to questions from the applicant An Taisce stated that could not state that the applicant had been involved in any breach of the department's code of conduct regarding marine mammals. There were concerns surrounding the granting of a foreshore licence for the borehole activity in Sruwaddacon.

An Taisce made a closing submission to oral hearing on 30<sup>th</sup> September 2010. It re-iterated much of the material regarding the impact of the development on natural heritage presented in its initial submission. It also asserted that comments that machair is not present at Glengad were not properly founded.

### **3.4 Submissions from observers**

**3.4.1** The submissions to the oral hearing from various observers raised concerns with the impact of the development on the natural environment which were similar to those raised in some of the written observations on the application. Those concerns can be summarised as follows -

- A proper environmental impact assessment, as required by European and Irish law, cannot be carried out because adequate information has not been submitted; the information submitted was not correctly advertised and sufficient time was not provided for proper participation by members of the public; and the improper division of responsibility under Irish law for the assessment of various aspects and elements of the overall Corrib gas project which fails to give effect to the requirements of the EIA directive.
- An appropriate assessment of the impact of the development on designated Natura 2000 sites cannot have any conclusion other than a negative one because adequate information has not been presented; site specific conservation objectives have not been made for the sites; the failure to consider the impact on designated sites other than the SPA at Broadhaven and the cSAC at the Glenamoy Bog Complex; and because the works involved would have a negative impact on species and habitats of conservation importance including those for which the sites are designated.
- The development would damage salt marsh at Leenamore and could damage the estuarine and intertidal habitat at Sruwaddacon from pollution during construction and the construction of an intervention pit. Both are Annex I habitats under the Habitats Directive. The development would also damage

a recovering blanket bog at Aghoos which is equivalent to an Annex I habitat. Certain submissions stated that the recovering blanket bog at Aghoos should be regarded as a priority habitat.

- The development would damage machair, a priority habitat on Annex I of the Habitats Directive, at Glengad. Surveys maps prepared for the NPWS in 1993 showing machair there was submitted to refute the statements by the project ecologist retained by the applicant that such a habitat was not present at Glengad.
- The development would have a negative impact on otters, an Annex II and Annex IV species whose conservation status is not stable or improving. Thus a derogation licence to kill or capture them under article 16 of the Habitats Directive cannot be granted. The survey information regarding otters in the EIS is inadequate.
- The development would have an adverse effect on birds, including snipe whose conservation status is amber and ringed plover which is a qualifying interest for the SPA. Both of these species are located close to the proposed compound at Glengad. The noise and light pollution from the development would cause disturbance to birds. The works at Glengad would exacerbate the damage done to the sand martin colony.
- The development would have a negative effect on marine mammals. A video was shown to illustrate the disturbance to cetaceans that could occur. The protection afforded to whales, dolphins and porpoises under international and Irish law and policy was emphasised. The noise and disturbance from the development would have an adverse impact on pinnipeds.
- The tunnelling would give rise to an increase in suspended solids in Sruwaddacon which would have a negative impact on salmon and the feeding resources for birds.
- Restoration works cannot recreate a pristine, untouched environment.

### 3.4.2 Closing statements

Several of the closing statements by observers reiterated the previously expressed concerns regarding the impact of the development on the natural environment. In particular it was stated that the runoff of peat and other emissions would cause serious pollution in Sruwaddacon; that the EIA for the project is inadequate as proper bird surveys covering the summer period were not submitted; and that an appropriate assessment of the project must be negative as it has not been demonstrated that the development would not damage machair, blanket bogs and salt marsh, which are annex I habitats, and cetaceans and otters, annex II and IV species.

## **3.5 Assessment**

### **3.5.1 Description of development**

#### *3.5.1.1 Intervention Pit*

The description of the works that would be required to provide an intervention pit set out in section 5.5.1.3 of the environmental impact statement that accompanied the modified proposal was sufficient to allow its potential impact on the natural environment to be assessed. That description was augmented by the details contained in the addendum to the EIS submitted at the oral hearing. I am satisfied that adequate information was submitted regarding the method of construction for a possible intervention pit. The applicant stated to the oral hearing that the tunnelling method now proposed would make it even less likely that an intervention pit would be required because it would allow better access to remove obstacles from within the tunnel. This statement has a reasonable basis and is accepted.

#### *3.5.1.2 Slabbing*

The applicant's reference at the oral hearing to the possibility of the proposed development being modified by the installation of concrete slabs above certain sections of the pipeline was noted. Such works were not described as part of the development in the environmental impact statement and their possible effect on the ecology of the area was not discussed there. Thus adequate information was not made available to the public or to the board to allow the potential impact of the slabbing on natural heritage to be assessed in accordance with the procedural and substantive requirements of EIA legislation, notwithstanding the reference by the applicant's ecologist to the matter at the end of her submission to the oral hearing. It is not considered, therefore, that the installation of concrete slabs can form part of the project that is the subject of the environmental impact assessment that the board is carrying out under the current application for approval under section 182C of the planning acts. I do not propose to express an opinion as what effect such an installation might have on the natural heritage of the area.

### **3.5.2 Habitats**

#### *3.5.2.1 Machair*

The EIS and the project ecologist retained by the applicant, Ms Jenny Neff, stated that machair was not present at Glengad. This statement was vigorously questioned by several observers, and a survey map prepared by the NPWS in 1993 was produced which recorded machair habitats in the vicinity. Ms Neff's position on the issue is preferred. While a general visual survey of the area might lead to an initial conclusion that machair was present at the sand dunes at Glengad, Ms Neff provided a categorical expert opinion that was based on a detailed survey of the flora there and the chemical composition of the sand. In any event the pipeline route at Glengad runs through agricultural grassland that has formed on glacial till. I have confirmed this by inspection of the site, including inspections that occurred before the ground was disturbed by works connected with the Corrib Gas project. The proposed pipeline,

including all ancillary works such the site compounds SC1 and SC2, the landfall valve installation and access road, as well as the installed pipeline above the High Water Mark, would not interfere with the sand dunes at Glengad or any land that might arguably be regarded as machair. It can therefore be concluded with scientific certainty that the proposed development will not have any impact on machair habitats.

#### 3.5.2.2 *Salt Marsh*

The pipeline would be located in a tunnel beneath an area of salt marsh at the shore at Glengad. This area of salt marsh would not be effected by the project. The proposed development would disturb an area of salt marsh at the inlet of the Leenamore River. The salt marsh at this location consists of a small area fringing the shoreline. The omission of this salt marsh habitat from the list of qualifying interests for the cSAC at the Glenamoy Bog Complex is consistent with its very limited and rather insignificant extent. The disturbance of the salt marsh here would be mitigated by the proposal to retain turves and reinstate them after construction. The proposed turving is likely to be successful, although it was not demonstrated that this would eliminate all possible adverse effects on the salt marsh at Leenamore. However, as stated at section 3.4.5 of my previous report, the significance of the residual risk of loss of this habitat is small, because of the limited significance of the small area of salt marsh here. No information or arguments have been submitted subsequently which would effect this conclusion.

#### 3.5.2.3 *Intertidal and Estuarine Habitats*

The proposed project has the potential to effect the intertidal and estuarine habitats in Sruwaddacon in several ways. However it is not considered that they would be likely to cause significant adverse effects. It is noted that the macro-invertebrate population at Sruwaddacon is lower that would normally be the case in estuarine environments and is limited by the pattern of tidal and freshwater flows there. The expert opinion presented by the applicant indicated that the vibration may give rise to some settlement of sands, but the scale involved would be small and would alter the ecological characteristics of the bay. The vibration would not cause a significant increase in the level of suspended sediment in the water or its turbidity. The impact of a breakout of bentonite would be mitigated by the fact that it is an inert material that would dissipate in the bay relatively quickly. The material to be used as grout would contain an element of cement but if it were to leak from the tunnelling operation, it would not rise to the water column. As stated above, it is accepted that it is unlikely that an intervention pit would be required to carry out the proposed development. The impact that would arise if one were required would be mitigated by the limited area that would be subject to direct disturbance (c15m by 12m); the limited duration of works (c.8 weeks); and the restoration of the sediments that were subjected to direct disturbance or scour. Having regard to the foregoing, it is concluded that the proposed development would not have a significant adverse effect on intertidal or estuarine environments.



#### 3.5.2.4 *Blanket Bog Habitats*

The impact of the proposed stone road construction methods on the structure and hydrology of blanket bogs was discussed extensively in the environmental impact statement and at the oral hearing conducted in 2009, as was the likelihood that the proposed turving and reinstatement procedures would successfully restore blanket bog habitats. The conclusions on the matter stated in my previous report stand – the applicant had established that the proposed construction method and mitigation measures would be likely to conserve the ecological value of the blanket bog through which the pipeline would pass, but that a residual risk of damage to the habitats could not be ruled out. The modified pipeline proposal would not affect any bogs within the candidate Special Area of Conservation for the Glenamoy Bog Complex. After inspection of the land, it is accepted that the bog at Aghoos where it is proposed to located site compound SC3 and the tunnel launch pit has been heavily modified and eroded. The changes to that area that would result from the proposed development are therefore not regarded as significant in ecological terms. The proposed construction method and re-instatement of turves for construction of the 190m of bog on the eastern side of the Leenamoy River at Aghoos, which is classified as recovering blanket bog, is a reasonable approach that gives due consideration to the value of that habitat. The residual possibility of an alteration to this somewhat modified blanket bog habitat should not be regarded as a significant adverse effect. The proposal by the applicant as the owner of that land to allow the bog there to regenerate naturally raises the prospect of a significant improvement in the status of the habitat there, although this is not strictly required in order to justify the impact of the project. Having regard to the foregoing, it is concluded that the proposed development would not have a significant adverse effect on blanket bog habitats.

### 3.5.3 **Fauna**

#### 3.5.3.1 *Birds*

The low concentration of macro-invertebrates in the sediments at Sruwaddacon, referred to above, limits the feeding resources available for birds there, although the bay is within the boundaries of the Special Protection Area at Blacksod Bay/Broadhaven and the revised boundaries for the proposed SPA submitted by the National Parks and Wildlife Service. Appendix J2 of the environmental impact statement describes the extensive surveys of bird populations in the vicinity. Given that the area is within an SPA that was designated for over-wintering bird populations, the concentration of the survey effort on the winter period is reasonable. It is not considered, therefore, that there is any significant omission in the description of the bird population in the receiving environment that was submitted in the EIS, including that relating to Ringed Plover or Snipe. The updated surveys of the sand martin colony at Glengad support the conclusion that the works associated with the Corrib Gas project there did not have an adverse impact on the colony, and neither would the works currently proposed. I refer to the conclusion stated at section 3.4.1 of my previous report that the development then proposed would not have a significant adverse impact on birds. The modified proposed currently before

the board would, in most respects, have a lesser impact on birds. There would be no works to the north of Sruwaddacon; the construction compound at Glengad would be smaller; and it is less likely that an intervention pit would be required. The size of the construction compound at Aghoos and the intensity of activity there may have a greater potential impact on birdlife. However the compound would maintain a separation distance of 27m from the boundary of the SPA at Sruwaddacon. The emissions of noise and light from the compound are quantified in the EIS and addendum and are shown to decrease to 45 dB (A) and 0.3 lux respectively at that boundary. It is not considered that these levels would have a significant adverse impact on birds in the SPA at Sruwaddacon. Furthermore the main concentration in bird populations are shown by the survey data to occur in the lower and middle sections of Sruwaddacon and so lie at a greater distance from the compound at Aghoos. The citation by An Taisce of a study on the impact of light pollution was noted. However the conclusions of that study were very general in nature and would not refute the conclusions in the EIS and those adduced at the oral hearing by the applicant which were specific to the site and stated by appropriately qualified experts. Having regard to the foregoing, it is concluded that the proposed development would not have a significant adverse effect on birds, including those species which are qualifying interests for the SPA or are qualifying interests or of conservation interest for the proposed SPA.

#### 3.5.3.2 *Fish*

Inland Fisheries Ireland have advised that waste water from the area for handling bentonite and cement at the compound at Aghoos is treated at a treatment plant with adequate capacity. This can be addressed by condition. The advice that other fishery concerns have been addressed in the EIS is noted. The information contained in the EIS and in the applicant's submission to the oral hearing addressed the impact of vibration from the tunnel boring machine on the sediments at Sruwaddacon. Some minor settling was predicted, but no substantial increase in the amount of sediment that would be suspended in the water which might lead to avoidance by migrating salmon. The mitigation measures that would be used to control the drainage of surface water during construction on land, in order to avoid the release of suspended solids into watercourses and thus to Sruwaddacon, are similar to those proposed and considered in 2009. No information or argument was submitted to indicate that the previous conclusion (that the measures were acceptable) should be re-visited. The impact of noise and vibration from the tunnel boring machine on salmonid fish is considered in the EIS. The conclusion that no significant adverse impact would arise in this regard is soundly based on empirical evidence and is accepted. The consideration of the likely impact of the insertion of an intervention pit on salmonid fish is also acceptable, and the conclusion in my previous report that it would not have a substantial negative effect stands. Having regard to the foregoing, it is concluded that the proposed development would not have a significant adverse impact on fish, including Atlantic Salmon.

### 3.5.3.3 *Marine Mammals*

Sruwaddacon is a narrow and shallow inlet of the sea and would not be a hospitable or attractive environment for cetaceans. The absence of any record of their presence there in the survey data upon which the EIS is based is consistent with this situation. The video presented to the oral hearing did not show cetaceans in Sruwaddacon, but outside of it in Broadhaven. Furthermore, as stated above, it is not considered that the development would have a significant impact on the marine environment at Sruwaddacon. It is therefore concluded that the proposed development would not have any significant effect on cetaceans. Despite the lengthy questioning of the applicant at the oral hearing on the subject, no scientific information or argument was submitted which would support an alternative conclusion on the matter. The potential impact of the development upon pinnipeds in Sruwaddacon as a result of noise and vibration from the tunnel boring machine, and from disturbance from a possible intervention pit, are adequately considered in the environmental impact statement. The stated conclusions that no significant negative effect is likely are well founded and are accepted. Having regard to the foregoing it is concluded that the proposed development would not have a significant adverse impact on marine mammals.

### 3.5.3.4 *Otters*

Adequate survey information on otters was included at appendix J1 of the environmental impact statement. The conclusion in the EIS that the impact of the proposed development on otter would be likely to be a minor, temporary negative impact as a result of the restriction of the foraging area available to the otter population around Sruwaddacon during construction is well founded and is accepted. No scientific data or argument has been presented that would support an alternative conclusion. The proposed mitigation measures involving a pre-construction survey and the supervision of the removal of dense vegetation, and the possible evacuation of holts under licence from the NPWS, are a reasonable, proportionate and precautionary response to the impact that the development might have on such a mobile species. It is therefore concluded that the proposed development would not be likely to have a significant adverse impact on otters.

## 3.5.4 **Environmental Impact Assessment with regard to Natural Heritage**

Although an EIS should contain information on the main alternatives to a project that were considered by a developer, there is no specific duty in the European or Irish legislation for the consent authority to assess alternatives to the development in its environmental impact assessment. The arguments on the matter made at the oral hearing would not support a conclusion that the consideration of alternatives has been unduly constrained in a manner that would prevent a proper EIA or consent for the project currently proposed. Adequate information is before the board regarding the characteristics of the proposed development, the environment in which it would be located and the proposed mitigation measures to allow the board to carry out an environmental impact assessment of the direct and indirect effects of the development on habitats, flora and fauna in accordance with its duties under Irish and

European law. If the board were minded to grant approval, there is no outstanding requirement to complete the environmental impact assessment through the gathering of further information on natural heritage of the area or the development's impact upon it. The monitoring of the site and of works before, during and after the carrying out of the development, and the preparation and submission of construction method statements, referred to in various sections of the environmental impact statement reflect a prudent approach that would help to ensure that there would be significant deviation from the development and mitigation measures that are described in that statement. They are not required to complete an inadequate environmental impact statement or assessment.

It is accepted that the Environmental Impact Assessment Directive has direct effect on the board. It is conceivable that the directive could impose a duty upon the board which was not consistent with the operation of Irish legislation that also applied to the board. However no convincing argument has been made to show that any such conflict actually arises in the course of the current application for approval. The precise means by which the EIA directive is given effect in Ireland and the allocation of responsibilities arising from it to various agencies is a matter for the Irish legislature whose decisions do not fall to be reviewed by the board.

The omission of certain figures from appendix J1 of the environmental impact statement as submitted to the board on 31<sup>st</sup> May 2010 was a minor but unfortunate defect in the initial EIS. However there is no reason to believe that the omission could have had any prejudicial or otherwise significant effect on the environmental impact assessment process carried out with respect to natural heritage or public participation in that process. The information contained in the addendum to the oral hearing did not substantially effect or alter the conclusions reached in this report regarding the impact of the development on habitats, flora or fauna.

### **3.5.5 Appropriate Assessment**

#### *3.5.5.1 Requirement for Appropriate Assessment*

Given the very substantial nature of the works required to carry out the proposed project, it should be regarded as likely to have a significant effect on the Natura 2000 sites in which it would be located, i.e. the candidate Special Area of Conservation for the Glenamoy Bog Complex and the Special Protection Area at Blacksod Bay/Broadhaven. It should therefore be subject to an appropriate assessment of its implications for those sites in view of the sites' conservation objectives in accordance with article 6(3) of the Habitats Directive. The proposed project would not be likely to have a significant effect, either individually or in combination with any other plan or project, on any Natura 2000 site other than those in which it would be located and so should not be the subject of an appropriate assessment of its effect on such other sites.

### 3.5.5.2 Conservation objectives for the Natura 2000 sites

It is noted that the National Parks and Wildlife Service referred at the oral hearing to statements of the conservation objectives for the cSAC and SPA. The statements referred to are those which are quoted in full in Appendix P of the EIS at sections 4.2.1.1 and 4.2.1.2 respectively. In response to questioning the NPWS acknowledged that these were generic conservation objectives which in the case of the cSAC are based on the standard data form submitted to the European Commission that listed the Annex I habitats and Annex II species for which the site had been selected; and in the case of the SPA the species identified as qualifying species for the designation of the SPA by statutory instrument SI31 of 1995. The NPWS stated that a process was in train to develop site specific conservation objectives. The argument was made by An Taisce and other observers that the failure so far of the NPWS to issue site specific conservation objectives means that an appropriate assessment of the implications for the sites of the proposed project cannot be carried out in the view of the site's conservation objectives as those objectives are not yet known. This argument is not accepted.

Article 6(1) of the Habitats Directive requires member states to establish necessary conservation measures for special areas of conservation, including management plans if need be. The establishment of such necessary, site specific measures is the duty and responsibility of the member state. The necessary measures should not be conflated with the conservation objectives of the site which they are designed to further. It is not within the competence of member states themselves to determine conservation objectives for the site. These emerge from a process which involves both the member state and the European Union. That process relies upon the habitats and habitats of species which are to be maintained or restored to a favourable conservation status that are specified in the Annexes to the directive made by the council and the parliament; the making of a list of candidate sites by the member states; the adoption of a list of sites of community importance by the Commission; and the designation of sites as special areas of conservation by member states. Thus it is not a matter for the Department of Environment, Heritage and Local Government or its National Parks and Wildlife Service to itself compose or decide upon the conservation objectives for any particular site which is in the process of designation. An alleged failure of the department to do so could not, therefore, prevent the carrying out an appropriate assessment of a project under Article 6(3) of the directive if one were required, as one is now. The department may decide upon conservation measures under article 6(1). It may also publish documents which describe the conservation objectives for the site which should be given due weight given its particular expertise and central role in the designation of sites under the Habitats and Birds Directive. But it does not decide by itself what the conservation objectives are for any Natura 2000 site.

I would therefore advise the inspector that, for the purposes of the appropriate assessment required of the current project, the conservation objectives of the cSAC at the Glenamoy Bog Complex should be taken as the maintenance at a favourable conservation status of the Annex I habitats and Annex II species for which the site was selected and which are cited in section 4.2.1.1 of

Appendix P of the EIS and in the written submission from the NPWS, and in various other submissions to the board and oral hearing; and that the conservation objectives for the SPA at Blacksod Bay/Broadhaven should be taken as the maintenance at a favourable conservation status of the bird species that appear in Annex I of the Birds Directive for which the site was selected and which are cited in section 4.2.1.2 of Appendix P of the EIS and in the written submission from the NPWS, and in various other submissions to the board and oral hearing. As the designation of SPAs in Ireland is being reviewed following a decision of the European Court of Justice, it would also be reasonable and prudent for the appropriate assessment to take full account of effect of the proposed project on the bird species which, according to the written documents presented by the NPWS to the oral hearing state, the proposed Special Protection Area at Blacksod Bay/ Broadhaven has been selected, as well as to the wetland habitat which supports them.

I would also advise the inspector that regard should be had to the general objective set by Article 2 of the Habitats Directive to maintain habitats and species of community interest at a favourable conservation status. The possibility of significant negative effects on Annex I habitats and Annex II species located outside Natura 2000 sites or in sites which have not been selected to maintain their conservation status should therefore be assessed. However the such effects should not simply be equated with the possibility of negative effects on habitats and species which are qualifying interests for Natura 2000 sites, as this would unduly diminish the significance of the actual selection of sites for the Natura 2000 network and so would tend to militate against the proper implementation of the Habitats and Birds Directives.

#### 3.5.5.3 *Integrity of the site*

The interpretation given to the phrase 'integrity of the site' in Article 6(3) of the Habitats Directive in my previous report is consistent with the decision of the High Court in the Galway Outer By-pass Case (Sweetman vs. An Bord Pleanála and others, 2009 IEHC 599). The fact that the Supreme Court has referred a question on the matter to the European Court of Justice is noted. However the differing positions on the issue are not now relevant to the appropriate assessment of the project because of the changed circumstances of the modified proposal which does not impact upon blanket bog habitats within the cSAC to any extent whatsoever.

#### 3.5.5.4 *Candidate Special Area of Conservation at the Glenamoy Bog Complex*

The proposed project would not have adverse effects on the habitats or species in the cSAC for which that site was designated, including blanket bog, machair or Atlantic Salmon and would not effect their maintenance at a favourable conservation status. The absence of such effects has been demonstrated beyond reasonable scientific doubt by the data and expert opinion which was contained in the environmental impact statement and in the other submissions to the board and to the oral hearing and which are described in this foregoing sections of this report. An appropriate assessment of the implications of the project for the cSAC in view of the site's conservation objectives can therefore ascertain that it will not adversely effect the integrity of the site.



#### 3.5.5.5 *Special Protection Area at Blacksod Bay/Broadhaven*

The proposed project would not have adverse effects on the species in SPA for which that site was designated and would not effect their maintenance at a favourable conservation status. The absence of such effects has been demonstrated beyond reasonable scientific doubt by the data and expert opinion which was contained in the environmental impact statement and the other submissions to the board and the oral hearing and which are described in this foregoing sections of this report. An appropriate assessment of the implications of the project for the SPA in view of the site's conservation objectives can therefore ascertain that it will not adversely effect the integrity of the site.

#### 3.5.5.6 *Proposed Special Protection Area at Blacksod Bay/Broadhaven*

The proposed project would not have adverse effects on the species in the proposed SPA described by the National Parks and Wildlife for which that site was designated and would not effect their maintenance at a favourable conservation status. Neither would the development have a significant adverse impact on the wetland habitat in the pSPA which support the said bird species. The absence of such effects has been demonstrated beyond reasonable scientific doubt by the data and expert opinion which was contained in the environmental impact statement and the other submissions to the board and the oral hearing and which are described in this foregoing sections of this report. An appropriate assessment of the implications of the project for the pSPA in view of the site's conservation objectives can therefore ascertain that it will not adversely effect the integrity of the site.

It is noted that An Taisce submitted that the proposed project should not be subject to an appropriate assessment under Article 6(3) of the Habitats Directive in respect of the proposed Special Area of Conservation, but rather that it should be tested against the requirements of Article 4 of the Birds Directive. A grant of approval for the proposed project by the board would not contravene Article 4(4) of the Birds Directive because the project would not give rise to pollution, deterioration of habitats or disturbance that would be significant having regard to the objectives of the article to conserve the species listed in Annex I of the directive, as well as regularly occurring migratory species not listed in Annex I, and the wetland habitats which are significant for them.

#### 3.5.5.7 *Other Habitats and Species*

The proposed development would not have a significant negative impact on habitats listed on Annex I of the Habitats Directive or species listed on Annex II which are not qualifying interests for the Natura 2000 sites in which the development would be located, including salt marsh, estuarine/intertidal habitats, cetaceans, pinnipeds or otters. If the carrying out of the development necessitated the relocation of otters, then the applicant would have to apply to the Department of the Environment, Heritage and Local Government for a derogation licence under Article 16 of the directive. At this point it would be a matter for the department to determine whether such a derogation was

justified and whether it could be granted without detriment to the maintenance of the otter population at a favourable conservation status. It was argued by certain observers that any application must perforce be refused, and so that the description of the development and mitigation measures in the environmental impact statement would need amendment. However this contention was not established. The board should not attempt to prejudice the department's consideration of any putative application for an article 16 derogation licence in its consideration of the current application for approval under section 182C of the Planning and Development Acts 2000-2010.

The proposed development would not have an impact on other habitats or species of flora or fauna that would give rise to a significant injury to the natural heritage of the area.

### **3.6 Conclusion and Recommendation**

An appropriate assessment of the implications of the modified proposed project for the cSAC at the Glenamoy Bog Complex and the Special Protection Area at Blacksod Bay/Broadhaven in view of the conservation objectives of those sites can and should ascertain that the project would not adversely affect the integrity of those sites because the absence of adverse effects on the relevant conservation objectives has been demonstrated beyond reasonable scientific doubt by the information contained in the environmental impact statement and the other submissions made to the board and at the oral hearing on the modified proposed project. The project would not be likely to have a significant effect on any other Natura 2000 site and so an appropriate assessment is not required with regard to any other such site. The project would not have significant adverse effects on other Annex I habitats or Annex II species, the maintenance of which is not a conservation objective of the above mentioned Natura 2000 sites but in which respect of which a general duty to conserve arises from the Habitats Directive. The project would not have an adverse effect on the proposed Special Protection Area that would justify a negative conclusion to an appropriate assessment carried out under article 6(3) of the Habitats Directive or which would be significant with respect to the objectives stated in article 4 of the Birds Directive. Neither directive would therefore prohibit a grant of approval on foot of the current application under section 182C of the Planning and Development Acts 2000-2010, regardless of whether the project was justified by an imperative reason of over-riding public importance. The modified pipeline proposal would not cause an injury to natural heritage that would render it contrary to the proper planning and sustainable development of the area. The impact of the modified proposed development would not, therefore, require a refusal of approval or substantial alterations to the development.

As it has been concluded that the proposed development would not have an adverse impact on migrating salmon or overwintering or migrating birds, a condition which restricted the works required to carry it out to certain times of the year would be redundant, at best. It might prove counterproductive if such a restriction extended the time required to complete the development, or the space required to accommodate the working area, and such extensions had

negative impacts in other respects which had not been described in the EIS or scrutinized in the EIA. Such a condition is therefore not recommended. It is noted that the reports from the county council, the NPWS and Inland Fisheries Ireland referred to specific impacts on the natural environment and the mitigation measures which address them. These might be made the subject of separate conditions attached to a grant of approval. However all the recommended measures were described in the EIS and/or the applicant's submission to the oral hearing. The coherence of any approval or the ease with which it might be enforced would not be improved if the approval distinguished on what appears to be a somewhat arbitrary basis between mitigation measures specified in the conditions and those specified in the EIS. If a grant of approval is made, then the following condition should be attached–

All mitigation measures described in sections 12, 13 and 14 of main volume of the environmental impact statement submitted to the board on 31<sup>st</sup> May 2010, in the addendum to that statement and in the submissions from the applicant to the oral hearing convened at Belmullet on 24<sup>th</sup> August 2010, shall be carried out in full during the course of development.

**Reason:** In order to protect the natural heritage of the area

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## **4.0 Impact of the Proposed Pipeline on the Landscape**

### **4.1 Environmental Impact Statement**

**4.1.1** Section 10 of the EIS deals with the visual impact of the development on the landscape. The operational phase of the development would have a slight or no visual or landscape impact. The construction phase of the development would include the impact of the compounds at Aghoos and Glengad and their lighting at night. The lighting spill from the former would decrease to a level of 1 lux c.25m from the boundary of the compound while the measurable light spill at the shore of Sruwaddacon. The landscape and visual impact of the construction phase would be substantial and negative, but short term in nature. The use of appropriate lanterns, properly directed and baffled, is proposed as a mitigation measure, as are the use of green lanterns on tall structures, the minimization of the intensity, extent and duration of artificial lighting and the use of dark surfaces within the compound where possible. After construction and the reinstatement of the landcover, no residual visual or landscape impacts are proposed.

**4.1.2** Appendix I is entitled *Landscape and Visual Impact Assessment*. It notes that the construction compounds will be lit at night, and that the stockpiles, silos and moving gantries located there will result in a high magnitude of change in the landscape. Mitigation measures would include the use of green protective fencing to screen the working area; the directing and control of lighting to avoid spill and the use of green lighting on high structures. A photomontage of the proposed compound at Aghoos is provided in appendix A3 of the EIS. Figure 1.5 maps the light spill from the compound.

### **4.2 Submission to the oral hearing by the applicant**

Mr Raymond Holbeach made a submission to the oral hearing on behalf of the applicant regarding landscape and visual impact. It states the visual and landscape impact of the development during construction will be significant and negative, but that the operational phase of the development would not have a significant negative impact in those regards.

In response to questions Mr Holbeach defended the accuracy of the photomontages in the EIS. The compound at Aghoos would have a substantial impact on the view across Sruwaddacon but this would be temporary as the construction period would be for two years. It was his responsibility as a landscape architect to develop a landscape appraisal for each project assessed.

### **4.3 Submission from Prescribed Body - Mayo County Council**

The council's written submission states that, with regard to landscape and visual amenity, the impact of the pipeline will be temporary, occurring during construction works. If the mitigation measures described in section 10.5 of the EIS are carried out then the completed development would have a negligible impact and the status of the landscape will not be affected. The

impact of the compounds at Glengad and Aghoos and the associated lighting during construction will be significant but of short duration.

#### **4.4 Submissions from observers**

Mr Anthony Brogan stated that the landscape characterization by Mr Holbeach for the applicant did not accord with that set out in the statutory development plan and that the open nature of the landscape would render it highly vulnerable to damage from development. In closing statements other observers stated that the 2.5km long steel fence and lighting for 26 months of the compound at Aghoos would seriously injure the character of the area.

#### **4.5 Assessment**

The impact of the operational phase of the development would be as described and assessed in my previous report. It would be essentially limited to the impact of the above ground Landfall Valve Installation at Glengad and would not have a significant adverse impact on the quality of the landscape or the area's visual amenity.

In some respects the impact of the construction phase of the modified pipeline proposal would be less than that of the initial proposal due to the absence of works above ground to the north of Sruwaddacon and the smaller site compounds required at Glengad. Against this, the site compound and pipe stringing area at Aghoos would have a greater impact due to its larger size, the greater amount of equipment located there, and the requirement for illumination at night. The photograph of the site compound in Appendix A Viewpoint 5 provides a useful illustration at an appropriate standard for an EIS but it should not be regarded as definitive. I would advise the inspector that the works at Aghoos are likely to have a very substantial negative effect on the character of the surrounding area. The proposed mitigation measures are reasonable, but will only reduce this effect to a limited extent. It should be regarded as a negative impact of the proposed development. Nevertheless, with a duration of c.26 months, it should be regarded as an essentially temporary effect. Furthermore the existing visual character of the site as an open and rather bare piece of bog could be restored relatively quickly by the removal of the structures and equipment used for construction. In these circumstances it is not considered that the visual impact of construction would materially contravene the provisions of the county development plan with regard to the protection of the character of the landscape and designated views, including those across Sruwaddacon. Nor would it render the project contrary to the proper planning and sustainable development of the area.

#### 4.6 **Conclusion and recommendation**

The impact of the development on the visual amenity of the area and the character of the landscape, either during its construction or operation, would not render it contrary to the proper planning and sustainable development of the area nor would it require a refusal of approval or substantial modification of the proposal. If a grant of approval is made, then the following condition should be attached –

The measures to mitigate the visual impact of the proposed development set out in section 10 of the environmental impact statement submitted to the board on the 31<sup>st</sup> May 2010 and in the submissions made by the applicant to the oral hearing which convened at Belmullet on 24<sup>th</sup> August 2010 shall be implemented in full in the course of the development.

**Reason:** To protect the visual amenity and character of the area.

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## **5.0 The Proposed Peat Deposition at Srahmore**

### **5.1 Volume 3 of the environmental impact statement**

The description of the existing environment, of the proposed development, of the proposed mitigation measures and of the likely impact of the development on the environment contained in volume 3 of the EIS is substantially the same as that contained in volume 3 of the 2009 EIS, with the additional of the results of ongoing monitoring at the site contained in the appendices.

### **5.2 Applicant's submission to the oral hearing**

In response to questioning Mr Aiden McGee stated that the moisture content of the peat taken from the compound at Aghoos for deposition at Srahmore would be similar to that previously taken there from the terminal site at Bellanaboy.

### **5.3 Assessment and recommendation**

After consideration of volume 3 of the EIS submitted to the board on 31<sup>st</sup> May 2010, to the submissions made in respect of the modified pipeline proposal and attendance at the oral hearing convened upon it, I would advise the inspector that my opinion on the proposed deposition of peat at Srahmore is substantially the same as that expressed in my previous report. This element of the project would be in keeping with the proper planning and sustainable development of the area. If a grant of approval is made, the following condition should be attached -

The deposition of peat at the site at Srahmore authorised by this permission shall be carried out in accordance with the description of development provided in volume 3 of the environmental impact statement submitted to the board on 31<sup>st</sup> May 2010 and all the mitigation measures described therein shall be carried out in full.

**Reason:** In order to clarify the scope of the authorised development and to protect the environment and amenities of the area

## **6.0 Possible contribution for community gain**

### **6.1 Environmental Impact Statement**

Section 6.5.3 of the EIS describes the community social investment programme operated by the applicant, which differs somewhat from that described in the 2009 EIS. Firstly, the applicant launched the Corrib Natural Gas Erris Development Fund in January 2009. The fund was established with advice from a board containing representatives of local development agencies including the county council, Udarás na Gaeltachta, Leader, the county enterprise board and the Council for the West. Its objectives are to contribute to the economic, social and environmental development of the Erris area. It will contribute to capacity building by providing financial and other assistance to benefit the local community. The fund has a budget of €5m to for its first three years. It has made initial investments with Belmullet GAA Club and the RNLI. Over 50 applications have been received by the fund and €2.2m allocated to 14 different projects. Secondly, a local grants programme was supported by the contractors development the gas terminal. It has operated since 2006 and provides grants of up to €10,000 to local groups and organizations for particular projects. In 2009 it allocated €350,000 to 94 groups, 14 of whom were from Kilcommon. Thirdly, a scholarship programme offering 10 bursaries of €4,000 per annum ran from 2007 to 2009. It was funded by a contribution of €450,000 by SEPIL and its partners. The applicant has undertaken to continue this programme for a further three years from January 2010.

### **6.2 Submission to the oral hearing from the applicant**

Mr Kieran Kennedy made a submission to the oral hearing on behalf of the applicant in relation to community issues and planning policy. It discusses the community investment carried programme. It refers to the three strands described in the EIS, namely the Corrib Natural Gas Erris Development Fund, the Local Grants Programme and the Scholarship Programme. It states that the programme is open to all community, voluntary and sporting organizations in the Erris area, but that projects by groups in the parish of Kilcommon are prioritized under the development fund and the grants programme. The submission also refers to the financial contributions made by the applicant under to conditions of the grant of permission for the terminal at Bellanaboy, PL16. 207212, including €5.7 million to the improvements of roads and water supply, €30,000 to the fire service, €64,000 for art works and the peat fund levy of €450,000 towards amenities in the locality.

### **6.3 Submission from Prescribed Body – Mayo County Council**

It states that it would be appropriate to impose a condition requiring a financial contribution for community gain similar to condition no. 42 of permission PL16. 207212, Reg. Ref. P03/3343 issued by the board, having regard to the figure at Table 4.1 of the EIS that 78,600m<sup>3</sup> of material would be imported on-site and 95,235m<sup>3</sup> of material would be deposited off-site. It recommended the imposition of a condition requiring a contribution to the

planning authority for environmental improvements, recreational or community amenities in the locality amounting to 1 euro for every 1m<sup>3</sup> of waste peat and tunnel arisings transported off the site or of stone, rock, sand and gravel transported to the site, as well as another condition requiring a payment of €20,000 to the Regional Arts Centre at Belmullet.

In a closing statement to the oral hearing Mayo County Council stated that the community forum organised by the county's director of community and enterprise supported the selection of community representatives for the project monitoring committee required under condition no. 34 of the grant of permission made by the board for the terminal at Bellanaboy.

#### **6.4 Submissions from observers**

In both written submissions and at the oral hearing certain observers stated that the funding from the applicant provided a substantial benefit to the community. However many other observers stated that the effect of funding by the applicant was socially divisive and increased community tension associated with the project. Funding directed towards schoolchildren was cited as a particular concern in this regard. Some of the resources generated by the development should be directed towards environmental education.

#### **6.5 Assessment**

My advice to the inspector regarding a possible contribution to community gain is similar to that set out in my previous report. The amount, timeframe and objects of the funding required under a condition should be similar to those recommended in that report. However, it is noted that the funding procedures set out in the revised EIS of 2010 are more highly developed than those described in the 2009 EIS. The effect of the condition recommended below would be to displace the applicant from the ultimate decision making role regarding the disbursement of monies from the proposed Corrib Natural Gas Erris Development Fund, and to replace it with the statutory bodies responsible for enforcement, although it would not prevent the applicant from disbursing additional funds at its own discretion. This is considered appropriate following the assessment contained in my previous report. Furthermore, regard should be had to the subsequent submissions made by observers which stated that previous voluntary funding arrangements instituted by the developer gave rise to tensions and divisions within the local community. In the particular circumstances of the Corrib Gas project, this is likely to have been the case. There is no reason to believe that the applicant has made the provision of such funding in any way contingent upon its recipients supporting the Corrib Gas project, or refraining from actively opposing any element of it. The applicant's statements of its bona fide intentions in provide such funding for the benefit of the community are accepted without qualification. Nevertheless, it would be preferable that decisions regarding the detailed distribution to the local community of the residual financial benefits that would accrue from the operation of a condition under section 182D (6) of the Planning and Development Acts 2000-2010 did not depend upon the decisions of a legal person who was

simultaneously carrying out a complex and controversial development within that community, in order to avoid any apprehension of objective bias.

## **6.6 Conclusion and recommendation**

If a grant of approval is given for the proposed project, then the following conditions should be attached –

The developer shall operate a social investment programme for the benefit of the community in the area of the proposed development. The programme shall operate generally in the manner described in section 6.5 of the main volume of the environmental impact statement submitted to the board on 31<sup>st</sup> May 2010 save where modified by the requirements of this and other conditions of the approval.

The programme shall operate from the date on which works on foot of this approval commence for a period of 5 years, or until 3 years after the date on which the works on foot of this approval have been completed, whichever is the later. The developer shall provide €1,670,000 per annum to fund the programme. The money required under this condition shall be lodged to a specified bank account on the day on which the programme commences and then on or before the same date in each subsequent year. The money shall be disbursed in the form of scholarships and grants to groups or persons in order to provide substantial benefits to the local community on a not-for-profit basis.

Proposals for particular scholarships and grants under the programme shall be drawn up by the developer after consultation with a local advisory group constituted in the manner described in section 6.5 of the main volume of the environmental impact statement submitted with application. Monies shall not be paid for such scholarships and grants unless and until the relevant proposal has been approved in writing by the county council after the council has satisfied itself that the proposed expenditure is in keeping with the objects of the programme and would provide a substantial gain the community in the area in which the approved development is located. Accounts of payments to and from the social investment programme shall be submitted to the county council at least once every 12 months. If the county council does not consider that the payments into and out of the fund are in keeping with the requirements of this condition or the proper objects of the programme, it may issue a direction to the developer to do such things or make such payments as are reasonably necessary to remedy such deficiency.

Any money which remains in the specified bank account a year after the programme has ceased shall be transferred to the county council who shall thereafter have discretion to spend the remaining money on environmental improvements recreational and community amenities.

In the event of a dispute between the county council and the developer regarding any aspect of the funding or operation of the social investment programme or otherwise relating to compliance with this condition, the

matter shall be referred to An Bord Pleanála for determination and the developer and the county council shall comply with that determination.

**Reason:** In order to ensure that the a substantial gain is provided for the local community in accordance with section 182D (6) of the Planning and Development Acts 2000-2006

The developer shall make a contribution of €20,000 to the Regional Arts Centre at Belmullet in a form to be agreed with Mayo County Council.

**Reason:** To provide for community facilities in accordance with section 182D (6) of the Planning and Development Acts 2000-2006

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## 7.0 Summary of conclusions

### 7.1 Conclusions

The conclusions of the report can be summarised as follows -

- The proposed development would not be likely to have a significant effect on any Natura 2000 sites other than the cSAC at the Glenamoy Bog Complex and the SPA at Blacksod Bay/Broadhaven
- Adequate information has been submitted to the board to allow it to make an appropriate assessment of the implications of the proposed development for the above sites and to allow the board to make an environmental impact assessment of the proposed development with regard to the natural environment and the landscape
- An appropriate assessment of the implications of the proposed development for the above sites in view of their conservation objectives can and should ascertain that the project would not adversely affect the integrity of those sites because the absence of adverse effects on the relevant conservation objectives has been demonstrated beyond reasonable scientific doubt
- The proposed development would not have a significant adverse effect on any other habitat listed in Annex I of the Habitats Directive or a species listed in Annex II
- The proposed development would not have any adverse effect on bird species or the wetland habitat supporting them that would be significant in respect of the objectives of Article 4 of the Birds Directive
- Therefore the provisions of the Habitats and Birds Directives would not prohibit the board from granting approval for the proposed development
- The development would not seriously injure the natural heritage of the area
- Notwithstanding the substantial negative visual impact of the site compound and pipe stringing area at Aghoos, the proposed development would not seriously injure the visual amenity or landscape character of the area due to the temporary nature of the impact associated with construction and the limited visual impact of the above ground structures required for the operation of the pipeline. The development would not contravene the policies of the development regarding protection of the landscape or designated views.
- Volume 3 of environmental impact statement submitted to the board on 31<sup>st</sup> May 2010 provides adequate information on the proposed peat deposition at Srahmore to allow the board to make an environmental impact assessment in respect of it. The site at Srahmore is generally suitable for the proposed deposition, and it would not have a significant negative impact on the surrounding area and environment. The proposed works at Srahmore would



have a minor net benefit in terms of natural heritage. This element of the development proposed in the current application would therefore be in keeping with the proper planning and sustainable development of the area.

- The carrying out of the works required to construct the proposed onshore pipeline would give rise to disruption to the local community and would justify the imposition of a condition under section 182D(6) of the Planning and Development Acts 2000-2006. The contribution to the Belmullet Arts Centre recommended by the county council and the social investment programme described by the applicant would constitute substantial gains to the local community. The level of funding proposed would not deprive the applicant of the benefit of any approval and would not be likely to disrupt the social or economic structure of the area. It would therefore be appropriate that they be the subject to a condition attached to any approval issued on foot of the current application.

## 7.2 Recommendation

A refusal of permission or substantial modification of the development proposed in the current application would not be required as a result of its impact on natural heritage or the landscape or the impact of the proposed peat deposition at Srahmore, provided the mitigation measures described in the environmental impact statement and the applicant's submissions at the oral hearing were carried out in full. It would be appropriate to impose a condition on any approval requiring a contribution for community gain similar to that proposed by the applicant in its social investment programme.

The following conditions should be attached to any grant of approval for the proposed development.

1. All mitigation measures described in sections 12, 13 and 14 of main volume of the environmental impact statement submitted to the board on 31<sup>st</sup> May 2010, in the addendum to that statement and in the submissions from the applicant to the oral hearing convened at Belmullet on 24<sup>th</sup> August 2010, shall be carried out in full during the course of development.

**Reason:** In order to protect the natural heritage of the area

2. The measures to mitigate the visual impact of the proposed development set out in section 10 of the environmental impact statement submitted to the board on the 31<sup>st</sup> May 2010 and in the submissions made by the applicant to the oral hearing which convened at Belmullet on 24<sup>th</sup> August 2010 shall be implemented in full in the course of the development.

**Reason:** To protect the visual amenity and character of the area.

3. The deposition of peat at the site at Srahmore authorised by this permission shall be carried out in accordance with the description of development provided in volume 3 of the environmental impact statement submitted to the board on 31<sup>st</sup> May 2010 and all the mitigation measures described therein shall be carried out in full.

**Reason:** In order to clarify the scope of the authorised development and to protect the environment and amenities of the area

4. The developer shall operate a social investment programme for the benefit of the community in the area of the proposed development. The programme shall operate generally in the manner described in section 6.5 of the main volume of the environmental impact statement submitted to the board on 31<sup>st</sup> May 2010 save where modified by the requirements of this and other conditions of the approval.

The programme shall operate from the date on which works on foot of this approval commence for a period of 5 years, or until 3 years after the date on which the works on foot of this approval have been completed, whichever is the later. The developer shall provide €1,670,000 per annum to fund the programme. The money required under this condition shall be lodged to a specified bank account on the day on which the programme commences and then on or before the same date in each subsequent year. The money shall be disbursed in the form of scholarships or grants to groups or persons to provide substantial benefits to the local community on a not-for-profit basis.

Proposals for particular scholarships and grants under the programme shall be drawn up by the developer after consultation with a local advisory group constituted in the manner described in section 6.5 of the main volume of the environmental impact statement submitted with application. Monies shall not be paid for such scholarships and grants unless and until the relevant proposal has been approved in writing by the county council after the council has satisfied itself that the proposed expenditure is in keeping with the objects of the programme and would provide a substantial gain the community in the area in which the approved development is located. Accounts of payments to and from the social investment programme shall be submitted to the county council at least once every 12 months. If the county council does not consider that the payments into and out of the fund are in keeping with the requirements of this condition or the proper objects of the programme, it may issue a direction to the developer to do such things or make such payments as are reasonably necessary to remedy such deficiency.

Any money which remains in the specified bank account a year after the programme has ceased shall be transferred to the county council who shall thereafter have discretion to spend the remaining money on environmental improvements recreational and community amenities.

In the event of a dispute between the county council and the developer regarding any aspect of the funding or operation of the social investment

programme or otherwise relating to compliance with this condition, the matter shall be referred to An Bord Pleanala for determination and the developer and the county council shall comply with that determination.

**Reason:** In order to ensure that the a substantial gain is provided for the local community in accordance with section 182D (6) of the Planning and Development Acts 2000-2006

5. The developer shall make a contribution of €20,000 to the Regional Arts Centre at Belmullet in a form to be agreed with Mayo County Council.

**Reason:** To provide for community facilities in accordance with section 182D (6) of the Planning and Development Acts 2000-2006

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Stephen J. O'Sullivan  
Senior Planning Inspector  
5<sup>th</sup> November 2010

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**SEPIL Corrib Onshore Gas Pipeline  
Oral Hearing August – September 2010  
2<sup>nd</sup> Report on Pipeline Design and  
Safety**

**Mr Nigel Wright:- Assisting the Inspector**

**Report Number 153**

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## DOCUMENT CONTROL

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## EXECUTIVE SUMMARY

Mr Nigel Wright has produced this report in the role of assisting the inspector in examining the 2010 Environmental Impact Statement and evidence presented at the Oral Hearing held in Belmullet Mayo during August – September 2010. The report discusses the design, construction and safety issues of the revised SEPIL application (16.GA0004) of the Corrib Onshore Gas Transmission Pipeline and its associated umbilical. The report summarises An Bord Pleanala's requests and instructions to the Applicant and balances this with the Applicants' response together with information presented at the hearing by the Observers, Department of Communications, Energy & Natural Resources (DCENR) and Commission for Energy Regulation (CER).

### SEPIL's Response to An Bord Pleanala's Requests

The response from SEPIL has been positive and many of the actions have been implemented. There are a few areas where SEPIL has decided on alternative strategies. In these cases the facts have been presented by robust technical arguments and accepted by the Inspector's Team.

The largest impact on the design and safety of the pipeline was the Bord's request that the pipeline should be rerouted up the Sruwaddacon Bay to Aghoos thus avoiding Rossport. The Bord also requested that SEPIL should declare a Maximum Allowable Operating Pressure (MAOP) for the pipeline and that a person standing beside a dwelling will not receive a dangerous dose of thermal radiation in the worst case scenario of a full bore pipeline rupture when operating at the MAOP.

SEPIL has responded positively to these requests by planning to construct the pipeline in a 4.9km long tunnel running under Sruwaddacon Bay from Glengad to Aghoos. In addition, the pressure in the offshore pipeline and the section of onshore pipe running from the beach to LVI will be reduced from 345 barg to a MAOP of 150 barg. Furthermore the operating pressure in the section of the onshore pipe from the LVI to the Bellanaboy Bridge Terminal will be reduced from 144barg to a MAOP of 100 barg. It is also the intention of SEPIL to retain the use of the 27.1mm wall pipe at these lower operational pressures.

**These design and operational changes when combined with the use of a thick wall pipe represents a significant contribution to the safety of the pipeline and allows SEPIL to meet the safety criteria from both the frequency of failure and hazard distance requirements**

### Risks to the Onshore Pipeline and LVI

In the 2009 Oral Hearing, SEPIL used pipeline populations transporting dry natural gas, which could not be fully relied upon to quantify the risks arising from transporting wet untreated gas. The problem with the Corrib pipeline is that it does not fit neatly into the gas transmission databases used by BGE or UK pipeline operators which transport dry processed gas. Therefore one of the requests to SEPIL was that the revised Quantified Risk Assessment (QRA) should be site specific. Unfortunately SEPIL could not produce a database that could be aligned with the design and operation of the Corrib pipeline. Therefore SEPIL has assembled a composite database to perform the QRA. The European Gas Incident Data Group (EGIG) provided failure frequencies for Materials & Construction, External Corrosion and Other/Unknown (Lightening Strikes). The 3<sup>rd</sup> party damage frequencies were obtained from the PIE computer model, while the internal corrosion frequencies were obtained from the CONCAWE database, which is a European database for onshore oil pipelines. No directly comparable databases were produced for pipelines operating in a tunnel or for Above Ground Installations such as the Glengad LVI. Again for these locations SEPIL used indirect databases of similar components.

**The Inspector's team has accepted the use of the composite database for the QRA with the prudent proviso that additional analysis is undertaken in the form of a Qualitative Risk Assessment and calculation of the Consequence Distances in the event of a full bore rupture at maximum pressure.**



## Threats to the Pipeline

SEPIL were asked to perform a Quantitative Risk Analysis (QRA) on the potential failure of the pipeline. This would include a complete and comprehensive review of all potential failure mechanisms along the route of the pipeline arising from both the external and internal environments of the pipe. This QRA would also include a sensitivity analysis of the potential failure modes.

SEPIL has produced a very comprehensive analysis of 32 potential threats to the pipeline using the bowtie method. The threats were subdivided into three groups; threats eliminated as not significant, threats eliminated by control barriers managed by PIMS (Pipeline Integrity Management Scheme) and threats accepted by SEPIL.

The critical areas are the threats that would be managed by the PIMS control barriers. These covered events such as; internal erosion, hydrate formation, brittle fracture at low temperatures, high temperature of internal fluids, pipeline expansion, pipeline overpressure, Internal dynamic loads, and fatigue.

**In the absence of a relevant database for the pipeline, the Inspector's team accept that credibility has to be given to the PIMS system to control the threats such as methane hydrate and erosion.**

The remaining threats accepted by SEPIL were; internal corrosion, which had been missing from the 2009 analysis, external corrosion, construction defects, 3<sup>rd</sup> party accidental external damage and others such as lightning. SEPIL also included ground movement and intentional 3<sup>rd</sup> party damage as part of a sensitivity analysis requested by the Bord.

## Pipeline Quantitative Risk Assessment

SEPIL were asked to provide contours of individual risk at specific levels of  $1 \times 10^{-5}$  and  $0.3 \times 10^{-6}$  /year inline with UK HSE risk thresholds. The individual risk transects for a dangerous dose defined as 1000 tdu with 1% fatality. This is based upon one person spending 10% of his time outdoors and the remainder indoors. Two dwelling groups 'A' and 'B' were identified by SEPIL as being the nearest to the LVI and the pipeline respectively. These were used by SEPIL to calculate the risk of a dangerous dose of heat radiation in the event of a pipeline rupture

The results were  $1.5 \times 10^{-11}$  /year for dwellings 'A', 246m away from the buried section and  $2.1 \times 10^{-11}$  /year for dwellings 'B', 234m away from the tunnel section of the pipeline. Standing next to the pipeline the risk of a dangerous dose increases to  $2.92 \times 10^{-9}$  /year

SEPIL performed a sensitivity analysis on the risk of receiving a dangerous dose. Moving away from the heat at a slower speed of 1m/s, and third party intentional damage were similar in magnitude to the base cases of dwellings 'A' and 'B'. However when the risk of a landslide or increased time spent outdoors to 60 hours / week was included in the database, the risk of receiving a dangerous dose increased to  $6.38 \times 10^{-10}$ /year and  $1.0 \times 10^{-10}$ / year respectively.

**At both dwelling locations the resultant risks were many orders of magnitude below the UK HSE threshold 'Broadly Acceptable' level of  $1.0 \times 10^{-6}$ /year and therefore pose little threat to the public. It is the view of this report that the margin of safety between the calculated levels of risk and the UK HSE level for 'broadly acceptable' is necessary to cater for any potential uncertainties that may have occurred by adopting a composite database**

## Threats to the LVI

For the LVI the Bowtie analysis produced 24 threats. Again threats were eliminated either being implausible or managed by the PIMS control barriers. The dominant threat accepted by SEPIL was the failure of valves and equipment. Others included external and internal corrosion, manufacturing defect and lightning strikes. SEPIL could not produce a database for failures at above ground installations such as the LVI. Therefore they used the offshore database for hydrocarbon releases. The resultant analysis gives an overall failure frequency for a 16mm hole of 4.9E-04/year. This database completely dominated the analysis since it is many orders of magnitude above other threats from corrosion, manufacturing defects and 3<sup>rd</sup> party intentional damage

### LVI Quantitative Risk Assessment

At the LVI the base case risk is 6.91-E06/year, which is classified as ALARP by UK HSE risk levels.. When the threat of 3<sup>rd</sup> Party Interference is added then the risk increases to 6.91E-05/year, which is classified as Intolerable. However this level of risk is only related to the LVI, which is isolated from the public by a security fence. This clearly demonstrates that when specific risks are included in the QRA a more realistic understanding of the overall risk of the development is obtained.

**SEPIL also used the UK HSE risk levels to evaluate the contours of risk expressed as distance from the LVI. The Risk distances to the upper limit of 'broadly acceptable' 3E-07/year are 91m for the base case and increase to 129m for the 3rd Party intentional damage. No dwellings are within these contours with the nearest dwelling being 280m away from the LVI.**

### Societal Risk

At the request of the Bord, SEPIL analysed the Societal Risk to the residents around Glengad pipeline and LVI. SEPIL predicted the maximum number of fatalities is four at an extremely low frequency

**The resultant Societal Risk Curve is one million times lower than the PD8010 – Part 3 acceptable threshold. Again there is a wide margin of safety between the Corrib results and the minimum acceptable values in the standard**

### Consequence Approach to Risk

The Bord requested SEPIL to provide hazard distances, building burn distances and escape distances in contours for the entire pipeline with the acceptance criterion that a person standing beside the dwelling will not receive a dangerous dose of thermal radiation in the event of a full bore rupture. To calculate the safe distance SEPIL defined that people standing 5m away from a dwelling who have been exposed to a heat flux level less than 31.5 kW/m<sup>2</sup> and have a reaction time of 5 seconds before moving towards the dwelling at a speed of 2.5m/s will not receive a dangerous dose of heat radiation.

The consequence analysis was based upon two worst-case scenarios. Case 1 is a single ended rupture at 150 barg next to dwellings 'A' and Case 2 is a double-ended rupture at 100 barg next to dwellings 'B'. For the pipeline Case 2 was the selected.

From Case 2 the following critical distances have been calculated by SEPIL. Distance to the nearest home is 234m

**Up to 180m** At this distance it is assumed that buildings will spontaneously ignite and all occupants will die if they remain in the house.

**At 216m** - This scenario was requested by ABP to establish the minimum distance to the pipeline, where people could take a specific action and move towards a dwelling and not receive a dangerous dose..

**234m** Nearest house to tunnel section of the pipeline

**At 273m** away from the pipeline, this is the UK HSE bench mark defined as the 1000tdu's contour

At the 216m contour the Bord required SEPIL to perform a sensitivity study relating distance, speed of travel and the amount of thermal radiation adsorbed. SEPIL examined a slower speed of 1m/s, which is more representative of children or older people. Travelling the 5m to the dwelling at the slower escape speed will allow the maximum thermal radiation dose to increase from 580tdu's to 830tdu's. At this slower speed a person can only travel 7m before reaching the 1000 tdu dangerous dose.

SEPIL also calculated that 17m was the maximum distance away from the dwelling an able body person could move at 2.5m/s before reaching the dangerous dose

SEPIL has produced contour maps for the whole pipeline from LVI Glengad to the Terminal This shows that that only the SEPIL owned dwelling is within the spontaneous burn distance. All other dwellings are outside the 216m contour and therefore are classified as safe.

There are four dwellings located at Glengad and Barnacuillew that are within the escape distance from 216 to 273m. Within these contour distances people can either move to a dwelling or to a safe distance from the pipe.

**The Consequence Analysis gives a clear picture of how the new route up the bay makes a dramatic improvement to pipeline and public safety. Under the 2010-revised scheme there are no houses within the building burn distance or the 216m standing beside a dwelling contour apart from the SEPIL owned dwelling and only 4 dwellings within the escape distance. In the previous scheme routed through Rossport, 6 dwellings were within the building burn distance and 54 were within the escape distance.**

#### **Consequence Distances at the LVI**

For the Consequence distances at Glengad LVI Worst Case 1 is used. In this case study the nearest dwelling is 280m away from the LVI, while the spontaneous ignition building burning distance is 155m from the LVI. The plotted ignition burn distance is 178m

The equivalent standing near a dwelling distance is 192m from the LVI. Again assume a 5 second reaction time and the person would move at a speed of 2.5m/s over a distance of 5m to reach the dwelling. Under these conditions their maximum dose will be 247 tdu's. The maximum dose will increase to 352 tdu's if they move at the slower rate of 1m/s over the 5m.

#### **Qualitative Risk Analysis (QuA)**

This type of analysis is very informative where information on historic data is not available or an alternative method is required to validate the QRA. Instead of obtaining hard statistical values the QuA uses broader terms such as 'Likelihood of Failure' against 'Likely Consequences of Failure' The information is used to form an opinion and is subjective and collected in broad terms such as Low, Medium or High.

A comparison was made between the Shell Matrix and the Australian Standard AS 2885.1 Appendix F matrix. There was good agreement between the matrices. The main difference between the two schemes is that in the Australian matrix the 'High' risks have to be reduced to intermediate or lower rather than ALARP. Overall the two groups High/ Intermediate and Low /Negligible were numerically similar between the two qualitative schemes.

Under the Shell matrix there were 5 high-risk cells, which required reduction to ALARP status and documented demonstration of ALARP. These risks are concerned with the operation of the onshore pipeline and the LVI and handling heavy objects or truck movements near the LVI. This reduction to ALARP will again be achieved via the PIMS

**The Qualitative Analysis is more sensitive in identifying the risks that matter even though the process is subjective. The role of Qualitative Analysis is to alert the operator to the potential hazards when operating the pipeline. All the specific risks identified by the Inspector's team at the hearings are labelled 'high' in the Shell matrix and require action. In the Quantitative analysis these risks were either dismissed or given a very low frequency. SEPIL claim they are aware of the hazards and have control barriers in place to prevent an incident under PIMS and the Inspectors team accept this.**

### **Safeguarding the Integrity of the Onshore Pipeline**

Designing, manufacturing, constructing and commissioning the pipeline to the prescribed codes and standards should ensure the initial integrity of the onshore pipeline. In the longer term the PIMS and an overpressure safeguarding strategy should ensure the ongoing integrity of the pipeline..

### **PIMS – Pipeline Integrity Management Scheme**

On the Corrib pipeline there are many tasks that have to be continuously undertaken throughout its life to ensure its integrity remains at the highest level. Being a wet gas pipeline there are additional tasks to be undertaken by SEPIL compared to the gas transmission pipelines operated by BGE. These include flow assurance, internal corrosion control and the suppression of methane hydrate and the monitoring of particles and erosion.

One of the key outputs of the PIMS is the publication of the Pipeline Annual Report. This assesses the health status of the pipeline via a traffic light system. The lights run from Red, Amber to Green. When the status is RED this must include a recommendation to cease operation or immediately adopt an operating mode that avoids the potential failure of the pipeline. SEPIL intend to issue the Annual Report to the Irish Statutory Authorities.

### **Overpressure Protection Systems**

The operating pressure of the pipeline is well below the wellhead shut in pressure of around 345 barg. Under these conditions the pipeline codes require a pipeline overpressure protection system to be installed. SEPIL has proposed two separate overpressure protection systems covering the two different MAOP sections of the pipeline.

High Integrity HIPPS valves at the LVI will protect the 100 barg MAOP section of the pipeline. The probability of failure on demand for HIPPS valves at the LVI is  $7.4 \times 10^{-4}$ , which equates to a SIL 3 rating reliability. An independent verification authority has certified this rating.

To prevent overpressure of the 150 barg MAOP section of the pipeline, SEPIL will reconfigure the control system at the terminal to allow the system's pressure sensors to automatically close the offshore operational valves by releasing the hydraulic pressure in the umbilical at the terminal. SEPIL will also use a sequence of trip levels based upon pressure limits at the terminal and LVI of 93 barg and 99 barg respectively. These systems will operate automatically or can be manually activated from the control room to close in the flow at the wellhead and Manifold.

It is essential that an external independent regulator DCENR or CER as the case maybe verifies the reliability of this arrangement, before operating this pipeline.

**One of the key elements of the Corrib onshore pipeline design is that the pipeline will be hydrotested to 504 barg. This is related by the codes to the design of the pre LVI section of the onshore pipeline. However the hydraulic test pressure is extremely high when compared to the MAOP's of the pipeline sections. Therefore the design of the pipeline should provide additional protection even if the overpressure protection systems fail and the pipeline is subjected to the full downhole tubing pressure of 345 barg.**

## Loss of Umbilical and Control of Subsea Valves

The Bord required SEPIL to provide an analysis of what are the consequences of severing the umbilical resulting in loss of control of the wellhead and manifold valves.

The overpressure protection systems at the wellhead or the LVI are designed to fail closed with any loss of hydraulic power or the wing valves will close if electrical power is lost. If only the communication cables are severed then alarms sound in the control room and the operator can manually closedown the system by venting the hydraulic pressure in the umbilical.

**SEPIL claim that overall there is no credible scenario, which would allow the gas pressure to exceed the MAOP by severance of the umbilical. The inspector's team accept this analysis.**

### Pipe in the Tunnel

Routing of the pipeline under Sruwaddacon Bay via a 4.9m tunnel is one of the biggest contributions to pipeline safety along with lowering the pipeline pressure.

**The evidence presented by Mr. T Jaguttis of Motte & Partner GmbH at the Hearing was crucial, especially his experience in building a similar tunnel carrying a 79.9 barg gas transmission pipeline. This was the 4km Ems tunnel between Germany and the Netherlands.**

**The Inspector's team was satisfied that the design of the tunnel over such a long distance was feasible and did not involve unproven technology. Also the design and construction of the pipe in the tunnel was practical. Mr. T Jaguttis was confident that the Tunnel Boring Machine could handle the geotechnical conditions found in the bay**

SEPIL were also confident that there would be no pipeline operational problems within the tunnel since the tunnel would be fully grouted after the pipeline is built and tested. The grout is able to conduct an electrical current and therefore can support the cathodic protection system inside the tunnel. Should any pipeline damage occur in the tunnel, SEPIL were confident that an intervention pit could be used to repair the pipe or a new smaller diameter pipe could be inserted up the bore of the existing pipeline.

### Pipe and Umbilicals in the Stone Road

SEPIL were asked to examine the risk to the pipeline and umbilicals from settlement in the stone road and provide an estimate of the stone road settlements. From the calculations and modelling work performed, SEPIL were confident that under operational conditions the stresses on the pipeline and umbilicals would be low.

SEPIL performed a sensitivity analysis on what settlement would cause the pipeline to reach 100% SMYS. This concluded that a settlement ten times greater than the predicted 0.6m would be required. SEPIL also varied the unsupported pipe span from 2m and 40m, which only changed the percentage of the allowable stress from 25% to 37%. The stress analysis predictions for pipe in the stone road were based upon computer modelling. Modelling of the Type 2 design is complex where a base layer of a peat and stone matrix is deployed between the stone road and the mineral soil. At the Hearing SEPIL admitted that they had not taken measurements of settlement of the existing stone road to verify the model's predictions.

**This report accepts the conclusion from the SEPIL modelling that the pipe and umbilicals will not be overstressed from any ground movement. However since there are areas of concern SEPIL need to obtain actual data to confirm their modelling predictions**



### ***Recommendation***

It is recommended that SEPIL set up the required instrumentation to measure ground movements at the areas of concern. These are; the LVI offshore pipeline interface, at the transition areas between the grouted pipe in the tunnel and the buried sections, in the stone road at the deep peat sections and at the interface between the existing and newly laid sections of the stone road. Also SEPIL should deploy stable strain gauges (including vibrating wire gauges with protective housings) on the pipeline to verify the maximum predicted stress levels on the pipe and confirm the modelling accuracy. The instrumentation needs to remain insitu until steady state levels are confirmed and a sufficient period of time has elapsed to ensure exposure to a variety of environmental conditions.

### **Design of the LVI**

ABP requested SEPIL to examine three potential modifications to the design layout of the LVI at Glengad with the aim of improving the safety ratings for the population around Glengad.

The resultant risk of the straight pipe rather than a loop showed no reduction in the risk level around Glengad. The risk analysis at the LVI concentrated on the number and size of valves used and with this method of assessing risk there was little difference between the two schemes. Other risks associated with the loop such as no inspection by inline inspection methods and the removal potential erosion of bends were not included. SEPIL argued that the barriers imposed by the PIMS minimized these threats.

SEPIL were asked to examine the use of a temporary relief vent to replace the permanent fast acting isolation valves. It emerged during the Hearing that these valves were not installed to prevent the slow rise in pressure from leaking valves but to prevent the pressure rising to 105 barg under an unplanned pressure trip at full flow. Under these conditions SEPIL stated that a large diameter vent would be required which makes the use of a vent at Glengad undesirable.

SEPIL were asked to provide details on valve reliability and potential valve leakage on the wellheads, which could cause the pipeline pressure to rise and exceed the MAOP. SEPIL concluded it would take hundreds of days for the pressure to rise to the MAOP unless the leakage was grossly exaggerated.

**It is the view of the Inspector's team that the security of the LVI compound at Glengad should not be modelled upon a standard Above Ground Installation but should reflect its national importance to the energy supplies of Ireland and its high public profile.**

### ***Recommendation***

SEPIL should redesign the security fencing at the LVI to include a double high security fence and gates with a suitable flood lit 'dead zone' between the inner and outer fence. The outer fence should be electrified for additional protection.

**The Inspector's team accept the robust technical arguments put forward by SEPIL and no changes are proposed to the design of the LVI at Glengad apart from the increased security arrangements of the perimeter fence .**

### **Application of Codes & Standards**

SEPIL was asked to clarify the code and test pressure requirements between the high-water mark and the downstream weld at the LVI (Chainage 83+390 to 83+470) and confirm that the design at this location meets the requirements set down by the Technical Advisory Group (TAG). There was some confusion over whether DNV.OS.F101 was supplemented by IS 328 and BS PD 8010 for this section of onshore pipeline.



**During the Hearing the Inspectors team has satisfied itself that the DCENR has examined the use of the offshore specification DNV.OS.F101 with the above supplements and found it acceptable for the design, construction and operation of the onshore pipeline between the high water mark and the downstream weld of the LVI. Also a hydraulic test pressure of 504 barg can be applied to the latest section of the Pre LVI onshore pipeline, while the existing section was hydraulically tested to 380barg**

The Inspectors Team felt it was extremely important to fully define what design and operational standards apply to the pre LVI section of onshore pipeline since TAG had made no recommendation covering this situation.

### **Recommendation**

The best way to deal with this matter going forward would be for the DCENR together with NSAI to reinforce this conclusion by issuing a document clarifying what supplements apply to DNV.OS. F101 when used for onshore sections of an offshore pipeline.

### **Gas Properties and Production– Impact on Safety**

SEPIL stated that the predicted gas properties remain as described in the 2009 hearing. This is important to the design, operation and ultimately the safety of the pipeline. At present the gas is described as predominately methane but is wet and contains a small percentage of CO<sub>2</sub>. Water in the pipeline can create potential problems from internal corrosion and the formation of methane hydrate, which have to be suppressed by pumping in methanol and corrosion inhibitor at the wellhead. SEPIL predicted the volumes of water would be low, which benefits the operational control of the gas and minimise the formation of damaging water slugs during transient flow conditions. SEPIL also predicted that the production of solids such as sand or proppants in the gas will be very low and thus erosion is not seen as a problem. These conditions are never found in BGE transmission pipelines since the gas is dried and treated before it enters the onshore transmission system.

SEPIL also confirmed at the hearing that no traces of hydrogen sulphide H<sub>2</sub>S have been detected.. This statement is important since high concentrations of hydrogen sulphide would have serious consequences related to the rate and type of corrosion and hence the safety of the pipeline. SEPIL confirmed that the levels of H<sub>2</sub>S will be monitored throughout the life of the field.

SEPIL expect the overall internal corrosion rate to be below 0.02mm/year, which is far less than the design value of 0.05mm/year. With corrosion allowance of 1mm the life of the pipeline could be extended far beyond its 20-year design life. If the rates of internal corrosion remain low then the pipeline may remain in operation between 30 and 50 years. During the hearing SEPIL confirmed that it had spare slots in the manifold and would allow additional gas pipelines to be tied into the Corrib System if the gas quality was compatible in order to maintain the throughput of the Terminal.

The Inspector's Team accept SEPIL's view that they expect the condition of the mixed phase gas flow to be benign. However, it is also noted that the nature of the gas and associated volumes of water and solids play a key role in the design and operation of the pipeline.

### **Overall Safety Role of PIMS and Annual Pipeline Report**

SEPIL has identified numerous threats to the pipeline that are controlled and managed by the PIMS systems. This reinforces the need for the PIMS to be deployed in a consistent manner over many years to ensure the safety of the pipeline. The Irish Regulating Authorities will in turn rely on the Annual Pipeline Report to confirm this.

**It is the view of this report that the Annual Report is the key to ensuring the long-term safety of the pipeline However it is essential that the information presented in the report is subjected to independent 3<sup>rd</sup> party scrutiny and that a summary is made available to the public**

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## 1 INTRODUCTION

Mr Nigel Wright has produced this report in the role of assisting the inspector in examining the 2010 Environmental Impact Statement<sup>1</sup> (EIS) and evidence presented at the Oral Hearing held in Belmullet Mayo during August – September 2010. The report discusses the design, construction and safety issues of the revised SEPIL application (16.GA0004) of the Corrib Onshore Gas Transmission Pipeline and its associated umbilical.

Although this report has been written as a stand-alone document, it is recommended that it is read in conjunction with the 1<sup>st</sup> Report detailing design, construction and safety issues from the 2009 Corrib Pipeline Hearing<sup>2</sup>. The report should also be read in conjunction with the inspectors 2009<sup>3</sup> and 2010<sup>4</sup> reports of the Oral Hearings.

The report summarises An Bord Pleanala's requests and instructions to the Applicant and balances this with the Applicants' response with information presented in the EIS and given orally at the hearing. Also taken into account are the written submissions and oral information presented at the hearing by the Observers, Department of Communications, Energy & Natural Resources (DCENR) and Commission for Energy Regulation (CER).

All SEPIL EIS references will appear in Italics to distinguish them from the report references

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<sup>1</sup> 2010 SEPIL Corrib Onshore Pipeline Environmental Impact Statement RPS May 2010

<sup>2</sup> An Bord Pleanala SEPIL Corrib Onshore Gas Pipeline Oral Hearing May-June 2009 Report on Pipeline Design and Safety  
Ref N Wright Report 143

<sup>3</sup> An Bord Pleanala Inspectors 2009 Report Case Reference 16GA0004 / 16DA0004 Corrib Gas Pipeline

<sup>4</sup> An Bord Pleanala Inspectors 2010 2<sup>nd</sup> Report Case Reference 16GA0004 / 16DA0005 Corrib Gas Pipeline

## **2 AN BORD PLEANALA – REQUEST FOR FURTHER INFORMATION AND SEPIL’S RESPONSE.**

An Bord Pleanala (ABP) wrote to RPS (acting for SEPIL) on the 2<sup>nd</sup> November 2009<sup>5</sup> following the 2009 Oral Hearing held in Belmullet Mayo between May-June 2009. This letter detailed the concerns of the Board and requested further information and a modification of the route. RPS replied on the 15<sup>th</sup> January 2010<sup>6</sup> seeking clarification on a number of issues. ABP replied by letter on the 29<sup>th</sup> January 2010<sup>7</sup> providing further clarification on specific issues

The two letters from ABP to RPS form the basis of the revised submission. A detailed response to the requested modification is given in the SEPIL 2010 Environmental Impact Statement (EIS) *Appendix Q1A* and is reproduced in Appendix 1 of this report.

The main actions arising from the above correspondence concerning the design, construction and safety of the pipeline is summarized below:-

### **Design & Construction**

- A. The pipeline from Glengad to the Bellanaboy Bridge Terminal should be designed and operated to ensure that a person standing beside a dwelling will not receive a dangerous dose of thermal radiation in the worst case scenario of a full bore rupture of the pipeline at maximum pressure.
- B. To satisfy the requirements of Action ‘A’, the original route of the pipeline through the Village of Ross Port is to be modified so that it runs from Glengad under the Sruwaddacon Bay to Aghoos then overland to the Bellanaboy Bridge Terminal.
- C. To enable Action ‘B’ to be achieved a 4.2m diameter- 4.9Km long tunnel will be constructed under Sruwaddacon Bay to house the pipelines and umbilicals.
- D. To satisfy the requirements of Action ‘A’ and as required by the various codes, a Maximum Allowable Operating Pressure has been declared for both the Land Valve Installation (LVI)/ associated pipeline to high water and the pipeline downstream from the LVI. The MAOP ‘s are 150 barg and 100barg respectively.
- E. To satisfy the requirements of Action ‘D’ (the imposition of a 150 barg MAOP on the LVI and upstream pipeline) SEPIL have to modify the emergency shut down system controlling the wellheads to the required reliability standard.
- F. SEPIL to examine the potential increase in safety for the population of Glengad by the use of a straight pipe arrangement rather than a loop.

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<sup>5</sup> ABP letter to Des Cox RPS dated 2<sup>nd</sup> Nov 2009 Re Onshore Upstream Pipeline facility relating to the Corrib gas Field Project Mayo

<sup>6</sup> RPS Des Cox Reply dated 15 Jan 2010 to ABP letter of the 2<sup>nd</sup> Nov 2009

<sup>7</sup> ABP letter to Des Cox RPS dated 29<sup>th</sup> Jan 2010 Re Onshore Upstream Pipeline facility relating to the Corrib gas Field Project Mayo



- G. SEPIL were asked to examine the use of a temporary relief vent to replace the permanent safety shutdown valves. The latter design change would reflect the temporary need for pressure protection due to the pressure of the wells decreasing during the life of the field. In addition SEPIL were asked to provide more detail on valve reliability and potential valve leakage on the wellheads, which could cause the pipeline pressure to rise and exceed the MAOP.
- H. SEPIL to clarify the code and pressure test requirements for the pipeline at the high water mark to the downstream weld of the LVI. Also confirm that this section of pipeline meets the requirements of Technical Advisory Group (TAG)

### **Safety and Risk Analysis**

- I. SEPIL to perform both a Qualitative and a Quantitative Risk Analysis (QRA) on the potential failure of the pipeline. This would include a complete and comprehensive review of all potential failure mechanisms along the route of the pipeline arising from both the external and internal environments of the pipe. This QRA would also include a sensitivity analysis of the potential failure modes.
- J. From the Action 'I' SEPIL will provide details of building burning distances and safe distances along the route of the pipeline.
- K. From the Action 'I' SEPIL will provide contours of individual risk at specific levels of  $1 \times 10^{-5}$ ,  $1 \times 10^{-6}$  and  $0.3 \times 10^{-6}$  per Km/year inline with UK HSE risk thresholds. Also where the risk is identified to be above  $1 \times 10^{-6}$  per Km/year, SEPIL will have to demonstrate ALARP.
- L. SEPIL will provide an assessment of the Societal Risk at Glengad as well as a Societal Risk along the revised route of the pipeline.
- M. SEPIL to provide information on the risk and consequences of the umbilical being severed and its affect on the operability of the wellhead safety systems. This would include the loss of the control signals, electrical and hydraulic power and methanol and corrosion inhibitor.
- N. SEPIL to examine the risk to the pipeline and umbilicals from settlement in the stone road and provide an estimate of the stone road settlements.

### 3 MODIFICATION TO THE PIPELINE ROUTE

The revised route of the onshore pipeline and facilities is presented in *EIS Appendix A, Drawing DG301* and is shown below in Figure 1. At the Oral Hearing Mr Ciaran Butler of RPS submitted a Brief of Evidence<sup>8</sup> (BoE) on the route selected.

The offshore pipeline terminates at the LVI, which is located approximately 50m east of the landfall at Glengad. The Pre LVI onshore gas pipeline commences from the high water mark to the downstream barred tee of the LVI. The proposed Post LVI onshore pipeline route traverses the Glengad headland, in an east-south-easterly direction, for approximately 640m. From here, the pipeline route traverses Sruwaddacon Bay in a south-easterly direction towards Aghoos. The section of the pipeline route from Glengad to Aghoos is approximately 4.8km long and will be tunnelled. Approximately 4.6km of the tunnel will be beneath Sruwaddacon Bay.

At Aghoos, the pipeline route turns in an easterly direction for approximately 0.9km, traversing an area of blanket bog within which it crosses an approximately 40m wide estuarine river channel. The route then enters an area of forested bog (approximately 2.2km long) where it turns in a southerly direction, at the crossing of the L1202, and continues to the Gas Terminal.

For the onshore section of the route, the outfall pipeline will be laid parallel to the gas pipeline. Both the fibre optic cable, umbilicals and signal cable will be installed parallel to the onshore gas pipeline.



FIGURE 1 SHOWS THE REVISED ROUTE OF THE PIPELINE

<sup>8</sup> Ciaran Butler RPS Written submission on Route Selection and Alternatives Considered – 2010 Oral Hearing Doc Ref 2

## 4 OPERATION OF PIPELINE

The operation of the pipeline is described in the 2009 NW report apart from the following points which are discussed below:-

- MAOP's assigned to the Pre LVI /LVI and Post LVI portions of the onshore pipeline
- A revised rate of pressure decay for the fields and expected field life.

### 4.1 Assigned Maximum Allowable Operating Pressures

The design of the pipeline is detailed in *EIS Appendix Q4.1* and a BoE<sup>9</sup> giving an overview of the project was presented at the Oral Hearing by Mr. G Costello, Deputy Project Director SEPIL.

As required by the onshore codes and requested by ABP, the applicant has to declare a Maximum Allowable Operating Pressure (MAOP). In the 2009 EIS the applicant only declared a design pressure and a normal operating pressure. The MAOP is the maximum pressure operating under continuous steady state conditions and therefore is a key parameter in the safety of the pipeline. This is normally lower than the design pressure.

A MAOP of 150barg has been set for the **Pre LVI/LVI** portion of the onshore pipeline between the high water mark and the downstream weld on the barred tee of the LVI. This is a considerable reduction in maximum pressure from the 345 barg stated in EIS 2009 and has impacted on the rate of pressure decay for the field and the control system of the offshore safety valves has to be modified to prevent the 150 barg MAOP from being exceeded.

A MAOP of 100barg has been set for the **Post LVI** portion of the onshore pipeline which runs from the last weld on the LVI barred tee to the terminal. This aligns the MAOP with generally accepted pressure limit of the code IS328<sup>10</sup> for onshore transmission pipelines.

Both of these reductions in maximum allowable operating pressure are central to ABP request that there as adequate safety to the population standing beside a house in the event of a full scale rupture of the pipeline.

The reduction in pressure also the reduces the concerns expressed in Section 6.3.1 of 2009 NW report to ABP over the lack of knowledge and test data of pipe fracture and heat radiation distances at these extremely high pressures.

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<sup>9</sup> Mr Costello SEPIL BoE on Introduction to Appendix Q – 2010 Oral Hearing Doc Ref 11

<sup>10</sup> I.S. 328 Code of Practice for Gas transmission Pipelines and Pipeline installations Dublin National Standards Authority of Ireland 2003

## 4.2 Gas Properties and Production Profile

The properties of the gas and the production profile are given in *EIS Appendix Q4.1* and an overview was presented at the Oral Hearing by Mr. G Costello, SEPIL.

### 4.2.1 Gas Properties

The gas properties have not altered since the 2009 hearing. The gas is predominately methane but is wet and contains a small percentage of CO<sub>2</sub>. This creates potential problems from internal corrosion and the threat from the formation of methane hydrate, which have to be neutralized by pumping in methanol and corrosion inhibitor at the wellhead. These conditions are never found in BGE transmission pipelines since the gas is dried and treated before it enters the onshore transmission system.

Following Observers questioning, SEPIL confirmed at the hearing that no traces of hydrogen sulphide H<sub>2</sub>S have been detected.

This statement is important since high concentrations of hydrogen sulphide would have serious consequences related to the rate and type of corrosion and hence the safety of the pipeline

SEPIL also confirmed that the levels of H<sub>2</sub>S will be monitored throughout the life of the field.

### 4.2.2 Production Profile

During the 2009 Oral Hearing SEPIL were asked if it was possible to reduce the wellhead pressure to increase the safety distances. At that time Mr. Basford<sup>11</sup> stated it was not possible since both the offshore and onshore pressures were required to satisfy the maximum flow rate of 350MMSCFD and limit the amount of compression fuel required to lift the pressure back to the Bord Gas transmission pressure of 85barg.

However during the 2010 Oral Hearing Mr. Costello answered questions on Production Profile<sup>12</sup> A summarized version is given below:-

**NW Question** One of the big changes in the operation of the pipeline is a reduction of the operating pressure. What initiated the changes in the operational envelope? At the previous 2009 hearings, people stated that these pressures could not be reduced.

**Answer** At the last hearing, we were not in a position to revise operating pressures in the system. So, in order for us to propose a reduction in the inlet pressure it was necessary to be certain that we could maintain the maximum system throughput of 350 million standard cubic feet per day.

350 million standard cubic per day throughput was what was approved by An Bord Pleanála back in 2004 for the Bellanaboy Gas Terminal and is similarly a figure that is

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<sup>11</sup> Evidence from 2009 Oral Hearing Mr S Basford Deputy Terminal Manager

<sup>12</sup> Mr Costello Answering Question from Mr N Wright Tue 7<sup>th</sup> Sept 2010.

approved for the overall system by the DCENR. We were not in a position to offer a significant pressure reduction without having carried out the appropriate studies to see if what was proposed was technically feasible

However, after receiving ABP's request for us to state the MAOP's for the pipeline both upstream and downstream of the LVI, and also the introduction of the hazard distance concept and reflecting on the views that were expressed here in the whole in 2009. We carried out studies to see how we could minimise the MAOP's and bring the pressure in line with pressure levels that exist already in Ireland.

So, post November 2009, we performed wide ranging studies to determine what were the lowest practical MAOP's that could be achieved. The initial studies indicated 150 bar offshore and 100 bar onshore could be achieved and detailed studies were then commenced to see what needed to be put in place so that these MAOP's could be proposed and formally adopted.

The detailed process studies, examined all of the components of the terminal process system and those determined what the capacity of the system would be at operating pressures significantly less than the original design conditions. Obviously what was proposed previously was a design that assumed a higher inlet pressure to the terminal. To meet the required delivery capacity, it will be necessary to bring the gas heat exchanger into operation from day one and potentially the compression ratio on the compressor will have to be increased. Pressure trip settings have to be checked and modifications were made to the offshore hydraulic system to increase the reliability of that system based on the newly set MAOP of 150 bar. The whole system from the gas reservoir through to the export pipeline had to be checked and a new system then had to be agreed with the subsurface specialist, with the pipeline engineers, the process specialist, commercial analysts and operation specialist. That was not an easy change I can assure you and was not one we could have committed to without extensive studies and was not one that we could have committed to in the hearing in 2009. Final outcome of all of that work is the proposal that lies before the Board at this time.

**NW Question** What does the new production profile look like and when would you expect the upstream pressure at Glengad to drop below 100 bar?

**Answer** It's shown on the production profile on Q2.1 which gives the closed in tubing head pressure dropping below 100 bar at year 8.

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Restricting the pressure in the offshore pipeline to 150barg has had an affect on the field's rate of pressure decay.

The pressure decay curve obtain from data in the 2009 EIS is shown below in Figure 2 for 272barg at the wellhead exit and 110 barg at the entry to the terminal. The curves show the early gas pressures from the 1<sup>st</sup> year to the 5<sup>th</sup> year. Up to year 3, the high pressure is controlled by the subsea choke giving a constant 110barg at the terminal. Thereafter the pressure at LVI and the terminal is control by the falling well pressure and the pressure drop in the pipe.

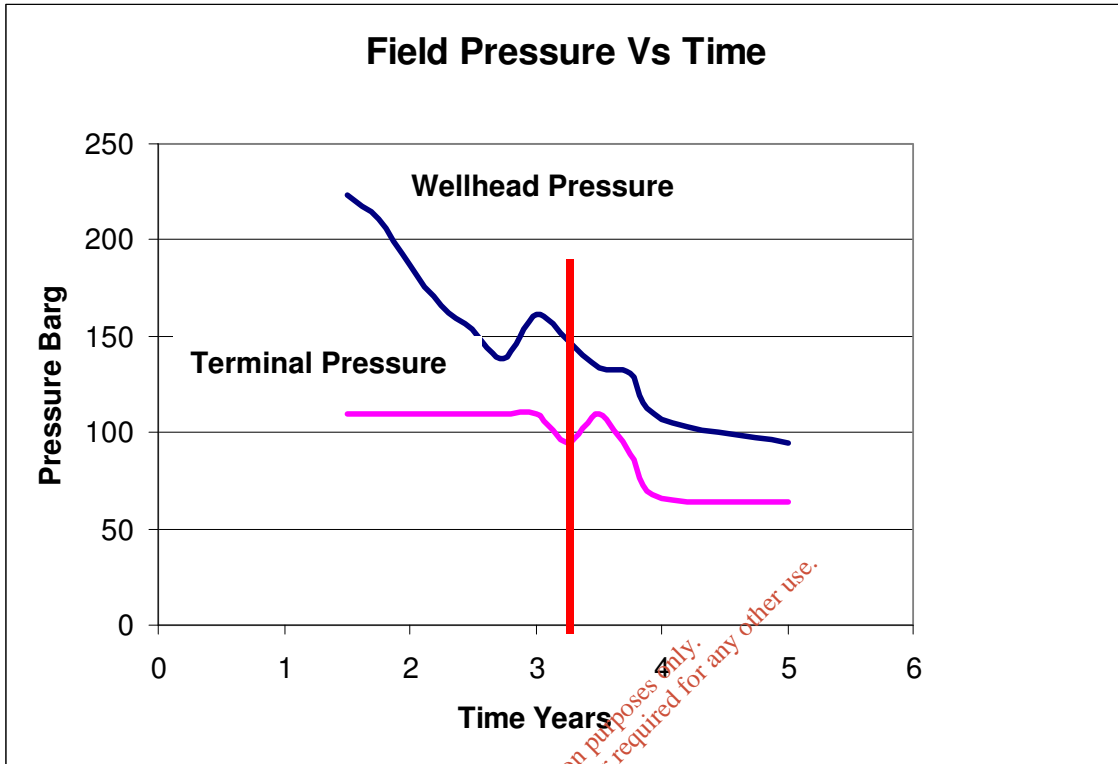
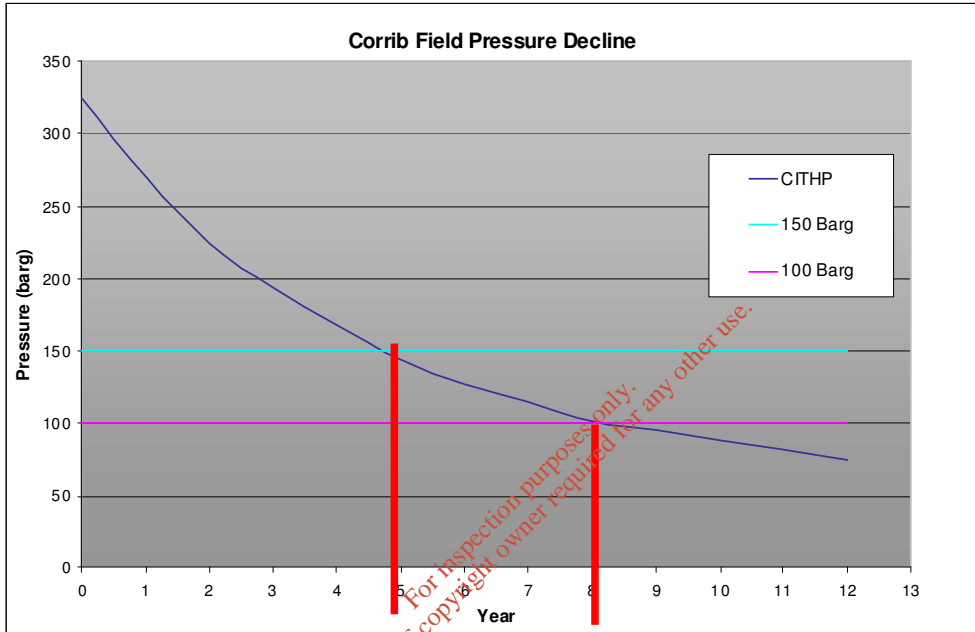


FIGURE 2 SHOWS FIELD PRESSURE DECAY AS PREDICTED 2009



The pressure decay rate presented in the 2010 EIS *Appendix 2.1 figure 4.2* is shown below in Figure 3. This shows the wellhead pressure (CITP) falling to 150 barg after 5 years and reaching 100 barg after 8 years. Therefore after 8 years the LVI overprotection valves are redundant unless further fields are connected to the system.

It should be noted that the *Table 4.4 in EIS 2010 Appendix Allseas Offshore Design* is incorrect as per *Appendix Q4.2 - item 10* which states *data set for Table 4.4 superseded as the inlet pressure to the Gas Terminal has been reduced.*



**FIGURE 3 SHOWS FIELD PRESSURE DECAY AS PREDICTED 2010**

At this point in the hearing the questioning then concentrated on the life of the field. Mr. Costello and Dr S Patterson answered these questions

**NW Question** I think it's essential that we do have a defined life of a field

**Answer** Mr. Wright, it's clearly stated in the EIS that the expected field life is 20 years and that is what the, the corrosion calculations are based upon

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SEPIL have predicted a worst case corrosion rate  $0.05\text{mm/year} \times 20 = 1.00\text{mm}$  which is their corrosion allowance. However during the hearing they stated they expected the corrosion rate of the onshore pipeline to be nearer  $0.02\text{mm/year}$  can be expected which would give a life in excess of 30 years which was previously stated as the design life of the pipe

**NW Question** This is your 0.05 millimetres per year times 20 is it? To give the corrosion allowance of 1 millimetre?

**Answer** The original corrosion allowance was determined on the basis of the profile at the time and certainly for the onshore pipeline, the expectation was that the corrosion would be less than .05 millimetres a year. As I have indicated in section Q4.7 and Q4.9 of the EIS the anticipated corrosion rate is less than 0.5 millimetres a year and initial testing of the corrosion inhibitor has indicated that even without the inhibitor, corrosion rates of less than 0.02 millimetres per year in the onshore pipeline can be expected.

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The questioning then turned to further use of the pipeline if it had a design life of 30 years or more yet the Corrib field was predicted to last only 20 years.

**NW Question** Just developing this a bit further, is it reasonable to state that any gas found in the latest well that Shell are drilling 7 kilometres north of Corrib as reported by Christy Loftus will be fed into the Corrib manifold?

**Answer** There is an exploration well being drilled at the moment. The results of are unknown and from the point of view of what we call a tight hole in the business that information would not be available to any of the people sitting here answering questions, so, I don't know whether there is anything or what has happened there. In relation to the issue that if there is to be a find then the intention would be, ultimately, to connect that, but that is purely speculation as to whether there is a find there or not.

**NW Question** Are there spare slots on the manifold for that?

**Answer** There are an additional eight slots on the manifold so there would be a possibility to connect into the manifold

**NW Questions.** Then developing this further, would that find actually extend the life of the field ( Pipeline ?)

**Answer** Not Necessary

**NW Questions** Does that mean SEPIL would have to increase the flow?

**Answer** Well, it really depends on what is found there, if anything is found at all. If nothing is found there, there is absolutely no change. If what is found was not suitable to be processed and put through the pipeline it could not go into that system. So, the only basis on which anything would ever go into that pipeline would be that the composition of whatever might be found was suitable to go into the pipeline. There is no guarantee that just because something is found that the life of the field, or sorry, the life of the Bellanaboy terminal would be extended. That is not a guarantee. It might be that if you look at the charts there, you can see the production rate declines below 350 million cubic feet per day. After that period then the terminal is not operating at full throughput, so there are possibilities.

**NW Questions** If the future of the pipeline and this is slightly hypothetical from what you have discussed needs to be extended do SEPIL have a life extension plan?

**Answer** Not at the moment, I believe that we wouldn't need that at this stage, if there is to be a new field found there, then obviously that has to go through the various Irish regulatory processes and those issues should be addressed at that time.

**NW Question** Just taking that a little bit further, have SEPIL written an end of life pipeline abandonment strategy in place for the pipelines as required under PS PD8010, especially the section in the tunnel, do you have an abandonment plan?

**Answer** There isn't such plan currently in existence, but there will be one in sufficient time and that is part of the commitment under the petroleum lease and under the Section 40 is to have ultimately to have an abandonment of process there, yes.

**NW Question** Okay, so you haven't had any discussions on abandonment strategy with the Department of Communication, Energy and Natural Resources?

**Answer** The abandonment would be in accordance with the regulations pertaining at the time. So, if it's 20 years down the road, to have a detailed abandonment plan at this stage, it would not necessarily be beneficial. Obviously there are certain thoughts around that, but there is no formal plan has been agreed with the regulator or the DCENR

#### 4.2.3 Discussion Gas Properties and Production– Impact on Safety

SEPIL stated that the predicted gas properties remain as described in the 2009 hearing. This is important to the design, operation and ultimately the safety of the pipeline. At present the gas is described as predominately methane but is wet and contains a small percentage of CO<sub>2</sub>. Water in the pipeline can create potential problems from internal corrosion and the formation of methane hydrate, which have to be suppressed by pumping in methanol and corrosion inhibitor at the wellhead. SEPIL predicted the volumes of water would be low, which benefits the operational control of the gas and minimise the formation of damaging water slugs during transient flow conditions. SEPIL also predicted that the production of solids such as sand or proppants in the gas will be very low and thus erosion is not seen as a problem. These conditions are never found in BGE transmission pipelines since the gas is dried and treated before it enters the onshore transmission system.

SEPIL also confirmed at the hearing that no traces of hydrogen sulphide H<sub>2</sub>S have been detected.. This statement is important since high concentrations of hydrogen sulphide would have serious consequences related to the rate and type of corrosion and hence the safety of the pipeline. SEPIL confirmed that the levels of H<sub>2</sub>S will be monitored throughout the life of the field.

The Inspector's Team accept SEPIL's view that they expect the condition of the mixed phase gas flow to be benign. However, it is also noted that the nature of the gas and associated volumes of water and solids play a key role in the design and operation of the pipeline

SEPIL expect the overall internal corrosion rate to be below 0.02mm/year, which is far less than the design value of 0.05mm/year. With corrosion allowance of 1mm the life of the pipeline could be extended far beyond its 20-year design life. If the rates of internal corrosion remain low then the pipeline may remain in operation between 30 and 50 years. During the hearing SEPIL confirmed that it had spare slots in the manifold and would allow additional gas pipelines to be tied into the Corrib System if the gas quality was compatible in order to maintain the throughput of the Terminal.

Restricting the MAOP's to 150barg and 100barg for the offshore and onshore pipelines respectively, means that the wellhead pressure will take 8 years before it falls below 100 barg. However as discussed above, SEPIL with the appropriate approval, can supplement the flows with additional fields.

The information in this section reinforces the need for the Pipeline Integrity Management Scheme (PIMS) and the associated integrity operations to be managed in a consistent manner over many years to ensure the safety of the pipeline.

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## 5 ONSHORE PIPELINE DESIGN

The design of the pipeline and LVI is discussed in NW 2009 Corrib Report.

In the revised 2010 EIS the pipeline is now 8.3km long with over 4.9Km housed in a 4.2m diameter tunnel under Sruwaddacon Bay. The majority of the remaining pipe is laid in a stone road across Blanket Bog to the terminal.

A number of design issues were raised during the Oral Hearing as shown below

- The relevant standards and codes and hydrotest pressures at the offshore / onshore pipeline tie-in
- Pipeline tie –in at the terminal
- Pipeline operation in the tunnel
- Pipeline in stone road - stress in the pipeline during hydrotesting and operation
- LVI - stress in the pipeline during hydro testing and operation

The above points are discussed in detail in the following sections

### 5.1 Standards and Codes for the Offshore/Onshore Pipeline Tie-In

A detailed analysis of the use of the relevant codes and standards was given in the NW 2009 Report – Section 3.2. At the Oral Hearing John Gurden of J.P.Kenny gave a BoE<sup>13</sup> on the standards and codes specified for the pipeline. While Dr Haswell gave the BoE<sup>14</sup> on Public Safety – Application of Design Codes

The Board expressed the need for clarity over the code and pressure test requirements of the Pre LVI section of the onshore pipeline.

The Technical Advisory Group (TAG) allowed the onshore pipeline to be built and operated by a combination of standards – I.S.14161 supplemented by IS 328 and BS PD 8010, while the offshore pipeline was built to DNV. OS. F101.

*EIS 2010 Appendix Q2.1 fig 3.1* shown below as figure 4 with my red notation is slightly misleading since the exact starting point of the onshore pipeline for planning purposes is at the high water mark(HWM) POINT B. However a section of offshore pipe is already on the beach and the onshore pipe will be welded to this section once the hydrotest has been completed POINT C while POINT A is the dividing point between the two codes.

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<sup>13</sup> Mr Gurden J.P.Kenny Ltd, Written BoE on Onshore Pipeline and LVI Design – 2010 Oral Hearing Ref Doc No 13

<sup>14</sup> Dr Haswell Public Safety – Application of Design Codes – 2010 Oral Hearing Ref Doc No 22

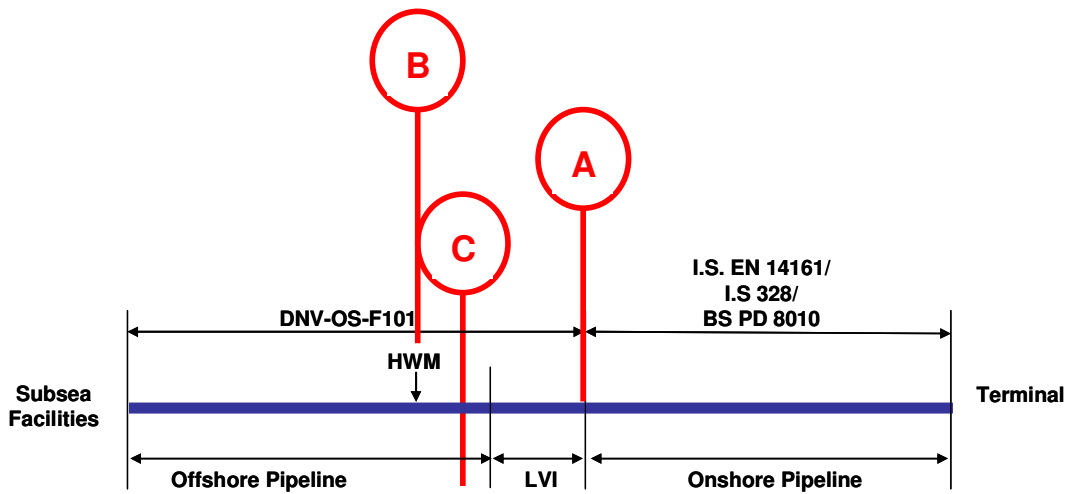


FIGURE 4 SHOWING THE STANDARDS WITH THEIR RESPECTIVE PIPELINE LOCATIONS

However the main point of confusion is what codes apply between POINTS B to A since DNV-OS-F101 is an offshore code but covering a portion of an onshore pipeline.

Figure 4 ( SEPIL Fig 3.1) shows a portion of onshore pipe PRE LVI and the LVI (POINTS B-A) covered by the offshore standard DNV.OS F101, but with no mention of supplements. This again is misleading. Mr. Gurden explained during his presentation that SEPIL had intended that the supplements IS 328 and BS PD 8010 be applied to the offshore standard. This is also explained in the *EIS Appendix Q3.2 section 7 but Q3.2 - Table 4.1* again confuses the issue by not assigning the supplements to DNV-OS-F101 on the part of the chainage being discussed – HWM to downstream weld of the LVI barred exit tee (POINTS B-A).

SEPIL's logic was that the offshore pipeline code DNV-OS-F101 was reissued in 2007 and Appendix F paragraph A101 specifies the requirements for design, construction and operation of parts of the offshore pipeline going onshore. The guidance given in Appendix F is that the submarine pipeline system is defined to end at a weld beyond the first flange or valve onshore. Appendix F, paragraph A 301 further states that Appendix F is fully aligned with the requirements given in ISO 13623 (and thus I.S. EN 14161). Therefore design codes I.S. 328 and BS PD 8010 can be applied to DNV-OS-F101.

The Inspectors Team did not dispute the logic but enquired if the DCENR or TAG had issued guidance on this issue.

When the DCENR gave their presentation on standards and submitted a letter<sup>15</sup> from Mr Buckley (National Standards Authority of Ireland) detailing the standards to be used, no indication was given for the use of supplements to DNV. OS. F101.

<sup>15</sup> Letter From Mr. M Buckley to Mr.C O' HO'bain DCENR Standards for Design and Construction of High Pressure Untreated natural Gas Pipelines , dated 26<sup>th</sup> July 2010. Oral Hearing Doc Ref 33



Therefore Mr. P Waite (Entec) consultant for DCENR was asked to clarify the position on the 27<sup>th</sup> August at the Oral Hearing.

**NW Question** Is Tag going to give guidance, clarity on that particular section?

**Answer** I believe that TAG is not in existence anymore

-----  
Mr Ryan from DCENR confirms TAG was appointed by the Minister purely for oversight of the Advantica review of the 2002 pipeline consent. It has concluded its work and Tag has no function in terms of this new application. The Minister has appointed ENTEC as its advisor in terms of the new application..

This line of questioning was continued on the 8<sup>th</sup> September with Mr. Waite DCENR.

**NW Question** During the discussions with the SEPIL on the pipeline codes, particularly reference to the *Appendix Q1 Figure 4.1*, we were looking for clarification on the application of supplements to the DNV-OS-F101 code at the LVI and pipe work to the tie-in . Whether these supplements I.S. 328 and PD8010 can be applied to DNV. OS. F101 because the code aligns with I.S 14161. We were then informed that there was some correspondence so we would like to go back to Mr. Peter Waite's presentation. When you gave your presentation we discussed the application of supplements to DNV. OS. F101 at the LVI.

In the submission from the Department there was, as far as I can remember, no mention of the correspondence on this matter with Shell Yesterday we were presented with two pieces of correspondence; the letter<sup>16</sup> from SEPIL to the Department dated 30th April 2010. This letter asked for clarification on a number of items including pipeline codes at the LVI. In particular, they requested: "Provide confirmation that the design of the LVI and pipework that had previously been stated as chainage, meets the requirements set down by the Technical Advisory Group (TAG). They were talking specifically about DNV. OS. F101 and the chainage, which, covered the upstream portion of the onshore pipeline to the LVI and they were looking for clarification that these supplements did in fact apply to DNV. OS F101 for that section of pipeline.

We were then presented with a reply<sup>17</sup> from the Department from Bob Hanna dated 13th May. Merely just a point of clarification to get these points put on record. The question to you is, can you confirm that this letter does fully meet SEPIL's request to clarify the role of supplements with respect to DNV. OS F101 when applied to the LVI and pipework to the tie-in?

**Answer** Peter Waite speaking. I can't confirm on Shell's behalf that it met all their requests but my understanding has always been that the requirements of the codes, the Irish Code, the European Code supplemented by 8010 applied to the whole stretch of the onshore pipeline, which included the LVI and the pipe work immediately

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<sup>16</sup> Letter dated 30 April 2010 from Mr Costello SEPIL to Mr Hanna DCENR Oral Hearing Doc Ref 77

<sup>17</sup> Letter dated 13 May 2010 from Mr Hanna DCENR to Mr Costello SEPIL Oral Hearing Doc Ref 78

upstream of LVI. Although there is this code break, if you like, there is an overlap where there are compatible considerations being covered.

**N Wright** Thank you very much.

**Mr. Waite** Does that answer the question? I can't speak for Shell, I'm sorry, but I hope it answered.

**N Wright** Well Shell proposed it, and it is in the EIS. Looking at Bob Hanna's letter, one would just say yes he confirms that the application of DNV standards and the test pressures meet with the requirements set out by TAG. But we are saying really it confirms everything, as used by I.S.328 and PD 8010, it would be fully applied under DNV. OS. F101?

Mr. Waite Yes

**N Wright** That's what we are looking for !.

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### 5.1.1 Onshore Pipeline Hydrotest Pressure

Details given in *EIS 2010 Q9* Onshore Hydrostatic Test Pressure Report

As discussed in Section 5.1, a section of offshore pipe, which now forms part of the onshore pipe (B to C) is already on the beach and the downstream onshore pipe will be welded to this section at POINT C. The offshore pipeline was hydrotested at 380 barg according to the requirements of DNV.OS. F101. This is based upon raising the stress in the pipe wall to 96% SMYS (Specified Minimum Yield Stress) of the steel pipe at the thinnest wall section, which is 21mm at KP4.1-KP12.

The onshore pipeline at POINT C will be capped off after construction and hydrotested. I.S.328 states the minimum test pressure for design factors of 0.3, is 1.5 x the design pressure of 144 barg, which is 216 barg. Alternatively if the design factor is taken as 0.72 then the stress in the pipe wall to be raised to 105% SMYS of the steel pipe at the nominal wall section, which is 26.1mm which would give a test pressure of 523barg. However this test pressure was considered too high by SEPIL since it is outside of the design factor of 0.3. Therefore the DNV.OS. F101 mill test pressure of 504barg was selected for the onshore hydrotest.

This produces unusual MAOP / hydrotest pressure ratios. For the Pre LVI pipe up to POINT C, which has a MAOP of 150barg, has been hydro tested to 380 barg. However the remainder of the Pre LVI pipe and the LVI will be hydrotested to 504 barg. For the Post LVI onshore pipe the ratio is more extreme having a MAOP of 100barg and a hydrotest pressure of 504 barg.

DCENR has approved the above test pressures (Mr. Hanna in his letter of the 13 May 2010).

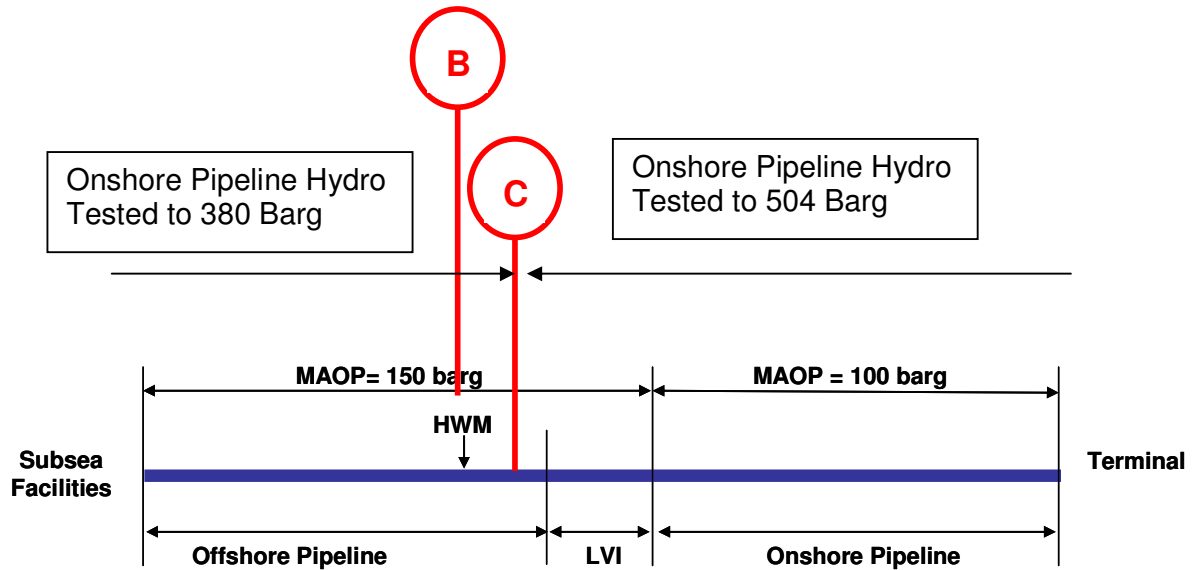


FIGURE 5 SHOWING THE RESPECTIVE PIPELINE TEST PRESSURE LOCATIONS

### 5.1.2 Discussion Application of Codes & Standards

SEPIL was asked to clarify the code and test pressure requirements between the high-water mark and the downstream weld at the LVI (Chainage 83+390 to 83+470) and confirm that the design at this location meets the requirements set down by the Technical Advisory Group (TAG). There was some confusion over whether DNV.OS.F101 was supplemented by IS 328 and BS PD 8010 for this section of onshore pipeline.

During the Hearing the Inspectors team has satisfied itself that the DCENR has examined the use of the offshore specification DNV.OS.F101 with the above supplements and found it acceptable for the design, construction and operation of the onshore pipeline between the high water mark and the downstream weld of the LVI. Also a hydraulic test pressure of 504 barg can be applied to the latest section of the Pre LVI onshore pipeline, while the existing section was hydraulically tested to 380barg

The Inspectors Team felt it was extremely important to fully define what design and operational standards apply to the pre LVI section of onshore pipeline since TAG had made no recommendation covering this situation.

#### **Recommendation**

The best way to deal with this matter going forward would be for the DCENR together with NSAI to reinforce this conclusion by issuing a document clarifying what supplements apply to DNV.OS. F101 when used for onshore sections of an offshore pipeline.

## 5.2 Pipeline Tie-In at the Terminal

The details of the onshore pipe tie-in at the Terminal are given in *EIS Appendix Q4.1 section 3.5*

As the pipeline approaches the Gas Terminal boundary fence, the depth of cover is maintained at 1.2m to the top of the gas pipeline. Within the Gas Terminal site the pipeline crosses an internal site access road before rising above ground for interconnection to the Gas Terminal isolation valves and pig receiver. Where the pipeline rises above ground, an Isolation Joint will provide electrical isolation between the Gas Terminal pipe work and the onshore pipeline Cathodic Protection system.

A pipeline anchor will be installed in the Gas Terminal site, at a point before the onshore pipeline comes above ground for interconnection to the Gas Terminal pig receiver. The purpose of the anchor is to withstand the forces transferred from the pipeline to the above ground pipe work and thus prevent movement of the pig receiver and above ground pipe work. The forces in the pipeline are generated when there are changes in pressure and/or temperature of the buried onshore pipeline between the installation conditions and the operating or test conditions

This arrangement is shown below in Figure 6

The outfall pipeline, the umbilicals, the fibre optic cable and the signal cable will all terminate at positions close to the gas pipeline pig receiver.

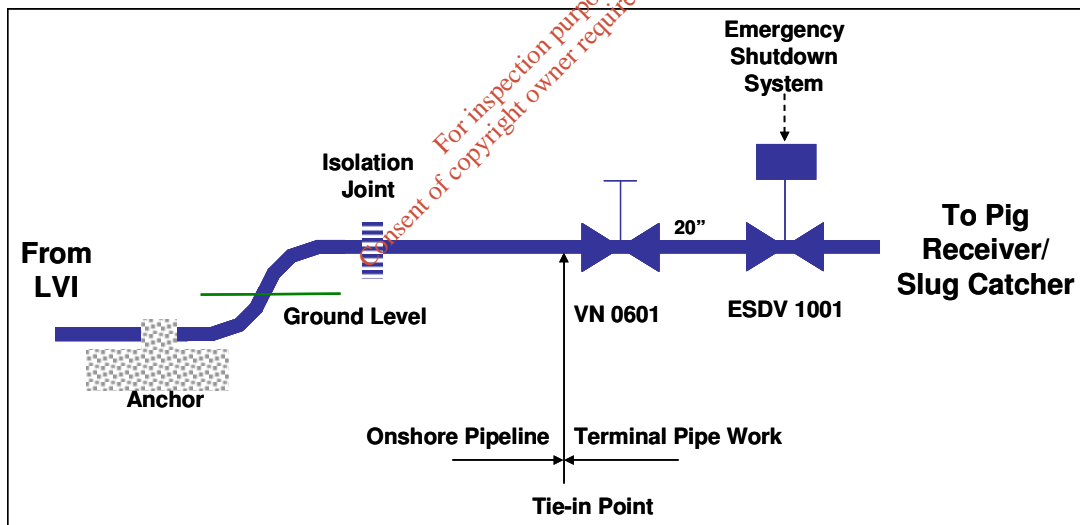


FIGURE 6 SHOWING THE DETAIL OF THE ONSHORE PIPELINE TIE-IN AT THE TERMINAL

### 5.3 Sruwaddacon Bay Tunnel

Routing of the pipeline under Sruwaddacon Bay via a tunnel is one of the biggest contributions to pipeline safety along with lowering the pipeline pressure.

However the Inspector's Team needed to confirm the following:-

- The design of the tunnel over such a long distance was feasible and did not involve unproven technology.
- The design and construction of the pipe in the tunnel was practical
- The geotechnical information from the bore holes in the bay demonstrated that the seabed conditions were suitable for a tunnel
- There would be no pipeline operational problems involving the location of the pipe within the tunnel

Information on the tunnel is given in the *EIS Vol 1 section 5*. A more detailed account was obtained at the Oral Hearing. Mr. T Jaguttis of Motte & Partner GmbH presented a Brief of Evidence<sup>18</sup> on the Tunnel Design and Construction while Mr. E Kelly of RPS give a BoE<sup>19</sup> on the Tunnel Construction and the temporary construction site at Aghoos

The tunnel will run between Glengad and Aghoos for a distance of 4.9Km, see Figure 1. It will have an outer diameter of 4.2m and an internal diameter of 3.5m. This will allow worker access into the tunnel to operate the tunnel-boring machine and allow the subsequent pipeline construction to commence.

The tunnel will be constructed using a mechanized tunnel building process called segmental lining. During this process a tunnel-boring machine (TBM) will be launched from a start shaft near Aghoos and will be recovered from a receiving shaft at Glengad. Within the TBM, a concrete liner is assembled in the excavated void to form the tunnel. After the tunnel is completed the pipeline and associated services are installed and then the remaining tunnel void is filled with grout.

The TBM is shown in Figure 7. The figure shows the cutting head followed by the protective shield and tail skin. The tail skin protects the work area from the seabed material and allows the next row of liner segments to be assembled. Once assembled the cutting head and shield are moved forward by jacking cylinders pushing against the installed part of the tunnel. The segments are transported into the tunnel by train and then assembled to form the tunnel rings.

The Tail Skin is smaller in diameter than the excavation diameter by around 100mm –150mm and therefore the annular gap needs to be filled with mortar. The mortar embeds the rings into the surrounding formation and prevents excess settlement.

The operation of the TBM, ring building and segment supply requires a crew of 8 – 10 people working in the tunnel. This process will be repeated around the clock working in shifts over the 24 hours.

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<sup>18</sup> Mr Jaguttis Motte & Partner BoE on Tunnel Design & Construction Doc Ref No 5

<sup>19</sup> Mr E Kelly RPS BoE on Tunnel Construction Doc Ref No 3

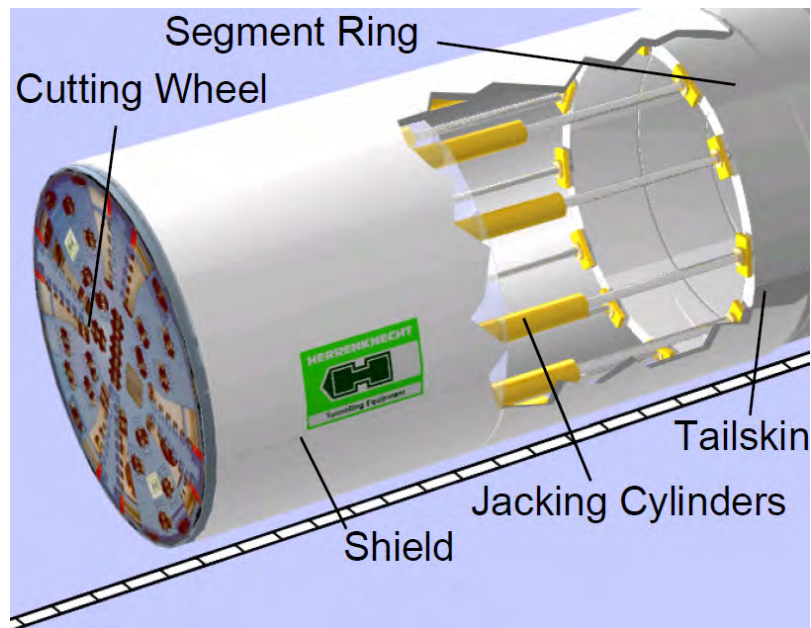


FIGURE 7 SHOWING THE DETAIL OF THE TBM JACKING CYLINDERS AND TAIL SKIN

During his presentation Mr. Jaguttis stated that this method of tunnelling is capable of constructing long tunnels in almost all geologies. Based upon geotechnical investigations, the TBM will have to bore through rock with strength of 280 MPa. This would slow the rate of tunnelling down but the head is equipped with cutting tools and a propulsion system that can handle even higher strength rock formations.

There was a discussion on other geological features that the TBM would have to work through. These included the following

**Highly Fractured Rock** The main problem is the loss of slurry through the fractures and hence problems of carrying away the cuttings. The solution is to adjust the properties of the slurry to seal the fractures and restore circulation.

**Boulders.** Large boulders that can not pass through the cutting head or displaced to the side, will be manually split by men entering the excavation chamber under compressed air.

**Weak Soil Layers** Very weak soil layers several metres thick will not support the weight of the TBM which makes steering difficult. The solution is improve the bearing capability of the material by injecting a hardening grout on to the lower surface of the machine.

Mr. Jaguttis stated that if a problem arose that could not be solved from inside the tunnel then a contingency plan would be to assemble an intervention pit within the bay. Details of such a pit are given in the *EIS Vol 1 Section 5.5.1.3* and detailed drawings of the pit are given in the *EIS Addendum*



### 5.3.1 Feasibility Of Tunnel Design and Construction

During the Oral Hearing on the 7<sup>th</sup> September 2010, Mr. Jaguttis was questioned on the tunnel design. This was to enquire whether the design for constructing a tunnel of this length for gas pipelines was established or did it rely on novel technology.

**NW Question** Another big change in the design is the route of the pipeline through Sruwaddacon Bay via this 4.9 kilometre long tunnel structure from Glengad to Aghoos. There is very little detail in the EIS on the construction and performance of the tunnel, Is this the longest pipeline tunnel you have worked on?

**Answer** Yes that is the case The longest tunnel we have just completed is 4 km (This is the 4Km Ems pipeline between Germany and the Netherlands ).

**NW Question** So, did the tunnel in the Netherlands carrying a pipe, did that have a pressure equal or greater than a 100 bar MAOP

**Answer** The pipeline had an MAOP of 79.9 bars.

**NW Question** Around the world in terms of pipes and tunnels, are there many built with this length of 4.9 km

**Answer** From my personal experience, I can assure you that the trend in recent years is turning towards installing pipelines into the tunnels, because of the ability to create such a structure without disturbing the surroundings. So, you see in the recent years, the number of pipelines and tunnels are increasing.

**NW Question** What is the longest you are aware of?

**Answer** Well the 4 Km is about the longest I am aware of in Europe

The proposed tunnel carrying the Corrib pipe appears to be the longest to be constructed in Europe. However, the technology looks to be well established with a growing trend towards using this technology to overcome technical and environmental problems associated with the routing of pipelines.

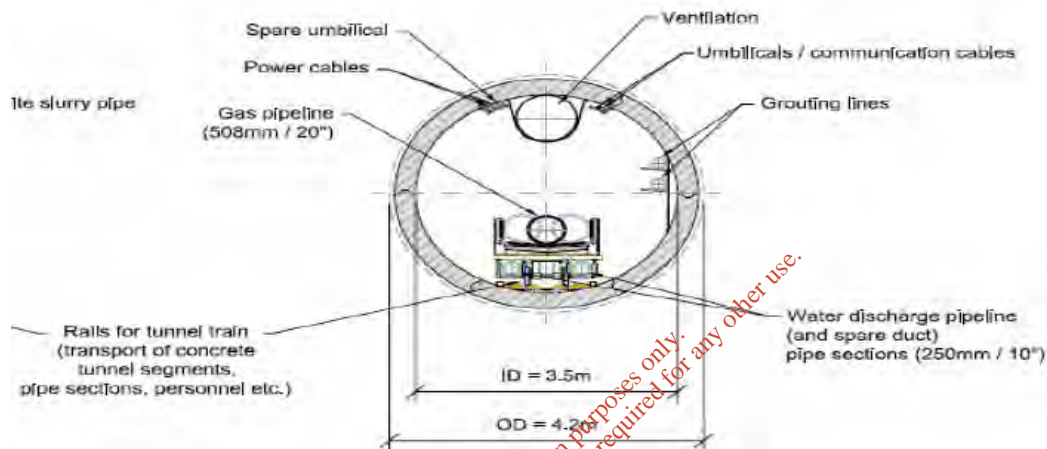
Also during the questioning session the accuracy of the tunnel alignment was confirmed to be to within +/- 8m. This is important because it influences the safety distances from the pipeline in the Consequence Analysis.

### 5.3.2 Design and Construction of the Pipeline Within the Tunnel

Mr. Jaguttis together with Dr Haswell and Dr Paterson were questioned on the design of the pipeline within the tunnel. This was to enquire whether the tunnel imposed unique problems on the design and construction of the pipeline.

It was confirmed during questioning that at the time of the hearing the design of the tunnel / pipeline was not completely finalized. However sufficient detail was provided to understand the process of construction and pipeline installation.

The pipeline is moved into the tunnel on trucks as shown below in Figure 8



**FIGURE 8 SHOWING THE PIPES TRANSPORTED INTO THE TUNNEL**

Figure 8 also shows a ventilation duct at the top of the tunnel. The Observer's were concerned that SEPIL plan to leave the duct in place after the pipeline is constructed and the tunnel is filled with grout. The fear being that this could be used at a later stage to transport other fluids. This was totally refuted by SEPIL.

One of the main concerns was the settlement of the tunnel after construction, which could impose additional loads upon the pipeline. SEPIL stated that during construction with the TBM, the tunnel is predicted to have a settlement no greater than 10mm. However after the tunnel is built no further settlement will take place because the tunnel and pipes are lighter than the TBM and will have virtually the same weight as the surrounding soils.

SEPIL were then questioned about the level of stress in the pipeline when operating within the tunnel. On the 9<sup>th</sup> September SEPIL submitted a document<sup>20</sup> detailing the requested pipeline stress levels. This showed the maximum stress occurred during the Hydrottest when the pipeline was not grouted.

From Table 1 in the submitted stress document it can be seen that the highest stress occurs during the 504 barg Hydrottest with no temperature differential along the pipe. Three case studies are listed with the friction factors varying between 0.05 and 0.5

<sup>20</sup> SEPIL Corrib Onshore Pipeline – Tunnel Pipeline Stress Analysis Oral hearing Doc Ref 87

and the gap between the pipe and support varying between 50mm and 100mm. There was little variation between the cases with the Maximum Von Mises Stress varying between 87% and 88% of the allowable code stress of 90% SMYS in accordance with I.S.328.

The calculations were repeated for the pipeline in the operational condition within tunnel with a differential temperature of 30C. For the design pressure of 144 barg and the MAOP of 100 barg the stress levels were 32% and 25% of the allowable code stress of 90% SMYS, respectively.

SEPIL was asked if there was a pipeline design code for operation in a long tunnel. SEPIL replied that there is no specific code and the pipeline would be designed to the codes approved by TAG discussed in Section 5.1. SEPIL were also asked if there was a database for pipelines built into tunnels. Dr Haswell replied that they have looked but none could be found.

### 5.3.3 Geotechnical Survey of the Tunnel Route

At the time of the Hearing the contractors were still in Sruwaddacon Bay carrying out further surveying work on bore holes and information was still being submitted during the Hearing. The most up to date information is contained in the *EIS Addendum*<sup>21</sup> *AGEC Interim Summary Geotechnical Interpretative Report Foreshore Ground Investigation Sruwaddacon Bay*. Other details are included in *EIS Appendix M* and a BoE on Geotechnical Survey<sup>22</sup> given by Mr. T Johnson

However SEPIL have some data on the seabed collected when they were proposing two crossings during the 2009 Hearing. Also evidence from Mr. Jaguttis suggested that the TBM could handle most soil types and rock formations to be found in the bay. Deep layers of running sand would be the most difficult for tunneling.

The present seabed investigation is being undertaken by two jackup rigs, which are carrying out the work using cable percussion (CP), rotary drilling (CD) and cone penetration testing at intervals of 100m.

The Geology reported to date shows the tunnel route from Glengad dominated by fine to medium sands with pockets of sand and gravel. Nearer to Aghoos the route consists of sand and gravel then running into weathered rock.

There are no perceived problems in constructing the tunnel from the evidence presented at the Hearing and the seabed investigations performed to date. The rock formations at Aghoos may slow the operation down but not enough to prevent the tunnel from being built to the required standard.

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<sup>21</sup> EIS Addendum Dated August 2010 doc Ref No 8

<sup>22</sup> SEPIL Submission by Turlough Johnson Geotechnical Issues – Inspectors Doc Ref No 7

### 5.3.4 Pipeline Operations Within the Tunnel

SEPIL were questioned on potential damage to the outer anti corrosion coating by movement of the pipe during the hydrotest and the application of the grout backfill after commissioning. The coating is a three part coating with an inner coat of epoxy followed by an adhesive layer attached to an outer barrier coat of polypropylene. SEPIL were confident that the outer Polypropylene barrier would offer excellent protection to the epoxy coating during the hydrotest when the pipe could move.

One of the main areas of interest to the Inspectors team was the Cathodic Protection (CP) and could this be applied to the pipeline within the tunnel back filled with grout to ensure the long term integrity of the pipeline from external corrosion.

A series of Questions was put to Dr Patterson on this subject at the Hearing on the 7<sup>th</sup> September

**N Wright Question** Does Shell have any experience of managing CP in a long tunnel

**Answer** As far as I am aware we don't have any direct experience, but we have certainly consulted with Mr. Jaguttis who was involved in the Ems tunnel Also we have consulted with our expert on CP globally to establish whether he had any concerns with CP in a tunnel. In principle, the same characteristics apply for CP in a tunnel as it might be for a long horizontal boring with grouting as we were proposing last year with the two estuary crossings.

The conclusion of that is that the pipeline can be cathodically protected in the tunnel, but I would also add it is an advantage of actually putting a pipeline in a tunnel. In addition to the coating, which provides the first barrier, you also have the grout, which is essentially alkaline with a pH of about 12 which would mean if you get a holiday in the coating, the steel would be passivated by the grout and you then have a CP system. So, essentially with respect to external corrosion in the tunnel, you have three barriers, which is greater than the standard onshore pipeline

**N Wright Question** Can the grout conduct electric currents within the tunnel?

**Answer** Yes, indeed. Again, we have consulted with our advisor on the tunnel, Mr. Jaguttis, who advised us that the grout they will be proposing for the tunnel is conductive. Interestingly on the Ems tunnel they did extensive modelling and an actual CP measurement test to demonstrate that the CP was working through the grout in the tunnel

The questioning then turned to what would SEPIL do if the pipeline has a serious defect within the tunnel, which prevented its future use. SEPIL thought it was highly improbable that such a defect would occur. However if such an event did occur then they had two options. One to construct an intervention pit and externally deal with the problem. The other was to insert a smaller 16in diameter pipe through the existing 20in pipe. They were also asked what is the strategy if an umbilical developed a fault. SEPIL stated that they have a spare umbilical running through the tunnel together with a spare water line.

### 5.3.5 Tunnel Discussion

Routing of the pipeline under Sruwaddacon Bay via a 4.9m tunnel is one of the biggest contributions to pipeline safety along with lowering the pipeline pressure.

The evidence presented by Mr. T Jaguttis of Motte & Partner GmbH at the Hearing was crucial, especially his experience in building a similar tunnel carrying a 79.9 barg gas transmission pipeline. This was the 4km Ems tunnel between Germany and the Netherlands.

The Inspector's team was satisfied that the design of the tunnel over such a long distance was feasible and did not involve unproven technology. Also the design and construction of the pipe in the tunnel was practical. Mr. T Jaguttis was confident that the Tunnel Boring Machine could handle the geotechnical conditions found in the bay

SEPIL were also confident that there would be no pipeline operational problems within the tunnel since the tunnel would be fully grouted after the pipeline is built and tested. The grout is able to conduct an electrical current and therefore can support the cathodic protection system inside the tunnel. Should any pipeline damage occur in the tunnel, SEPIL were confident that an intervention pit could be used to repair the pipe or a new smaller diameter pipe could be inserted up the bore of the existing pipeline.

### 5.4 Stone Road Design

This section deals with the potential settlement of the stone road and its affect on the pipeline and services as requested by ABR. Other aspects of the stone road and peat stability will be covered in the Inspectors report.

The design of the Stone Road was extensively discussed in Mr Conor O Donnell's 2009 report<sup>23</sup> and in NW 2009 report

The basic design of the pipe and services within the stone road has remained substantially as described in 2009 except that the width has increased from 9m to 12m through the forested blanket bog area to the terminal. Information is given in *EIS Vol 2*<sup>24</sup> and Mr Turlough Johnston's BoE given to the Hearing on the 7<sup>th</sup> September.. SEPIL Submitted a document<sup>25</sup> during the Hearing on the computer modelling methods used to calculated the pipeline stresses in the stone road

Initially the stone road would facilitate the construction of the 20in diameter gas pipeline and then it would provide a stable environment for long-term operation of the pipeline and associated services. This is a novel concept similar to that used by BGE except that they buried to gas pipeline adjacent to the stone road.

Two types of stone road design are proposed. Type 1 is where the peat is excavated and backfilled with stone leaving a 0.5m layer of peat between the stone and mineral

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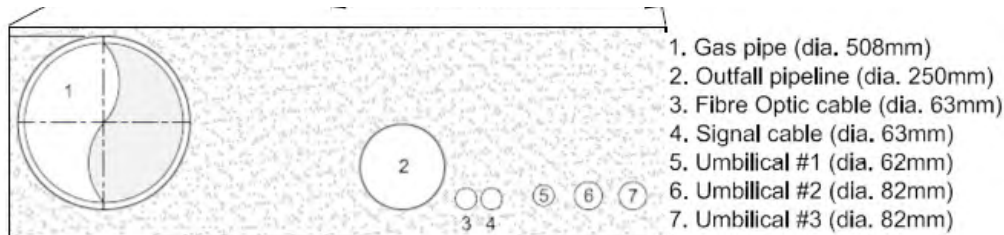
<sup>23</sup> Mr Conor O Donnell Geo- Technical Specialist assisting the Inspector

<sup>24</sup> EIS Vol 2 Book 4Appendix M1A & M1B , Book 5 Appendix M2-M4 Soils and Geology – Peat Stability Assessment & Stone

<sup>25</sup> Stress Sensitivity modelling Oral Hearing Document No 90

soil. Type 2 is where the peat is deep and a Matrix layer of stone and peat is left next to the mineral soil.

The location of the buried pipe and services in the stone road is shown below in Figure 9



**FIGURE 9 SHOWING ARRANGEMENT OF PIPELINE, UMBILICAL AND SERVICES IN THE STONE ROAD**

The peat will be typically excavated to 0.5m of its base then backfilled with stone. One of the main concerns is the construction of the stone road in areas of deep peat. At these locations the road will not extend down to the mineral soil but rest on a matrix of boulders and peat. Boulders/ rocks will be forced into the peat by an excavator to create the matrix.

The Bord requested SEPIL to examine the risk to the pipe and services in the stone road from settlement and provide an estimate of the magnitude of potential settlements

The predictions for the stone road settlements are given in *EIS Appendix Q4.1A*.

SEPIL used Finite Element Analysis (FEA) to perform a load ~ displacement analysis on the pipe and umbilicals when subjected to settlement –

#### 5.4.1 Case 1 Settlement.

This analysis showed that settlement could occur between Aghoos and the terminal ( KP 88.908 to KP 91.720) The FEA model includes changes over shorter distances rather than the more gradual transition which would incur in practice. This has resulted in higher levels of settlement being predicted and therefore builds in a level of conservatism into the model.

The FEA evaluation considered two loading conditions:

- Load 1 Settlement during hydrostatic testing 504 barg – filled with water
- Load 2 Settlement during normal operation but with the gas pressure raised to 144barg – the design pressure.

The stresses in the pipeline in the unsupported lengths were calculated by using Caesar II software

The resultant settlement for Case 1 is taken from *Appendix Q4.1A – Figure 4.1* and is shown below in Figure 10



From Figure 10 there it can be seen there are two locations of high settlement at locations approximately KP 90.400 and KP 90.666. The **maximum settlement of 0.6m** was predicted at location KP 90.666.

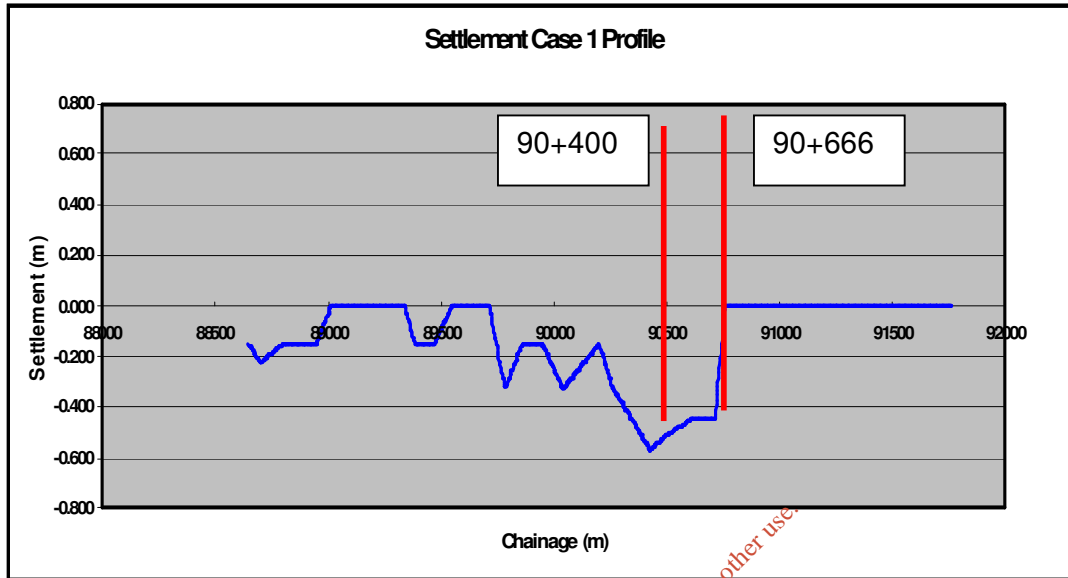


FIGURE 10 SHOWS THE PREDICTED SETTLEMENT ALONG THE PIPELINE FROM AGHOOS TO THE TERMINAL FOR CASE 1

It can be seen from *Appendix M3 AGEC Drg No 1012-01006* that location KP 90.400 corresponds to deep peat (4m - 5.4m) and KP 90.666 corresponds to deep peat near hydrological features. The locations are shown below in Figure 11

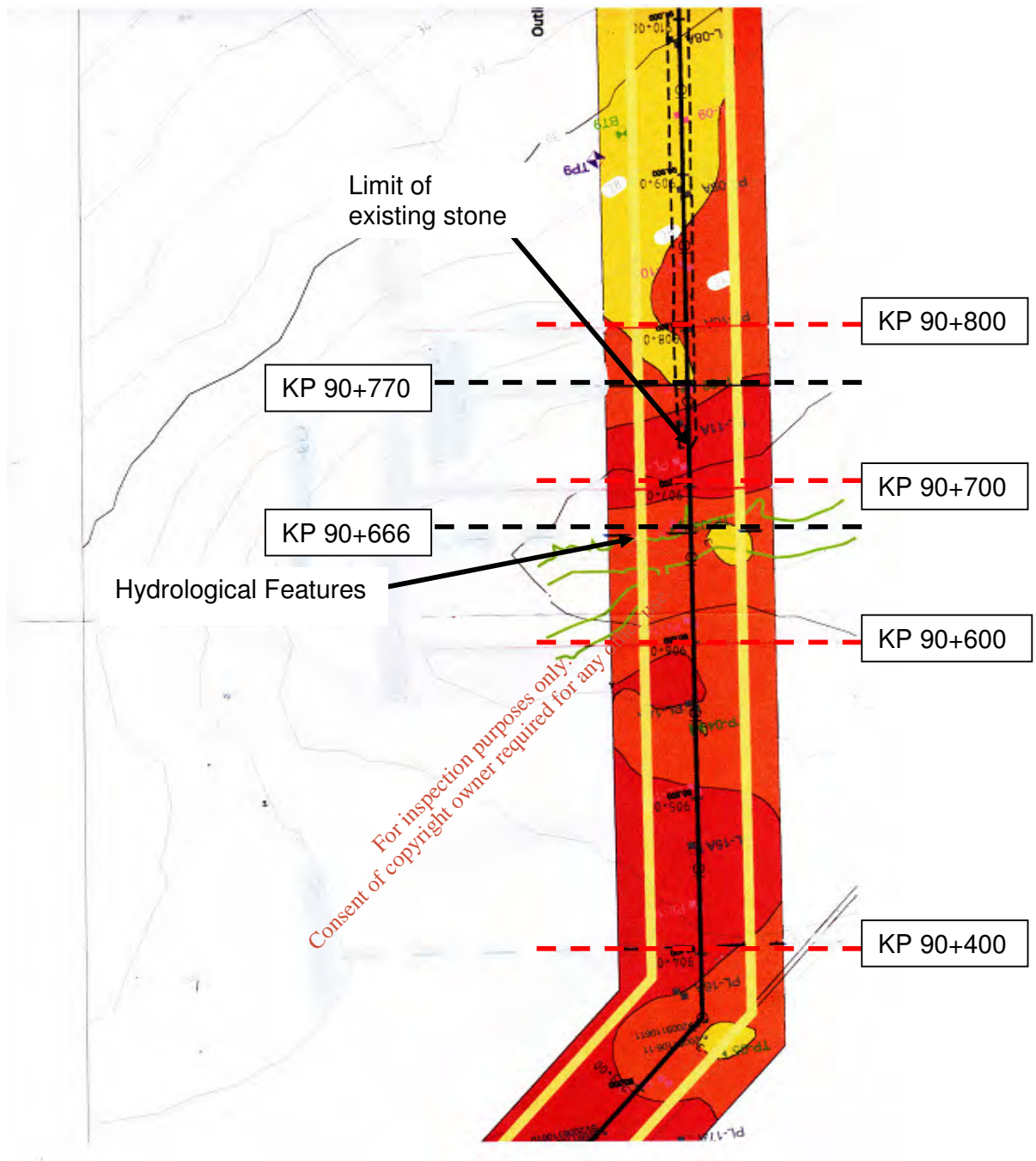


FIGURE 11 SHOWING PLAN VIEW OF PIPE ROUTE WITH PEAT DEPTHS AND CONTOURS

From *Appendix Q4.1A* the maximum levels of pipe stress was predicted to occur at KP 90+770. This was due to the relatively abrupt change in settlement data as shown in Figure 10

The resulting pipeline stresses from the case 1 settlement for both load cases is shown Table 1

TABLE 1 PREDICTED PIPELINE STRESSES FRO STONE ROAD SETTLEMENT		
LOAD CONDITION	1	2
Description	Hydrotest	Design
Pressure Barg	504	144
Allowable Stress MPa	485	436.5
Max FEA Calculated Stress	407.6	148.2
Stress ratio as % of Allowable Stress	84	34

From Table 1 it can be seen that the maximum stress occurs during the Hydrostatic test at 84% of the allowable stress, while the operating condition only induced 34% of allowable stress. Both of the load cases combined the pressure-induced stress with the maximum bending stress from case 1 settlement predictions which SEPIL claimed were extreme during the Hearing.

To check the conservatism of the design, SEPIL performed a sensitivity analysis on what settlement would cause the pipeline to reach 100% SMYS. *EIS Appendix Q4.1A section 5.1.2* states that a settlement of 10x the predicted 0.6m would be required to induce a stress of 100%SMYS with the design case.

As part of the sensitivity assessment SEPIL varied the span length to evaluate the change in equivalent stress as a % of the allowable. Varying the span between 2m and 40m only changed the % allowable from 25% to 37%. *Table 5.2 in Appendix 4.1A*

The Bord also instructed SEPIL to investigate the affects of stone road settlement on the other services

#### 5.4.2 Outfall Pipeline

The polyethylene outfall pipe maximum design stress was calculated as 98% of the Minimum Required Strength using case1 settlement conditions at a temperature of 35°C. Although this figure is high the 35°C operating temperature is again judged to be conservative. At 0°C the maximum design stress falls to 72% of the Minimum Required Strength. See *Table 5.3 in Appendix 4.1A*

#### 5.4.3 Umbilicals

The stress in the umbilical is controlled by limits on the bend radius and axial load. The resulting outputs from the FEA show that the curvature and tension as a % of allowable are only 1.3% and 4.5% respectively. *Table 5.4 in Appendix 4.1A*

#### 5.4.4 Fibre Optic Cable & Signal Cable in Ducts

Again using the manufactures limits on curvature and axial tension, the resulting outputs from the FEA show that the curvature and tension as a % of allowable are only 0.07% and 15.4% respectively. *Table 5.5 in Appendix 4.1A*

#### 5.4.5 Discussion Pipe and Umbilicals in the Stone Road

SEPIL were asked to examine the risk to the pipeline and umbilicals from settlement in the stone road and provide an estimate of the stone road settlements. From the calculations and modelling work performed, SEPIL were confident that under operational conditions the stresses on the pipeline and umbilicals would be low.

In the case of the services the stresses were even lower apart from the outfall pipeline. This has a predicted stress of 98% of the Minimum Required Strength, which has been modelled using 35<sup>0</sup>C operating temperature. This is judged to be conservative. At 0<sup>0</sup>C the maximum design stress falls to 72% of the Minimum Required Strength.

SEPIL performed a sensitivity analysis on what settlement would cause the pipeline to reach 100% SMYS. This concluded that a settlement ten times greater than the predicted 0.6m would be required. SEPIL also varied the unsupported pipe span from 2m and 40m, which only changed the percentage of the allowable stress from 25% to 37%. The stress analysis predictions for pipe in the stone road were based upon computer modelling. Modelling of the Type 2 design is complex where a base layer of a peat and stone matrix is deployed between the stone road and the mineral soil. At the Hearing SEPIL admitted that they had not taken measurements of settlement of the existing stone road to verify the model's predictions.

This report accepts the conclusion from the SEPIL modelling that the pipe and umbilicals will not be overstressed from any ground movement. However since there are areas of concern SEPIL need to obtain actual data to confirm their modelling predictions

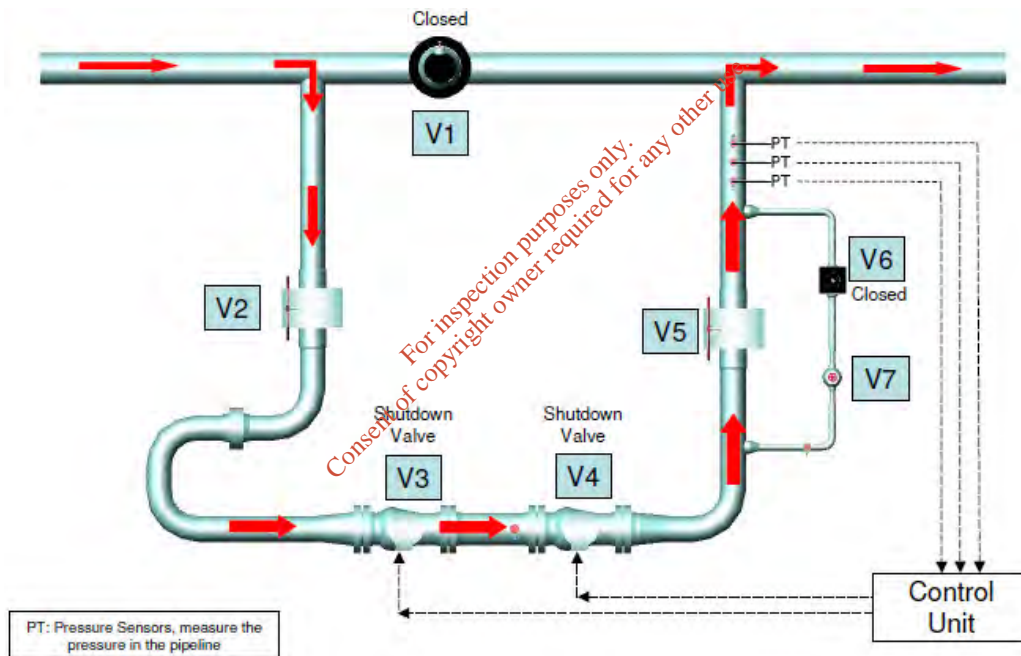
#### **Recommendation**

It is recommended that SEPIL set up the required instrumentation to measure ground movements at the areas of concern. These are; the LVI offshore pipeline interface, at the transition areas between the grouted pipe in the tunnel and the buried sections, in the stone road at the deep peat sections and at the interface between the existing and newly laid sections of the stone road. Also SEPIL should deploy stable strain gauges (including vibrating wire gauges with protective housings) on the pipeline to verify the maximum predicted stress levels on the pipe and confirm the modelling accuracy. The instrumentation needs to remain insitu until steady state levels are confirmed and a sufficient period of time has elapsed to ensure exposure to a variety of environmental conditions.

## 6 DESIGN ISSUES WITH THE GLENGAD LVI

The Glengad LVI is described in *EIS Q4.3 Section 5* It contains two gas flow paths as shown in below in Figure 12. The first path is a continuation of the 20in gas pipeline. Within the LVI compound, a 20in Mainline Isolation Valve (V1) normally isolates the outlet of the gas pipeline. This valve is only opened for pipeline pigging operations to clean and inspect the line. SEPIL stated at the Hearing that operational pigging to remove liquids is not anticipated.

Under normal operations the gas flow is routed via a 16in bypass around the 20in valve. The bypass contains the High Integrity Pressure Protection System (HIPPS) system. The HIPPS contains two automatic closure valves, which receive their closure signals from three pressure transmitters located downstream from the valves. The voting system on the signals is contained in an electronic logic solver. The whole system is SIL 3 rated. The system is failsafe and can also be remotely activated from the terminal control room.



**FIGURE 12 BASIC FLOW DIAGRAM AND VALVE ARRANGEMENT OF GLENGAD LVI**

A short section of carbon steel pipeline upstream of the 20in V1 Valve is internally clad with a corrosion-resisted coating to provide additional corrosion protection at the dead end when the valve is closed. The 16in shutdown line and bypass spools are non-pigable and therefore are constructed from Duplex Alloy, again to provide additional corrosion resistance.

The EIS states Sand and Proppants not expected However in the *2009 EIS Appendix 5 sub Appendix 3.3* states that erosion damage is possible as selected wells may have to be fractured and treated with proppant materials. The maximum metal loss is predicted to occur at bends and tees at Glengad LVI

It is noted that no electrical isolation joint will be fitted between the offshore and onshore cathodic protection systems against the advice of the Advantica Report. The systems will be designed to be balanced at the LVI.

### Restart Requirements

The restart bypass around V5 will be opened to equalize the pressure around V5. Care will be taken to avoid freezing due to the Joule Thompson effect when the gas pressure drops across the bypass. Also Methanol is injected to minimize the formation of methane hydrate during the restart.. This facility is isolated during normal operation

A number of issues concerning the stress analysis at the LVI were clarified during questioning on 7<sup>th</sup> of September. Mr. J. Gurden and Mr. Hamilton answered these questions.

SEPIL were questioned whether the stress analysis of the LVI pipework had taken into account a liquid slug impacting on the closed 20in valve

**Answer Mr Hamilton** The type of slugs you refer to that give that kind of momentum are the ones I described early as terrain slugs or severe riser based slugs. The difference there is that those slugs of large quantities of liquid travel very close to gas velocity. In this case, we saw nothing like that. Any instability that we saw at minimum turn down did not produce that type of slug and as such the slugs were travelling at normal liquid velocities with no excess momentum. There was no case for looking at slugs of any momentum impinging that 20-inch valve.

SEPIL were questioned on the stress levels seen by the LVI pipework. No information is given in the EIS but as a result of the questioning SEPIL produced a document<sup>26</sup> during the Hearing detailing the stress levels at the LVI.

This document examined three cases as shown below in Table 2

TABLE 2 SEPIL SELECTED BOUNDARY CASES FOR THE LVI			
CASE	DESCRIPTION	UPSTREAM TEMP °C	DOWNSTREAM TEMP °C
1	Restart at LVI	4	-20
2	Start up from Subsea Wells	4	4
3	Sensitivity case 0 deg C	0	0

The results for the above case studies are shown in Table 3

TABLE 3 RESULTING STRESSES FOR THE BOUNDARY CASES OF THE LVI			
CASE	LOAD CASE	MAXIMUM VON MISERS STRESS MPA	% OF ALLOWABLE STRESS
Hydro -test	Test pressure 504 barg	421	96.6
1	Operational LVI pipework	237	58.4
2	Operational LVI pipework	312.3	77.2
3	Operational LVI pipework	305.8	75.4

Note the allowable stress is 90% SMYS From Table 3 it can be seen that apart from the Hydro test, the operational stresses are well below the allowable.

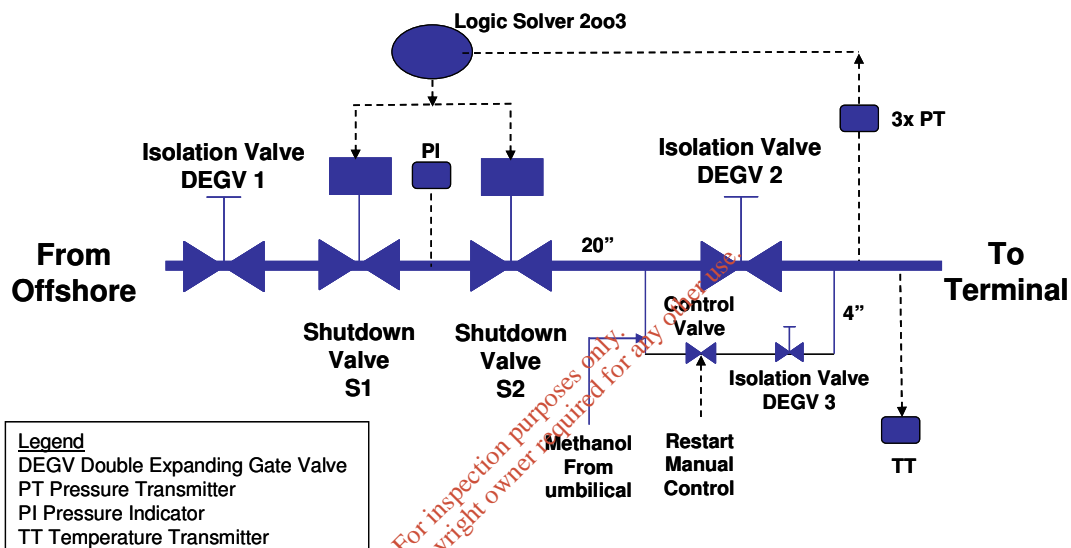
<sup>26</sup> SEPIL Document Corrib Onshore Pipeline – LVI Stress Analysis Oral Hearing Doc Ref 88



## 6.1 Alternative Configuration for the LVI Pipework

An Bord Pleanála required SEPIL to investigate the potential increase in safety for the population of Glengad by the use of a straight pipe at the land fall and provide full justification of the proposed design as submitted.

The response to the ABP request is given in *EIS Appendix Q4.4*. SEPIL examined the concept of placing two 20in diameter shutdown valves in series between two 20in isolation valves. The alternative pipework layout offered by SEPIL is shown below in Figure 13.



**FIGURE 13 SHOWS SEPIL'S STRAIGHT PIPEWORK LAYOUT**

The advantage and disadvantages of both the straight pipe and the loop are shown summarized below:-

Against the Straight concept:-

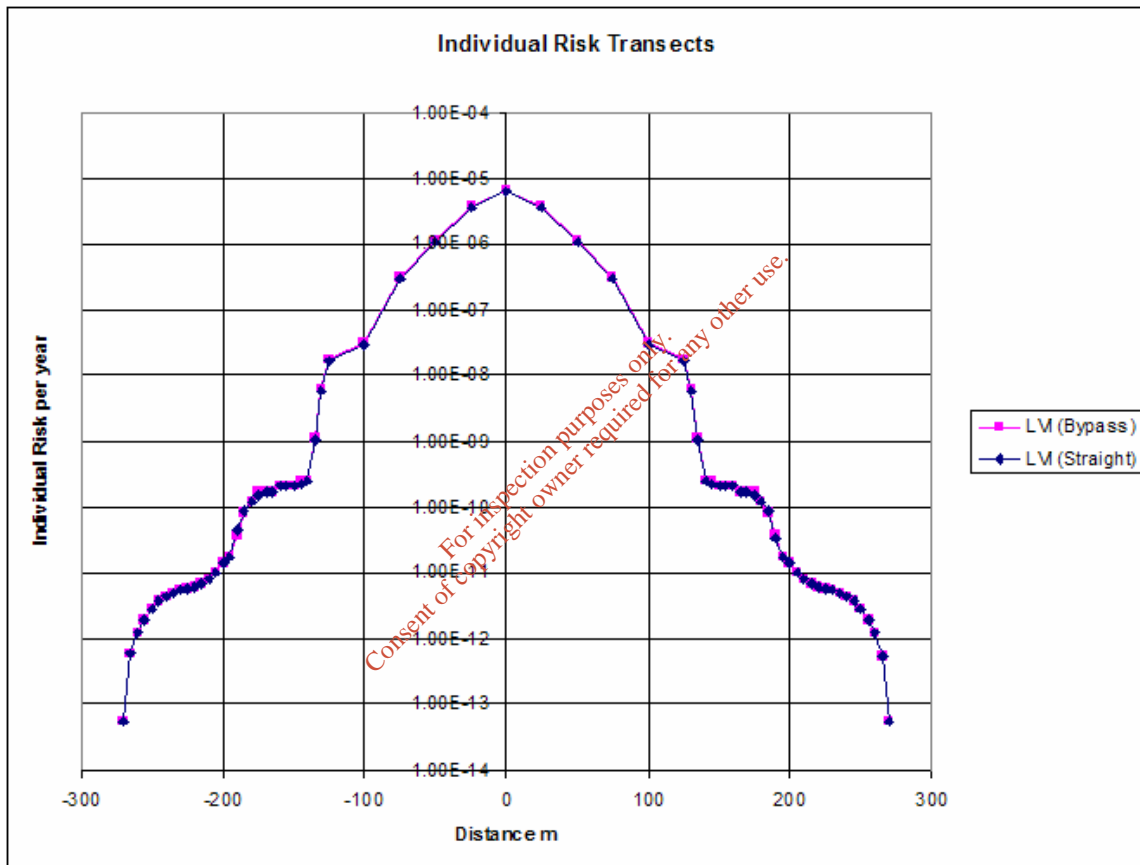
- 20in HIPPS were not readily available at the time of the LVI design
- HIPPS valves non pigable
- Piggable valves would increase the risk of a malfunction
- One off special designs have no proven track record

Benefits of Straight Pipe - SEPIL does not agree with all of these benefits

- Removes threat of erosion on bends –
- No dead zones that exclude the corrosion inhibitor
- No duplex alloy loop that cant be internally inspected by the intelligent pigging system
- Eliminates problems with a loop if liquid slugging occurs

The table in *Appendix Q4.4 section 7* details the main problems in obtaining a 20in diameter high integrity shutdown valve for the straight pipework design. The main problem perceived by Shell was that a 20in diameter high integrity shutdown valve with a proven track record was not available at the time of ordering. Therefore the valves that were available did not comply with Shell standards and would need to be evaluated for reliability and safety rating.

The comparison of the Individual risk transits for the two alternative pipework configurations are shown below in Figure 14 and discussed later in the report under Sections 13



**FIGURE 14 COMPARISON OF THE LVI LOOP AND STRAIGHT PIPEWORK INDIVIDUAL RISK TRANSECTS**

### Discussion

The analysis by SEPIL shows that there is no difference in the Individual Risk Transsects between the two alternative arrangements. This arises because the number of components used dominates the risk assessment process. While the bypass loop has more items of equipment and straight pipe has more pipe and valves at a larger diameter. The elimination of potential erosion on bends, complete intelligent pig inspection and no corrosion dead zones has been ignored.

## 6.2 Valve Leakage Scenarios

ABP asked SEPIL to examine the potential for pressure in the offshore pipeline to increase to wellhead pressure levels in the event that all wellhead valves had to be shut in for a prolonged period of time and in that time incremental leakage passed the valves occurred.

The valve leakage scenarios is discussed in the *EIS Appendix Q4.5 section 4.3* and was presented in a BoE by Mr., Malcolm

The question of valve leakage was first raised in the 2009 Hearing by the Inspector's Team and is discussed in NW 2009 report. ABP requested SEPIL to examine again the potential for damage to the valve seats and the resultant creep in pressure when the valves are closed. This request takes on a new significance when operational valves rather than dedicated isolation valves control the primary overpressure protection system for the 150 MAOP pipe sections.

SEPIL examined both planned shutdowns and unplanned shutdowns to investigate whether valve leakage would allow the pressure in the pipeline to breach the MAOP's

### 6.2.1 Planned Shutdowns

The shutdowns are planned to last for only 2 –3 weeks and because the LVI valves will remain open, a 90 barg settle out pressure is predicted for the offshore section while onshore the pressure will be 85 barg due to the static head differences between sections of the pipeline.

#### 6.2.1.1 Offshore Valves – Primary Overpressure Protection 150 barg MAOP

The planned shutdown is the only scenario where all on the wellhead valves will be closed. The offshore pipeline pressure will be monitored at the manifold, which will indicate that the wells are closed and the valves are not leaking. For the pipeline pressure to increase multiple valves have to leak.

SEPIL assumed a worst-case leakage rate of 0.022MMSCFD (14.7scf/min) and under these conditions it would take 1500 days for the offshore pressure to rise from 90 barg to 150barg. This clearly is significantly greater than any planned shutdown.

SEPIL performed a sensitivity test and allowed the maximum leakage to occur across all 6 wells producing a leak rate of 0.132MMSCFD. Under these conditions it would still take 300 days for the pipeline pressure to reach the MAOP. Again greater than any planned shutdown

#### 6.2.1.2 Onshore LVI Valves – Primary Overpressure Protection 100 barg MAOP

It is planned to close the HIPPS valves at the LVI during planned shutdowns. When the LVI valves are tested the pressure will be equalized either side of the valve so no leakage will be recorded.

Under these conditions a 15barg margin exists between the pipe pressure at 85 barg and the MAOP at 100barg

## 6.2.2 Unplanned Shutdowns – High Pressure Trip

SEPIL predict that the highest operational pressure in the offshore pipe would result from a high-pressure trip at the trip setting of 133barg. Under these conditions the pressure would reach 133barg in the offshore pipe and the pressure in the onshore pipeline would be 99barg.

If the valves have zero leakage rate the pressure would settle out to 129barg in the offshore pipeline and 97 barg in the onshore section

If the valves did leak after such a trip then the pressure would again climb towards the MAOP. These scenarios are discussed below:-

### 6.2.2.1 Offshore Valves leaking – Overpressure Protection 150 barg MAOP

Again assuming a leakage rate of 0.022MMSCFD from one well would take 500 days for the pressure to climb from 133 barg to 150barg MAOP. Applying the worst case of all wells leaking at a combined rate of 0.132MMSCFD it would still take 80 days for the pipeline pressure to reach the MAOP as shown in Figure 15 below

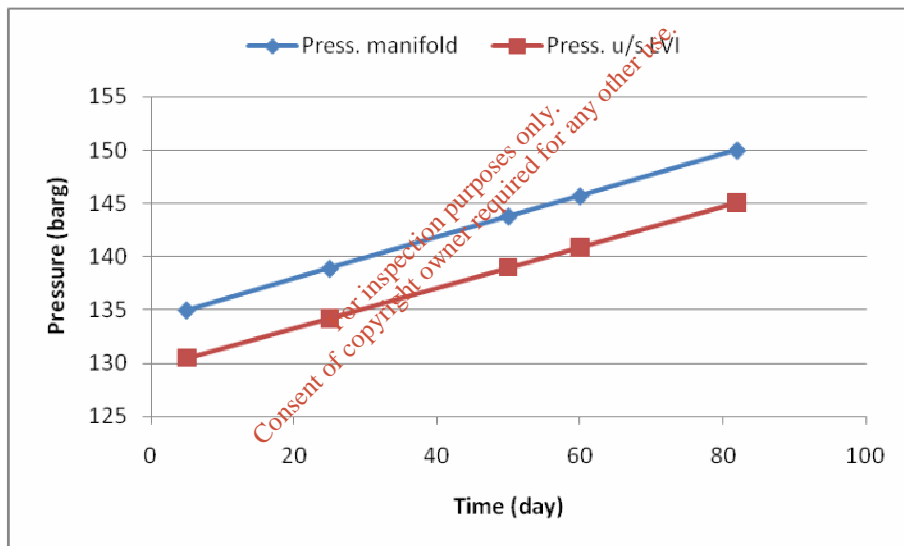


FIGURE 15 SHOWING TIME FOR OFFSHORE PIPELINE TO REACH MAOP ASSUMING UNPLANNED HIGH LEVEL TRIP AND ALL WELLS LEAKING PAST THE VALVES WITH A COMBINE LEAKAGE OF 0.132MMSCFD

### 6.2.2.2 Onshore LVI Valves Leaking – Overpressure Protection 100 barg MAOP

The LVI HIPPS valves would trip as the onshore pipeline reached 99 barg. Under these conditions the leakage could occur in both the closed 20in diameter valve and 16in diameter HIPPS valves.

In the EIS, SEPIL applied the leakage rates related to the design specification ISO 5028 grade D, which is only 0.0000824 MMSCFD. Under these conditions it would take 4 years to rise from 99barg to 100 barg.

Assuming the factory design case was too conservative SEPIL performed a further sensitivity study with a leakage rate of 0.25MMSCFD and under these conditions it took only 10 hours for the pressure to reach 100 barg MAOP.

The SEPIL sensitivity analysis showed that the condition of the isolation valve seats is critical to the safety of the pipeline. Operating a valve with a 'as build' grade D leak took 4 years for the downstream pipe to reach the MAOP of 100 barg while a badly leaking seat achieved the pressure rise in only 10 hours.

Again this highlights that the long term safety of the Corrib pipeline will depend upon diligent management to ensure plant and equipment are regularly tested at the correct intervals and maintenance tasks are performed within their allotted PIMS timescales.

### **6.3 Cold Venting to Prevent High Pressures at LVI**

An Bord Pleanala requested SEPIL to examine the concept of a vent at Glengad LVI as a measure to protect against pressure at the wellhead side of the LVI rising beyond the MAOP

The reasoning behind this request was to reduce the risk to the population at Glengad by reducing the number of valves on the site. (The DNV QRA relates the risk at the LVI to the number of valves and flanges located within the LVI pipework).

Relief valves (RV) have a traditional role in the onshore gas industry to prevent overpressure in a pipeline. Therefore the use of a RV at Glengad is acceptable within the codes and since the pressures are due to fall below 100 barg within 8 years, then its role would be only temporary. On transmission pipe it is usual to use Emergency Shutdown (ESD) ball valves. The use of high integrity HIPPS valves protecting onshore transmission pipelines is still quite rare. These valves are often used offshore and in gas storage facilities where speed and reliability are essential to protect a high-pressure source feeding into a low-pressure outlet in the event of a failure in the pressure control system.

At the Glengad LVI it was originally envisaged that a RV in combination with a remotely operated ESD 20in diameter ball valve could protect the Pre LVI pipeline and the LVI pipework.. The use of small diameter low flow RV was based around such low leakage rates from the offshore valves that would take, 500 days to reach 150barg MAOP. Therefore it was puzzling why the EIS Appendix Q4.5 Section 7 stipulated the RV would need to handle the full pipeline flow of 350MMSCFD and require a 300mm diameter RV with a stack height of 30m. No scenario with such a high default flow has ever been mentioned or described in both the 2009 or 2010 hearings. In fact the emphasis was on how little leakage there would be from the offshore valves.

Therefore the Inspector's Team sought to question Mr. Malcolm on what scenarios would require such a large RV. (8th September) The questioning focused on the Terminal RV but the same arguments would apply the LVI RV.

A summary of the Questions and Answers to Mr. Malcolm is given below

**NW Question** If it is completely plausible that the worst case scenario is a low leakage through the valves over a prolonged period of time, we are talking 500 days to cause a problem as stated in your EIS - then why do we need the HIPPS because if the relief valve at the terminal can then be rigged within ten hours, that could act as the overall pressure protection system.

The drive for this is the way that Mr Crossthwaite has done his analysis for the LVI, which penalises you on the number of valves you have. The risk of the LVI, in theory, could be decreased

Where there's such a slow rate of the pressure increase downstream as per your estimation of valve leakage It does give you time to rig the relief valve at the terminal, thereby dispensing with HIPPS system?

**Answer.** Do you mean that we would totally get rid of the LVI? Is that what you mean by that question?

**NW Question**, You only keep the 20 inch isolation valve, yes?

**Answer**, Just a 20 inch isolation valve, very similar to what was in the original design approved under the 2002 approval?

**NW Question** Well the situation has changed. Before you had 345 bar, - If you can guarantee you are not getting 345 by your modified system, which controls the valves, and you are sticking to an MAOP of 150 barg, which is very close to the 100 barg. You have got 500 days to activate your overpressure protection system.,

**Answer** Just on the issue of if we remove the LVI.. Although during steady state operation the pressure on the pipeline operates below 100 bar, and that's approximately 85 bar at the terminal and 90 bar at the LVI, pressure subsequently at the manifold operates at approximately 122 bar

If the LVI was removed and there was a high pressure shutdown, analysis has shown that when operating at a maximum throughput, settle out pressure would increase above the onshore MAOP of 100 bar. That's assuming we didn't have any LVI. So if there was no LVI and the well isolation system shut down to protect the onshore pipeline from exceeding 150 bar, this would not ensure that the onshore pipeline pressure would rise above 100 bar.

**NW Question**, How long would it take for the onshore pressure to rise above 100 bar, if the offshore valves are shutting down at 133 barg, because it is 500 days you have predicted for this pressure to rise. -- unless there is another failure in there, which would give you a very rapid rise?

**Answer** We have got two issues here;

One is certainly valve leakage and that does take hundreds of days during the normal shutdown. But setting aside valve leakage for the moment, --- More importantly, if we did remove the LVI, because of the MAOP being set at 100 bar , if we had a high pressure trip, and subsequently wells shut down and there was no LVI, the settle out pressure of the pipeline, and specifically in the **onshore section would be above 100**



**bar.** So the subsea overpressure protection system, as it is set up now, cannot protect the onshore pipeline from rising above 100 bar.

**NW Question** If you just explain those events, how long does it take for that downstream pipe to rise to this 122 bar?

**Answer** It wouldn't rise to 122 bar. If you imagine the pipelines at 122 bar at the offshore manifold, and it operates at 85 bar at the terminal, we then **have a settle out pressure.** The wells shut down when you hit the high trip at the terminal 93 bar, then the settling out pressure in the onshore section would be around 105 bar.

NW Question. 105 bar?

**Answer.** Yes, 105/106.

**NW Question** How long does it take it to reach 105Barg , if you have your trip?

**Answer. Could** I just confer for a moment, please? That time is around about 20 to 30 minutes.

**NW Question.** Wow, that's different.

**Answer.** So if I could -- on that point could I just finish my answer? If the design was modified, as you suggested, and gas was to be flared, to avoid the settle out pressure exceeding the MAOP, then flaring would initially be at a rate of 350 million standard cubic feet a day at the gas terminal flare, which would have a significant environmental impact. Normal practice is not to flare the inventory of a pipeline. If both the subsea isolation system, and the flare were required to operate, then the overall reliability of the pressure protection system would be reduced to that of the relief valve for the flare; typically one or two orders of magnitude lower than the reliability of the proposed design for the subsea isolation system. We, therefore, see this proposed as a regressive step.

### 6.3.1 Discussion

During the Hearings, the discussion of overpressure protection and the rise in gas pressure in the pipeline has been associated with leakage past the valves. This approach was also reflected in the technical sections of the EIS. Then during this question – answer session SEPIL describe the effects of the pipeline being subjected to a high-pressure trip at full flow. The discussion focused on the settlement pressure. It is assumed that SEPIL are concerned about the rise in pressure during the period of flow immediately after the valves are tripped and before the system has time to settle back to a steady state conditions.

It is now obvious that under these conditions large amounts of gas would need to be vented to try and restore steady state conditions. An alternative design is to use a fast acting high integrity valve to prevent the higher pressures from reaching the pipe section downstream of the LVI towards the terminal.

Under these conditions, a RV at the LVI would not be appropriate. The present design of overprotection using a high integrity HIPPS system with a trip setting of 99barg at the LVI should provide the necessary level of protection for the 100Barg MAOP downstream pipeline.

## 6.4 Overall LVI Design Discussion

### Design of the LVI

ABP requested SEPIL to examine three potential modifications to the design layout of the LVI at Glengad with the aim of improving the safety ratings for the population around Glengad.

The resultant risk of the straight pipe rather than a loop showed no reduction in the risk level around Glengad. The risk analysis at the LVI concentrated on the number and size of valves used and with this method of assessing risk there was little difference between the two schemes. Other risks associated with the loop such as no inspection by inline inspection methods and the removal potential erosion of bends were not included. SEPIL argued that the barriers imposed by the PIMS minimized these threats.

SEPIL were asked to examine the use of a temporary relief vent to replace the permanent fast acting isolation valves. It emerged during the Hearing that these valves were not installed to prevent the slow rise in pressure from leaking valves but to prevent the pressure rising to 105 barg under an unplanned pressure trip at full flow. Under these conditions SEPIL stated that a large diameter vent would be required which makes the use of a vent at Glengad undesirable.

SEPIL were asked to provide details on valve reliability and potential valve leakage on the wellheads, which could cause the pipeline pressure to rise and exceed the MAOP. SEPIL concluded it would take hundreds of days for the pressure to rise to the MAOP unless the leakage was grossly exaggerated.

The Inspector's team accept the robust technical arguments put forward by SEPIL and no changes are proposed to the design of the LVI at Glengad apart from the increased security arrangements of the perimeter fence .

It is the view of the Inspector's team that the security of the LVI compound at Glengad should not be modelled upon a standard Above Ground Installation but should reflect its national importance to the energy supplies of Ireland and its high public profile.

### **Recommendation**

SEPIL should redesign the security fencing at the LVI to included a double high security fence and gates with a suitable flood lit 'dead zone ' between the inner and outer fence. The outer fence should be electrified for additional protection.

## 7 PIPELINE OPERATING FLOW REGIME

The operating envelope and flow regime is outlined in the *EIS Appendix 2.1 Section 4.3* and at the Hearing Mr. S Hamilton of Exodus Group spoke and answered questions on behalf of SEPIL.

The flow through the Corrib pipeline is planned to be continuous but the actual flow rate will depend upon customer demand. Table 4 below gives the normal and lower operating pressure profiles.

TABLE 4 NORMAL AND LOWER OPERATING PRESSURE PROFILES			
PRESSURE PROFILE	OFFSHORE MANIFOLD	LVI	TERMINAL
Normal Operating Profile	117-122 barg	85-90 barg	80-85 barg
Lower Operating Profile	73 barg	58 barg	55 barg

The normal operating pressure at the terminal (80-85 barg) is based upon a flow rate of 350MMSCFD<sup>27</sup>, while the lower pressure (55barg) is based upon a gas flow of 180MMSCFD. SEPIL state the operating system has been designed with sufficient margin to accommodate instabilities in the production system without having to shut in production from the field.

SEPIL predict that in early field life there will be no issues with liquid slugs and surges during Normal Operation i.e. pipe working at maximum gas flow. During production start up liquid surges will be produced at the gas terminal.

During the Hearing on the 7<sup>th</sup> September there was considerable discussion on the level of liquids that could be produced in the pipeline and the design and size of the slug catcher at the terminal.

Responding to Mr. Wrights question on how much liquid will be produced under start up conditions

**Answer Mr. Hamilton** We have analysed all forms of instability within the pipeline, both in steady state and in transient nature. What is readily apparent within the analysis is that no steady state condition troubles the slug catcher and, in fact, when we look at the most onerous transient conditions, we are well within the bounds of the design of the slug catcher. In fact, given the level of capacity of the liquid outlet of the slug catch we see no accumulation of liquid within the vessel under any circumstances

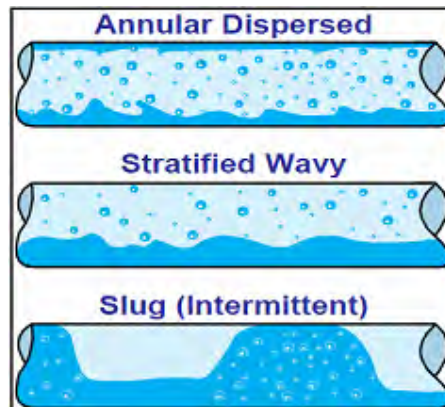
**N Wright Question**, So when the slug catcher was designed, do you think the people had a different idea of the flow regime in the pipeline?

**Answer Mr. Costello:** That slug catcher was designed back in about 2001, 2002. I would think that a very conservative approach was probably taken at that stage, because a detailed flow analysis had not been performed  
Mr. Hamilton – I would agree with that and in my expert opinion the slug catcher is oversized, we simply do not need that capacity in that vessel for any of the analysis we have done.

<sup>27</sup> MMSCFD is Million Standard Cubic Feet per Day

The question of how much liquid is present and how it is transported through the Corrib pipeline is important because it influences the type of flow in the pipe.

The type of flow regime that can exist in horizontal pipes are discussed in the EIS *Appendix 4.5 section 5.0*. The EIS shows that when liquid and gas are transported together there are potentially three flow regimes of interest to the Hearing– see Figure 16 below



**FIGURE 16 POTENTIAL FLOW REGIMES DISCUSSED AT THE HEARING**

The ideal flow regime is Annular dispersed which means that water accumulation at low points is unlikely to occur. Also this form of flow allows the inhibitor to coat the complete surface of the pipe and reduce the rate of internal corrosion,

Stratified flow can lead to Top of the Line Corrosion. This is where CO<sub>2</sub> and Organic Acid corrosion can occur at the top line of the pipe, which is not suppressed by the inhibitor.

Slug flow can lead to pools of water in the pipe, which is highly undesirable.

The type of flow inside the pipe is related to the velocity of both the gas and the liquid. The operating condition for any nominated gas flow can be predicted by using the flow map in Figure 17. This shows the annular flow regime as the yellow area with the stratified flow shown as red. The slugging flow is at the extreme top of the map in the hatched black circle. The brown area is single phase gas flow.

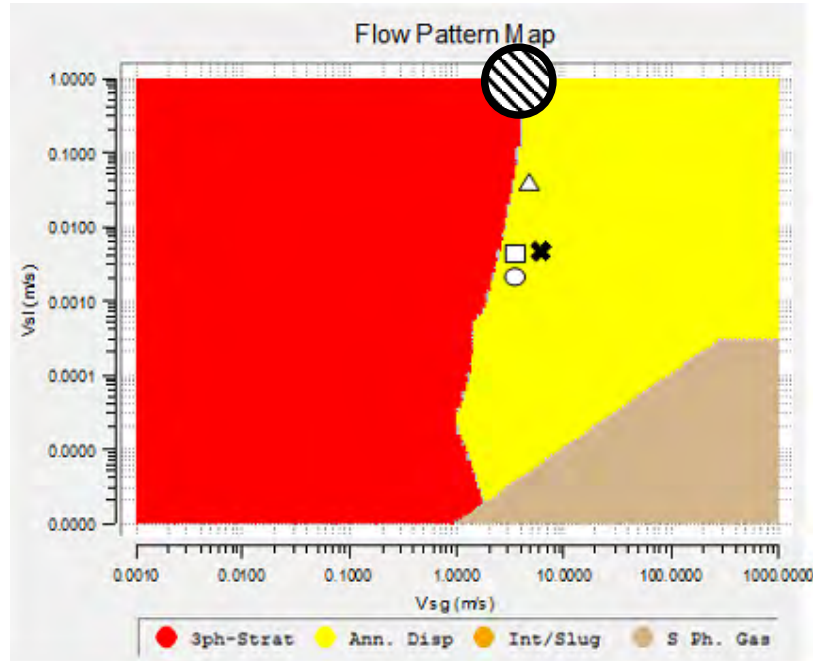


FIGURE 17 SHOWS PREDICTED FLOW PATTERN MAP FOR CORRIB OPERATION

Key to operational position on chart

- x Early life – 350MMSCFD with 85 barg at Terminal
- O Early life – 160MMSCFD with 60 barg at Terminal
- △ Late life – 100MMSCFD with 40 barg at Terminal
- Late life – 30MMSCFD with 10 barg at Terminal

From Figure 17 SEPIL predict that the pipeline will operated in the desired annular flow regime through its entire life. However from the flow map it can be seen that the operating points are close to the red region

SEPIL were question during the hearing on the likelihood of stratified flow or slugging flow occurring in the Corrib Pipeline.

**N Wright Question** - What we have here is Figure 16 (Figure 6.2B from EIS Appendix 4.5). It shows the flow regime is the highly desired annular flow for early and late life operations. However, figure 6.2B also shows that the late life position on the map is close to the border of undesirable stratified flow. What percentage error is associated with these predicted flows?

**Answer** - The map that you see in front of you, is called the Taitel-Dukler map, which is an industry used flow regime map. We have actually looked at various maps both within the steady state regime and within the transient regime and all of the analysis that we have done show very similar results to those shown before you.

**N Wright Question** –Has the flow regime change significantly from the 2009 prediction which operated at a higher pressure

**Answer** No, the thermal hydraulic behaviour within the pipeline has not changed, neither has any of the analysis results. As you can see from the diagram in front of you, we have analysed throughout field life and expected flow range from peak to minimum turn down and the expected primary flow regime is annually dispersed.

**N Wright Question** – What could trigger a shift out of the Annular flow area

**Answer** There is two things that could trigger a shift. The most obvious one is significantly more liquid coming out of the wells, which none of the profiles that we have investigated support this condition, The only other thing that would trigger a shift would be some sort of transient effect, which sometimes occurs at minimum turn down where you get a stalling of liquid at a low point in the pipeline. We do see this from time to time, but it does not pose any significant problems.

### Discussion

Discussion took place on why was the slug catcher at the Terminal over designed for the predicted level of liquids in the Corrib Field. SEPIL claimed that in 2002 during the early design phase of the project, the amount of liquid in the field was not fully quantified. However another explanation would be that the design allowed for other fields, which do have a higher liquid content to be tied into the system without extensive modification to the Terminal.

SEPIL were asked about the accuracy of their flow modelling since it is critical to be able to predict the operating regime inside the pipe for both safety and operational reasons

SEPIL replied that all slugging and flow regime analysis has been completed using the industry leading standard software, which is called OLGA. OLGA is based on over 20 years of research and development on the operation of many operating oil and gas pipelines as well as state-of-the-art flow loop experiments from the highly respected Sintef Lab in Norway. All transient analysis performed on Corrib has been completed and quality assured by Shell experts in the Netherlands and is in agreement with independently built models.

Throughout the questioning and answer session on this topic SEPIL maintained that they were extremely confident that the Corrib pipeline would operate in the Annular Flow regime. This flow pattern aids the inhibitor to protect the inside wall of the pipe from corrosion and minimises the chances of long slugs of liquid being formed which could impart high momentum loads to bends and closed valves.



## 8 SAFEGUARDING INTEGRITY OF THE ONSHORE PIPELINE

The integrity of the Corrib onshore pipeline is a critical element of the design and safety review. The integrity process can be divided into three parts:-

- Pipeline design, manufacturing, construction and commissioning
- Pipeline operations controlled by PIMS
- Pipeline overpressure safeguarding strategy controlled by PIMS

Each of the above sections will be reviewed in detail together with Bord's request to SEPIL to state the response of the safety systems if the umbilical gets severed.

### 8.1 Integrity Through Design and Construction

SEPIL's description of the design and construction integrity system is given in the *EIS Appendix Q5.1* and is summarized in Figure 18 below

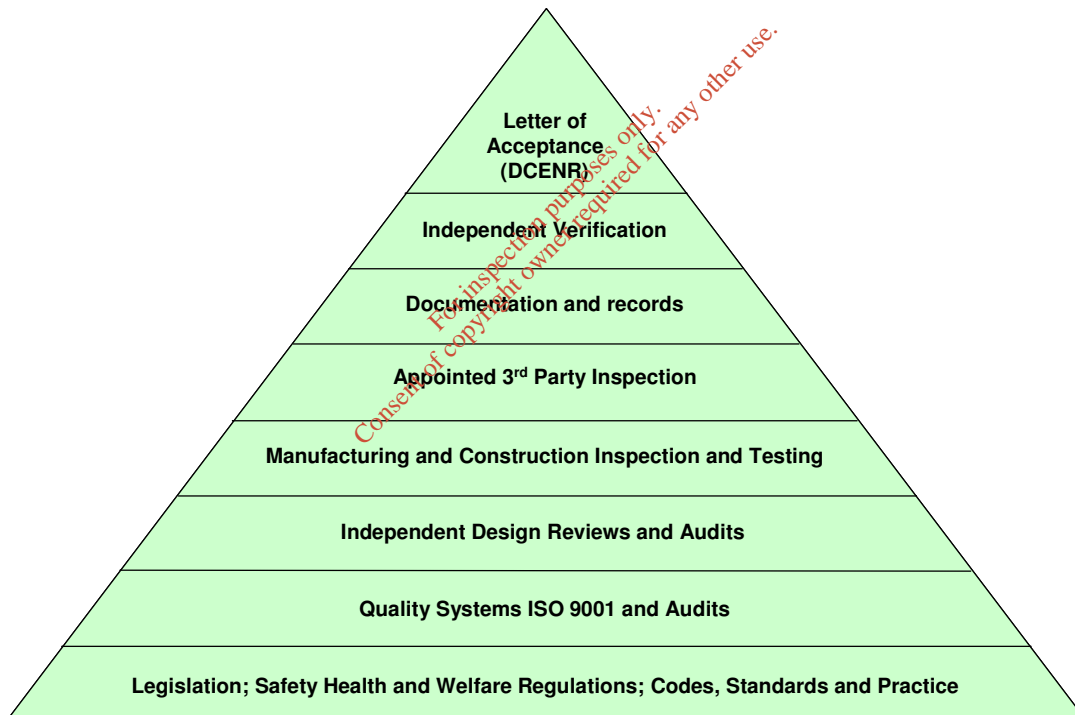


FIGURE 18 THE INTEGRITY STAGES IN THE DESIGN AND CONSTRUCTION PROCESS

The design and construction process, which includes the manufacturing and commissioning of the pipe is controlled by a series of codes and specifications and supported by a Quality Management system. However, it is the layers of independent reviews and audits that reinforce the integrity of the design and construction process. This includes a letter of acceptance from the DCENR and third party inspection.

The design of the pipeline also contributes to its integrity. It is extremely difficult to externally damage a 27mm thick wall pipe and with a hydraulic test pressure of 504 barg there is a significant factor of safety when compared to the 100 barg MAOP or even the 345 Barg maximum wellhead pressure.

The three-part external pipe coating offers a very robust barrier against damage and coating holidays, when applied correctly. Dr Paterson stated at the Hearing that the coating displayed excellent bonding properties to the pipe during recent tests on the stored pipe at Killybegs

The design of the pipeline through the tunnel and subsequent burial in a stone road when routed through the bog, enhances the pipeline's integrity by providing a stable environment and eliminating some of the road crossings.

## Discussion

Designing, manufacturing, constructing and commissioning the pipeline to the prescribed codes and standards, ensures the initial integrity of the onshore pipeline. It is essential that the above processes are open to independent 3<sup>rd</sup> party scrutiny and inspection. This was highlighted in the 2009 and 2010 hearings in the Observers submission covering the poor storage of the pipe at Killybegs and Advantica's comments<sup>28</sup> on the poor quality of the field coatings .

In the longer term having a suitable Pipeline Integrity Management Scheme and an overpressure safeguarding strategy ensures the ongoing the integrity of the pipeline.

### 8.2 PIMS – Pipeline Integrity Management Scheme

The PIMS system is described in *EIS Appendix Q5.2*

The role of PIMS is to efficiently and effectively control and manage the safeguarding of the pipeline's integrity. Its jurisdiction includes:-

- The offshore gathering lines, jumpers to the manifold, the manifold itself and the 20in diameter offshore pipeline
- The Pre LVI section of the onshore pipeline to the LVI and the LVI
- The 20 in onshore pipeline from the LVI to the Terminal pig receiver and associated pipework.
- The power control, methanol, chemical supply umbilicals and produced water discharge pipe from the terminal to the offshore facilities.
- All of the overpressure protective devices both offshore and onshore and the leak detection systems

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<sup>28</sup> Advantica Report No R8391 In dependant Safety Review of the Onshore Section of the Corrib Gas Pipeline Section 4.5 – Pg 21

The PIMS documentation system has two main parts

- **PIMS Document** - This defines the management structure, processes and responsibilities for integrity management together with the threat assessments, risk barriers and monitoring activities. Importantly it contains a summary of the threats for each element of the pipeline system with steps taken to mitigate and monitor those steps.
- **Integrity Reference Plan** - This identifies the safety critical elements and provides the detail of the risk barriers and monitoring for each threat, together with the performance standards and the immediate corrective actions when the standards are not met

The role of PIMS is graphically shown in Figure 19

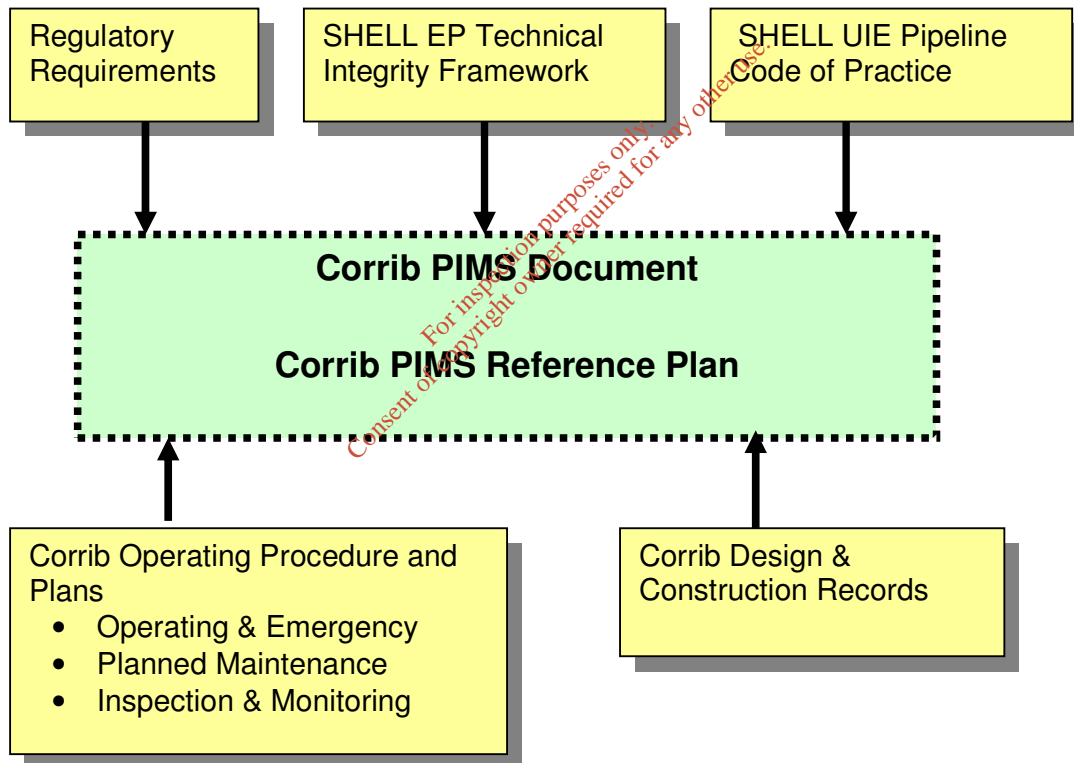


FIGURE 19 SHOWS PIMS SYSTEM

The overall pipeline integrity structure is divided into three areas shown in Figure 20 with details given in Appendix 2

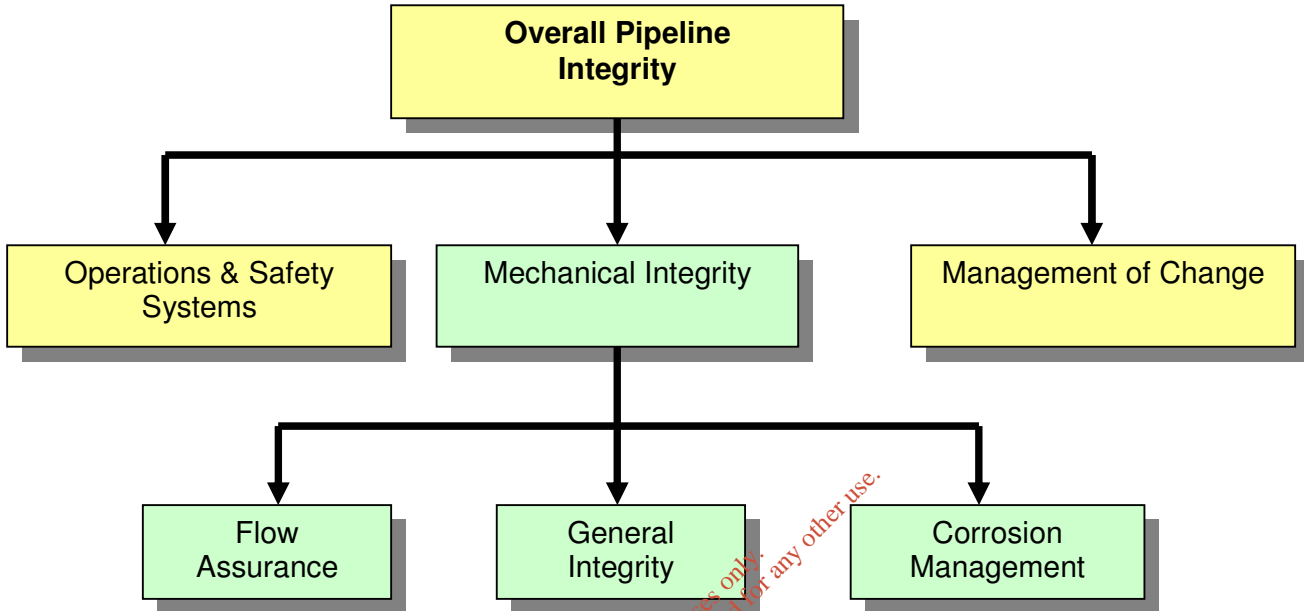


FIGURE 20 SHOWS PIMS STRUCTURE OF INTEGRITY MANAGEMENT ACTIVITIES

### 8.2.1 Management Control of PIMS

The Assist Operations Manager has the responsibility for implementing PIMS and is accountable for safeguarding asset integrity

A Nominated Responsible Person (NRP) has overall responsibility for the standard setting for the PIMS activities and compliance assurance via audit and review. A Pipeline Competent Person (PCP) is appointed by the NRP to coordinate the operation of PIMS.

Areas of Activity are established to maintain the effectiveness of the risk barriers and control the inspection, testing and monitoring tasks. Each area of Activity is allocated to an Activity Focal Point who has the responsibility to ensure the various tasks are carried out. These Focal Points are assigned to SEPIL managers or specialised engineers from other parts of SHELL and they report to the PCP.

The scopes of responsibility and accountability for the above roles is detailed in the *EIS Appendix Q5.2 tables 3.1- 3.6*

## 8.2.2 Pipeline Annual Report

Each Focal Point carries out an annual review where the results of the inspection, monitoring and control results are assessed to determine trends and to identify breaches of the performance standards. The full set of results are then reviewed and assessed to ensure continuing fitness for purpose of the pipeline.

SHELL uses Risk Based Assessment (RBA) methods for life prediction and inspection frequencies of an asset. For the pipeline – PIPE-RBA is used. The results of the Focal Point review are incorporated into PIPE-RBA. When completed the PCP convenes a review of the PIPE-RBA results. This review considers the validity of the results, corrective actions, revisions to monitoring and inspection plans for the next year and improvements to the PIMS.

From the above review the Pipeline Annual Report is finalised. The Pipeline Annual Report also gives the status of the annual monitoring and inspection plan for the following year.

The report also gives a traffic light status for the pipeline

**RED** – The short-term integrity of the pipeline can't be assured and immediate management action is required.

**AMBER** The medium to long -term integrity of the pipeline can't be assured and action to mitigate risk and degradation is required.

**GREEN** The long -term integrity of the pipeline is assured and no remedial action is required

When the status is RED this must include a recommendation to cease operation or immediately adopt an operating mode that avoids the potential failure of the pipeline.

The finalised Pipeline Annual Report is presented to the Nominated Responsible Person (NRP), the Operations Manager and the Asset Owner who sign off the report. The NRP then presents the report to the Ireland Country Chairman and assists the Asset Owner in reporting to the Irish Statutory Authorities.

## 8.3 Operational Pipeline Integrity

The PIMS controls numerous operations to ensure the integrity of the pipeline. Operational integrity management includes both continuous and intermitted activities as discussed below:-

### 8.3.1 Management of the External Environment

There are numerous activities protecting the pipeline from the external environment

- Monitoring the line for 3<sup>rd</sup> party damage or leakage.
- External inspection at the LVI for corrosion and erosion of the loop

- Monitoring the CP levels and inspect for coating damage to ensure the pipeline is protected from external corrosion.
- Monitoring geotechnical stability of the peat and pipe movement
- Inspection and maintenance of equipment and protective devices
- Monitoring for human intentional threats.

### 8.3.2 Management of the Internal Environment

There are also numerous activities protecting the pipeline from the internal environment

- Monitoring the internal flow regime of the pipeline
- Monitoring for any pressure or temperature excursions of the gas
- Monitoring of the pressure fluctuations and cycles to manage fatigue life
- Supply and monitoring the levels of inhibitor to suppress internal corrosion
- Supply and monitoring the levels of methanol to suppress methane hydrate
- Monitoring the levels of sand and particle production
- Intelligent Pigging to inspect for corrosion and pipe wall thinning

### 8.3.3 Discussion on PIMS & Annual Report

Listed above are some of the many tasks that have to be continuously undertaken throughout the life of the pipeline to ensure its integrity remains at the highest level. Being a wet gas pipeline there are additional tasks to be undertaken by SEPIL compared to the gas transmission pipelines operated by BGE. These include flow assurance, internal corrosion control and the suppression of methane hydrate and the monitoring of particles and erosion.

One of the key outputs of the PIMS is the publication of the Pipeline Annual Report. This assesses the health status of the pipeline via a traffic light system. The lights run from Red, Amber to Green. When the status is RED this must include a recommendation to cease operation or immediately adopt an operating mode that avoids the potential failure of the pipeline. SEPIL intend to issue the Annual Report to the Irish Statutory Authorities.

During the Hearing Mr. Garrett Blaney Commissioner within the Commission for Energy Regulation (CER) presented a written statement<sup>29</sup> on the future role of the CER concerning the safety regulation of upstream gas pipelines and in particular, the issuing of the safety certificate for the pipeline. What is not clear at this stage is the role CER or the DCENR will have throughout the life of the pipeline and any actions that maybe taken after they have received the copies of the Annual Report, especially if it is coded RED or AMBER. Also it is not clear on what information will be fed back to the public.

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<sup>29</sup> CER Statement to the ABP Oral Hearing on the onshore upstream gas pipeline facility relating to the Corrib Gas Field Project  
26 th Aug 2010 Doc No 83



## Overall Safety Role of PIMS and Annual Pipeline Report

SEPIL has identified numerous threats to the pipeline that are controlled and managed by the PIMS systems. This reinforces the need for the PIMS to be deployed in a consistent manner over many years to ensure the safety of the pipeline. The Irish Regulating Authorities will in turn rely on the Annual Pipeline Report to confirm this.

It is the view of this report that the Annual Report is the key to ensuring the long-term safety of the pipeline. However it is essential that the information presented in the report is subjected to independent 3<sup>rd</sup> party scrutiny and that a summary is made available to the public

### 8.4 Overpressure Protection Systems

The offshore pipeline and the Pre LVI section of the onshore pipeline together with the LVI have a stated MAOP of 150 barg. Also the section of the onshore pipeline from the LVI to the terminal has a MAOP of 100barg. Both of these pipelines have maximum allowable operating pressures well below the wellhead shut in pressure of around 345barg. Under these conditions the pipeline codes require a pipeline overpressure protection system to be installed. Therefore SEPIL has proposed two separate overpressure protection system covering the higher and lower MAOP sections of the pipeline.

#### 8.4.1 Protecting the 150 MAOP Sections of the Offshore / Onshore Pipeline

The 2009 EIS stated that the offshore pipeline and Pre LVI section of the onshore pipeline together with the LVI had a design pressure of 345 barg with NO MAOP declared. Therefore it was not a requirement to install overpressure protection equipment offshore. All of the safety related offshore closure valves are designed to isolate flow in the event of a shutdown at the terminal or a pipeline failure or blockage.

SEPIL decided to reconfigure the control system at the terminal as an alternative to installing new subsea equipment into the wellheads or manifold to prevent overpressure of the pipeline, The modified control system allows the system's pressure sensors to automatically close the offshore valves in the event of an unplanned rise in pressure by releasing the hydraulic pressure in the umbilical at the terminal.

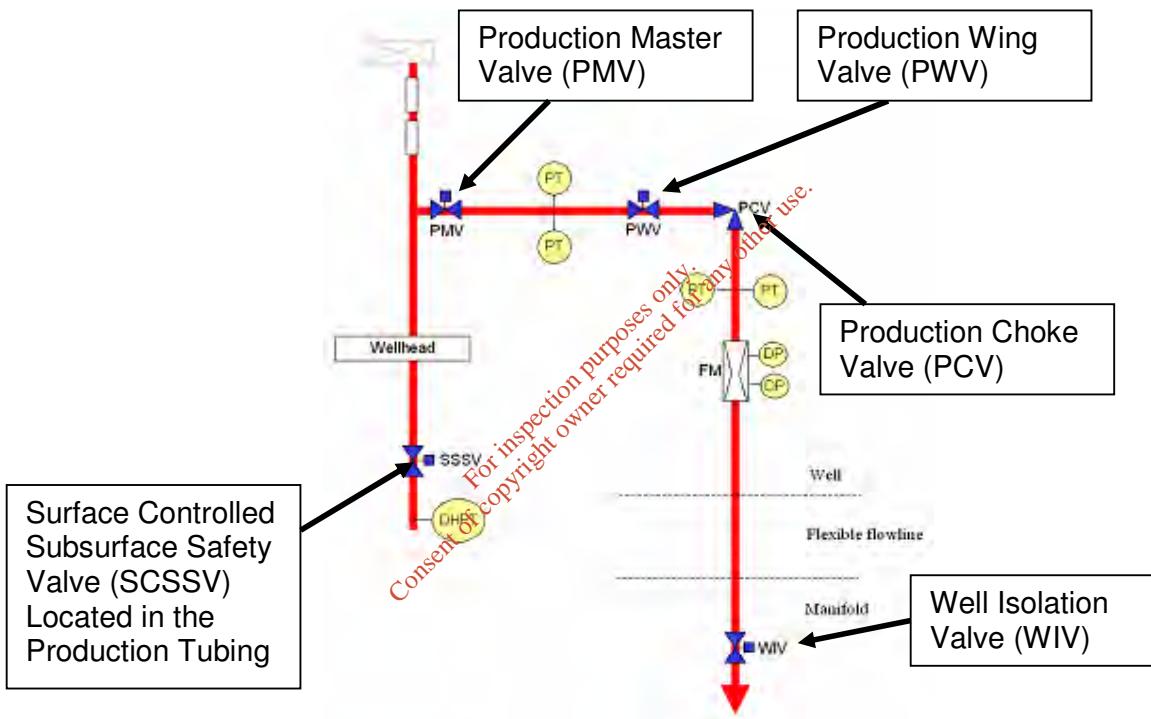
##### 8.4.1.1 Details of the Offshore Isolation Valves and Control Systems

Details of the offshore valves is shown below in Figure 21

The roles of the various offshore isolation valves are described below:-

- SCSSSV - This is the Surface Controlled Subsurface Isolation Valve. It is located in the downhole tubing below the seabed. Its main role is to isolate the flow of gas coming up from the well when the well tree is sheared off or damaged in such a manner that its valves don't operate.
- PCV - The Production Choke Valve is located on the well tree and controls the flow of gas from the well by varying the flow area of the valve.

- PWV - The Production Wing Valve is located on the well tree and isolates the flow from the subsea tree. This valve is normally closed before the production master valve to ensure the master valve is not damaged by hard particles in the gas stream during closure.
- PMV - The Production master valve is located on the well tree and isolates the flow from the subsea tree. This valve is normally closed after the production wing valve valve
- WIV - The Well Isolation Valve is located on the manifold and isolates the flow from the well into the manifold



**FIGURE 21 SHOWS SCHEMATIC ARRANGEMENT OF THE OFFSHORE ISOLATION VALVES**

The Umbilicals contain both HP and LP hydraulic lines and electrical power cables. Electrical power is supplied to the solenoid valves located on each well's subsea control module.(SCM). Power is also supplied to the manifold's SCM. The solenoids on the Production Wing Valves (PWV) are electrically latched and when electrically isolated they will move to their fail safe position and vent the LP hydraulic fluid into the sea which will close the PWV

All other valves are hydraulically latched. The SCSSSV is latched open by the HP hydraulic supply, while the PMV and the WIV are latched open by the LP hydraulic supply. Venting the hydraulic lines will unlatch the valves to the closed position

At the Oral Hearing Mr. Ian Malcolm of Xodus Group submitted the BoE on Pipeline Safeguarding<sup>30</sup>

SEPIL have designed a safeguarding system to close the offshore valves either manually from the control room or automatically by the pressure sensors. The various trip scenarios have been nominated by SEPIL and are explained below and the valves nominated for closure are given in Table 5

TABLE 5 OFFSHORE VALVE CLOSING SEQUENCES TO SAFEGUARD AGAINST OVERPRESSURE						
SUBSEA TRIP LEVEL	INITIATED	PMV	PWV	PCV	SCSSSV	WIV
SS3	Closes when the terminal inlet pressure reaches 93 barg or falls below 55 barg Uses signal lines via the umbilical to automatically close the valves					
	Automatic	Close	Close	Close	No Action	No Action
SS2	Closes when the LVI pressure reaches 99 barg Release hydraulic pressure in the umbilicals at the terminal which subsequently closes the valves					
	Automatic	Close	Close	No Action	Close	Close
SS1	Manually closed by the operator in the control room					
	Operator	Close	Close	Close	No Action	No Action
SS0	Manually closed by the operator in the control room					
	Operator	Close	Close	Close	Close	No Action

The settings vary from SS3 / SS2 / SS1 / SS0

SS3 –Automatically tripped using the signal lines in the umbilical when the inlet pressure at the terminal reaching 93 barg or the terminal pressure falling below 55 barg

SS2 –Automatically tripped by releasing the hydraulic pressure in the umbilical at the terminal when the pressure at the LVI reaches 99 barg

SS1 - This has the similar to valve closure sequence in SS3 but is manually tripped by the control room operator

SS0 - This is manually tripped by the control room operator

<sup>30</sup> BoE Operation of the Corrib Pipeline – Pipeline Safeguarding – Mr Ian Malcolm Xodus Doc No

### 8.4.2 Protecting the 100 MAOP Sections of the Onshore Pipeline

In addition to the closure of the offshore valves, the HIPPS system at the Glengad LVI will also close if the pressure sensors at the LVI record a pressure of 99 barg

Also the Emergency Shut Down Valve at the terminal will close at a pressure of 93 barg

### 8.4.3 Safeguarding Layers of Protection

*EIS Appendix Q4.5 Table 2.2* gives a detailed explanation of the layers of protection to prevent over pressurisation. This is reproduced in Appendix 3 and summarized below :-

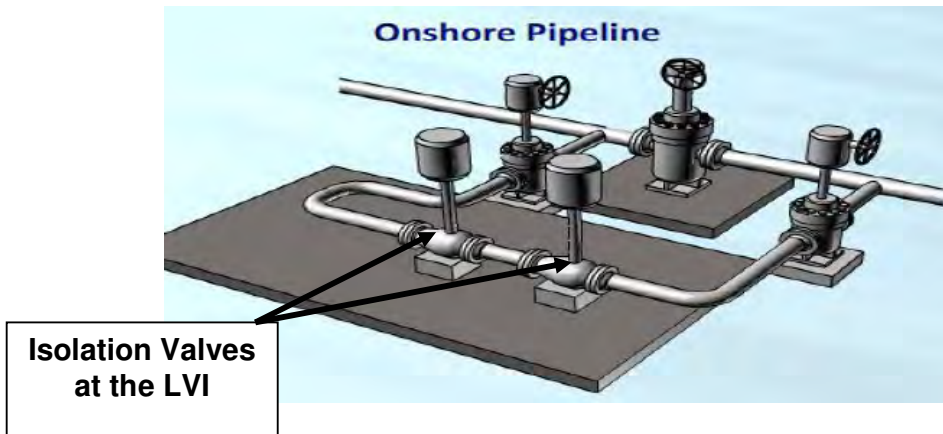
The normal steady state operating pressure at the inlet to the Gas Terminal is between 80 to 85 barg at the design throughput. Under these conditions the pressure at the subsea manifold has to be within the range 117 barg to 122 barg to allow for the pressure drops along the pipeline. .

There will be an operations team continuously present within the Gas Terminal Control Room, 24 hour per day, 7 days per week to monitor and control the pipeline pressures. The operators can control the pressures by adjusting the choke valves on each subsea well and flow control at the terminal. The operators can also stop production from one or more subsea wells by closing individual valves.

In the event that the pressure exceeds the normal operating pressure, there are additional automatic protection layers in place to ensure production from the subsea wells is shutdown in a safe manner. They are designed to be automatic without any operator intervention and will keep the pressures within respective MAOP's of the onshore and offshore sections of the pipeline.

The first automatic protection layer is the Gas Terminal inlet trip, SS3. This trip is initiated when the pressure at the inlet to the Gas Terminal rises to 93 barg. Pressure transmitters located at the inlet to the Gas Terminal will detect the rising pressure and will send a signal to close the inlet isolation valve at the Gas Terminal together with a signal to close the master valve and the wing valve for each subsea well. Closure of either of the master valve or the wing valve on each well will prevent the pressure in the offshore section, Pre LVI onshore pipe and the LVI pipework from rising above its MAOP of 150 barg.

The second automatic protection layer is the SS2 trip. This trip is initiated when the pressure at the LVI rises to 99 barg. The pressure transmitters located at the LVI will send a signal to close the two in-line safety shutdown valves of the HIPPS system at the LVI. Closure of either one of the valves will prevent the pressure in the onshore pipeline between the LVI and the terminal from rising above its MAOP of 100barg.



**FIGURE 22 SHOWING THE HIPPS ISOLATION VALVES AT THE LVI**

To increase the reliability of the automatic subsea well isolation system, the SS2 trip will also send a signal to automatically bleed the pressure in the hydraulic power unit at the Gas Terminal that provides hydraulic pressure to the subsea valves. Releasing the hydraulic pressure will cause the master valve (PMV), the wing valve (PWV), the surface controlled subsurface safety valve (SCSSV) and the well infield line isolation valve (WIV) on the subsea manifold for each subsea well to close. Closure of any one of these valves on each well will prevent the pressure in the offshore pipeline from rising above its MAOP.

Over and above the automatic protection layers, the operators in the Gas Terminal control room can manually operate pushbuttons to initiate an SS0 or an SS1 trip. The SS1 pushbutton will close the master valve and the wing valve on each subsea well. While the SS0 pushbutton will close the surface controlled subsurface safety valve, the master valve and the wing valve on each subsea well. The operators can also initiate closure of the subsea valves by venting the hydraulic fluid pressure from within the Gas Terminal or in the case of the wing valves by isolating the electrical power to the umbilicals.

#### **8.4.4 Reliability of the Overpressure Protection Systems**

This is explained in the *EIS Appendices Q2.1 Section 5.5 and Q4.6*

For high integrity safety shutdown systems, the degree of safety is indicated by the probability of failure on demand (PFD)

##### **8.4.4.1 Reliability of the LVI HIPPS System**

SEPIL state the reliability analysis for the safety shutdown system at the LVI has been certified by an independent verification authority using validated data from many years of field operation of similar systems. This determined that the probability of failure on demand is  $7.4 \times 10^{-4}$  which equates to a SIL 3 rating<sup>31</sup>

<sup>31</sup> SIL rating of 3 has a PFD range of between  $1 \times 10^{-3}$  -  $1 \times 10^{-4}$ . The SIL rating must be for the complete system and not the individual valve.

#### 8.4.4.2 Reliability of the Modified Well Isolation System

The reliability analysis for the subsea systems has been carried out by using a Failure Mode and Effects Analysis (FMEA) to identify the relevant modes of failure and a Fault Tree Analysis (FTA) to calculate the probability of 'Failure to Isolate One or More Wells'.

The analysis is based upon closure of the subsea valves and depressurisation of the hydraulic lines to the subsea valves (i.e. closure of the valves). All the base data used for calculations within the FMEA are from industry standard auditable sources (e.g. OREDA).

The calculated probability for 'Failure to Isolate One or More Wells' was determined to be  $4.5 \times 10^{-4}$ . This probability of occurrence is for the pressure in the offshore pipeline to reach 150 barg.

#### Question and Answers – Hearing 8th September

During the hearing Mr. Malcolm answered questions concerning the redesign of the control system to change the use of the offshore valves into an overpressure protection system to protect the pipeline MAOP of 150barg. The main aim of the questioning was to establish if this change was usual practice and did it adhere to any codes or standards. Also has the modified system got the required level of reliability?

**NW Question** Would you accept that a late stage modification was necessary on the terminal control system to allow the offshore valves at the wellhead to act as an overpressure control system, to limit the MAOP to 150barg protecting the pressure of the pipe from the 345 reservoir?

**Answer.** I think best practice is for design pressure of a pipeline to be higher than a closed in tubing head pressure of the wells, which is the case for the offshore section of the Corrib Pipeline.

Due to the requirement to limit the pressure of the offshore pipeline to maintain hazard distances, a MAOP has been set to 150 bars. Although the type of design of the subsea well isolation system, as previously submitted, has been proven, in use, to be reliable. To ensure the highest reliability possible with that system, modifications are proposed to the subsea well isolation system to enhance its reliability by venting hydraulic fluid pressure at the gas terminal

This methodology to isolate subsea wells is documented in the Norwegian Petroleum Directorate Guidance Number 70, the application of IEC61508 and IEC61511 in the Norwegian petroleum industry.

**NW Question** Is it usual offshore to have the well valves acting as an overpressure protection system when feeding into a low pressure pipeline, or would they specified a HIPPS. On previous questioning in your absence I got the answer that it was unusual to have the well head valves acting as an overpressure protection. Do you agree with that?



**Answer.** I think normally the best practice is to have the pipeline rated for the closed in tubing head pressure of the wells, which is the case for the Corrib Pipeline.

**NW Question** Well the case I'm looking at here is where we have a well pressure potential of 345 with an MAOP of 150, so that would be equivalent of perhaps having a high pressure reservoir using a lower pressure flexible pipe feeding floating production platform where you would have a HIPPS on the wellhead to protect the lower pressure flexible pipe.

You have got a similar situation here. You are trying to protect the MAOP of 150 in the early stages of production with a well potentially at 345 barg. What I'm saying to you, which I think you partially agreed, that's unusual to use the well valves for that overpressure protection?

**Answer** You have to understand the difference between the design pressure and an MAOP. Normally we design the pipeline to withstand the maximum pressure of the wells. In this case we have got an MAOP which has been set for the basis of hazard distance.

**NW Question.** Yes, but, your operating licence depends on you sticking to the MAOP and if you exceed that, that would be taken as a serious excursion now that these valves in the wellhead or manifold have a safety implication,

Is it acceptable under the codes you perhaps quoted that you can take an operational valve system, instead of a dedicated isolation system and use it for isolation?

Do the codes give you any guidance about the use of operational valves for overpressure isolation especially when valves required for isolation are not normally used for day to day operational tasks?

**Answer.** I don't think there is anything in the codes that doesn't allow that

**NW Question.** Is it considered good practice?

**Answer.** It comes back, my statement that I'm making is that the Corrib Pipeline, the design pressure, is higher than the closed in tubing head pressure of the wells.

**NW Question** Well this is this distinction, isn't it, between MAOP and Design Pressures. I know the offshore engineers have a problem with MAOP But here onshore we use MAOP and if you look at all the standards 14161, 328, 8010 MAOP is the governing pressure. So irrespective of whether the design can match the tubing of the well, it's the MAOP which is the governing pressure that we are dealing with.

**Answer** That Norwegian Petroleum Directorate I alluded to there is the application of IEC 615-08<sup>32</sup> and IEC 615-11<sup>33</sup>, which basically is a risk based methodology. If you look at your risks, you determine what reliability you require and then you design your system to meet that reliability. That's effectively what we tried to achieve.

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<sup>32</sup> Functional safety of electrical/electronic/programmable electronic safety-related systems".

<sup>33</sup> Functional safety - Safety instrumented systems for the process industry sector".

**NW Question** Has this been done to the late project retro modification at the terminal?

**Answer.** Yes

**NW Question.** Normally we would express the reliability to close on demand with a SIL ratings. We know that the HIPPS valves at the LVI has a SIL rating of 3. Has a similar SIL rating been applied to the modified valve system offshore. Have you carried out an assessment of reliability to give an overall rating, equivalent to a SIL rating, or did you do the SIL analysis?

**Answer.** We have done reliability assessment to show that the reliability is similar to the reliability to the LVI. That report has been issued to DCENR

**NW Question** So DCENR has a reliability report detailing the modifications at the terminal, how these interact with the well head valves, or the manifold valves, to show the reliability is similar, or even better, than the SIL rating of the HIPPS at the LVI ?

**Answer** Yes, they do have that now

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The Inspectors Team asked for further information on the Norwegian Codes and a supplement document<sup>34</sup> was provided by SEPIL

During the question /answer session on the isolation system, Mr. Malcolm kept on referring to the pipeline design pressure being greater than the well pressure which gave the impression that the overpressure isolation system was not the main safety system for the pipeline. This reflects the difference in safety thinking between offshore engineers who only use the design pressure and the onshore codes, which stipulate a maximum allowable working pressure. In this case there is a wide margin between the two values with the design pressure being set at 345barg and the MAOP set at 150barg. This is not normally the case.

It should be noted that the MAOP is the only pressure rating to be used for the safety case covering the Pre LVI onshore pipeline and the LVI pipework. The inspector's team is resolute in this matter. The analysis in the QRA and the Consequence distances presented by SEPIL for these pipe sections only uses the 150 barg MAOP.

SEPIL claim that an independent analysis of the subsea well isolation system has been undertaken which included the surface controlled sub-surface safety valve, the master valve and the wing valve on each well, each of which will be tested on a regular basis.

The analysis confirmed the subsea well isolation system achieves a similar low failure probability to that of the LVI, which has a Safety Integrity Level (SIL) rating of 3, which is a very high rating.

For high-level integrity systems both the onshore and offshore industries demand a PDF of between  $1 \times 10^{-3}$  -  $1 \times 10^{-4}$ , that is the probability of failure on demand is better than 1 in 1000 occurrences. SEPIL claim that both overpressure protection systems meet this criterion

During questioning SEPIL accepted that it was unusual for operational valves on the wellheads to be also used as the primary overpressure protection device. It was also

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<sup>34</sup> SEPIL Supplement Document on Norwegian Guidance Note 70 – Doc No 89

noted that during the hearing that the codes used to confirm the reliability of this arrangement were based on the Norwegian Petroleum Directorate Guidance Number 70, the application of IEC61508 and IEC61511 in the Norwegian petroleum industry.

No mention of these codes appeared in the EIS or the Brief of Evidence presented by Mr. Malcolm. Also the DCENR made no reference to these codes in their comprehensive submission on standards used for the project. However, the analysis using these standards has been submitted to the DCENR for verification that the system is fit for purpose. Therefore the Inspector's Team can make no further comment in this report.

#### **8.4.5 Discussion on Overpressure Protection**

The operating pressure of the pipeline is well below the wellhead shut in pressure of around 345 barg. Under these conditions the pipeline codes require a pipeline overpressure protection system to be installed. SEPIL has proposed two separate overpressure protection systems covering the two different MAOP sections of the pipeline.

High Integrity HIPPS valves at the LVI will protect the 100 barg MAOP section of the pipeline. The probability of failure on demand for the HIPPS valves at the LVI is  $7.4 \times 10^{-4}$ , which equates to a SIL 3 rating reliability. An independent verification authority has certified this rating.

To prevent overpressure of the 150 barg MAOP section of the pipeline, SEPIL will reconfigure the control system at the terminal to allow the system's pressure sensors to automatically close the offshore operational valves by releasing the hydraulic pressure in the umbilical at the terminal. SEPIL will also use a sequence of trip levels based upon pressure limits at the terminal and LVI of 93 barg and 99 barg respectively. These systems will operate automatically or can be manually activated from the control room to close in the flow at the wellhead and Manifold.

It is essential that an external independent regulator DCENR or CER as the case maybe verifies the reliability of this arrangement, before operating this pipeline

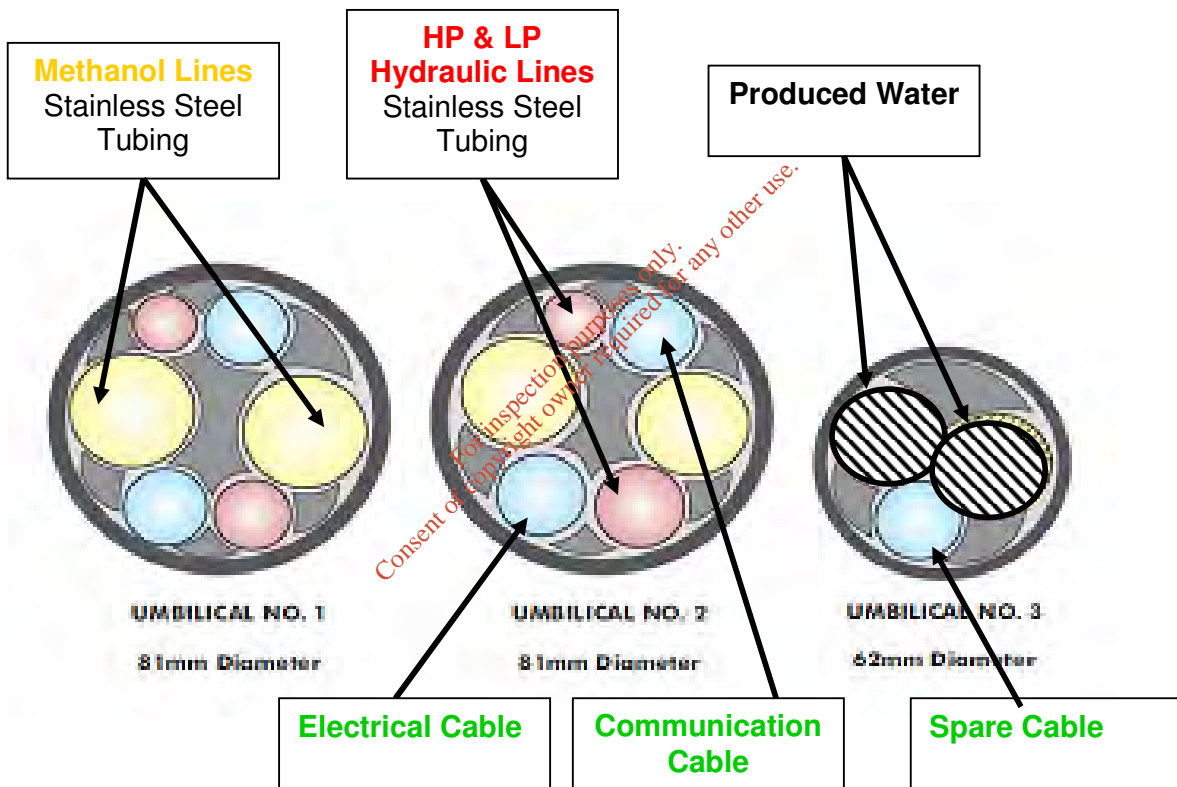
One of the key elements of the Corrib onshore pipeline design is that the pipeline will be hydrotested to 504 barg. This is related by the codes to the design of the pre LVI section of the onshore pipeline. However the hydraulic test pressure is extremely high when compared to the MAOP's of the pipeline sections. Therefore the design of the pipeline should provide additional protection even if the overpressure protection systems fail and the pipeline is subjected to the full downhole tubing pressure of 345 barg.

## 8.5 Impact of loss of Umbilical on Shutdown Systems

An Bord Pleanála required SEPIL to provide an analysis of what are the consequences of severing the umbilical resulting in loss of control of the wellhead and manifold valves. The analysis needs to identify what conditions apply to the onshore pipeline and the risks involved in that circumstance.

The impact on pipeline pressure by the loss of the umbilical is explained in the *EIS Appendix Q4.5 Section 3*

There are three onshore umbilicals providing services to the pipeline system as shown below in Figure 23



**FIGURE 23 SCHEMATIC OF ONSHORE CORRIB UMBILICALS**

Umbilical 1 and 2 each carry two hydraulic stainless steel lines, two methanol stainless steel lines and two electrical cables. The third umbilical carries two produced water lines and an electrical cable

Severing the hydraulic lines and venting the hydraulic pressure will cause the master valve (PMV), the wing valve (PWV), the surface controlled subsurface safety valve (SCSSSV) for each subsea well to close. Also the well infield line isolation valve

(WIV) on the subsea manifold will close. The production choke valve (PCV) will remain in its last position.

Severing of the electrical cable will unlatch the wing valve (PWV) into the closed position. All other valves will remain in their last position. Also loss of power will prevent the operator from monitoring the conditions within the subsea equipment and an alarm will sound in the control room

Closure of any one of these valves on each wellhead will prevent the pressure in the offshore pipeline from rising above its MAOP.

Severing both communication cables will prevent the operator from monitoring the conditions within the subsea equipment and prevent the operators from controlling any of the subsea valves. Alarms will alert the operators to loss of data communication. The operator can then manual close the subsea valves or if the pressure increases the valves will close automatically as described in the previous sections.

The loss of corrosion inhibitor is not seen as a major problem since the production will cease and any untreated gas will be small in volume. However the loss of methanol is more interesting if the valves have to be close by venting the hydraulic lines at the terminal. This will take time and during that period gas may still be flowing but not treated. This could give rise to the formation of methane hydrate. This risk is considered low by SEPIL and does not feature in the QRA. Blockage of the pipeline would not lead to the gas pressure exceeding the MAOP

### **8.5.1 Discussion on Severing the Umbilical**

The Bord required SEPIL to provide an analysis of what are the consequences of severing the umbilical resulting in loss of control of the wellhead and manifold valves.

The overpressure protection systems at the wellhead or the LVI are designed to fail closed with any loss of hydraulic power or the wing valves will close if electrical power is lost. If only the communication cables are severed then alarms sound in the control room and the operator can manually closedown the system by venting the hydraulic pressure in the umbilical.

SEPIL claim that overall there is no credible scenario, which would allow the gas pressure to exceed the MAOP by severance of the umbilical. The inspector's team accept this analysis.

## 9 BOW TIE ANALYSIS

An Bord Pleanála has requested SEPIL to include all potential pipeline failure modes in their submission, included third party intentional damage at Glengad

SEPIL has selected the Bowtie method of risk assessment as a basis for the following:-

- Provide a comprehensive list of threats and consequences and their associated prevention & recovery controls (mitigations) to help populate the PIMS
- Provide an analysis to populate the Qualitative Risk Assessment
- Provide an analysis to populate the Quantitative Risk Assessment

SEPIL's explanation of the Bowtie method is given in *EIS Appendix Q6.3A Corrib Risk Register* and the BoE was delivered by Ms S Hurst<sup>35</sup>

SEPIL held a number of workshops populated by a team of experts who examined a range of threats to the Corrib Pipeline. This in turn was balanced by a host of controls, which reduced or eliminated the threat.. SEPIL used the bowtie method to allow this process to be graphically represented and methodically analysed.

SEPIL claim that this method of analysis complies with a range of International and Industry Standards<sup>36 37</sup>

A Typical bowtie plot is shown in Figure 24

This shows the **HAZARD**, which is transporting gas and the **INCIDENT**, which is leakage from the pipeline.

- This could arise from a number of **THREATS** – Corrosion / Ground Movement / 3<sup>rd</sup> Party Damage etc
- The threats could be reduced or eliminated by a number of **PREVENTIVE CONTROLS** – for Corrosion – High Quality external coating / CP system / Coating damage monitoring
- The Incident could result in leakage with the **CONSEQUENCE** of a large gas cloud
- The Consequence could be reduced or eliminated by **RECOVERY CONTROLS** which includes – Leak Detection / Operator Emergency Response Action / Automatic Shutdown Valves

The above example and Figure 24 shows how threats and mitigations can be formalized with a systematic approach to generate a risk register

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<sup>35</sup> BoE on Qualitative Risk Assessment presented by Ms S Hurst Doc Ref No 15

<sup>36</sup> ISO 17776 Guidelines for Tools and Techniques for hazard Identification and Risk Assessment

<sup>37</sup> UK Health & Safety Executive Guidance on Risk Assessment for Offshore Installations Sheet No 3/2006



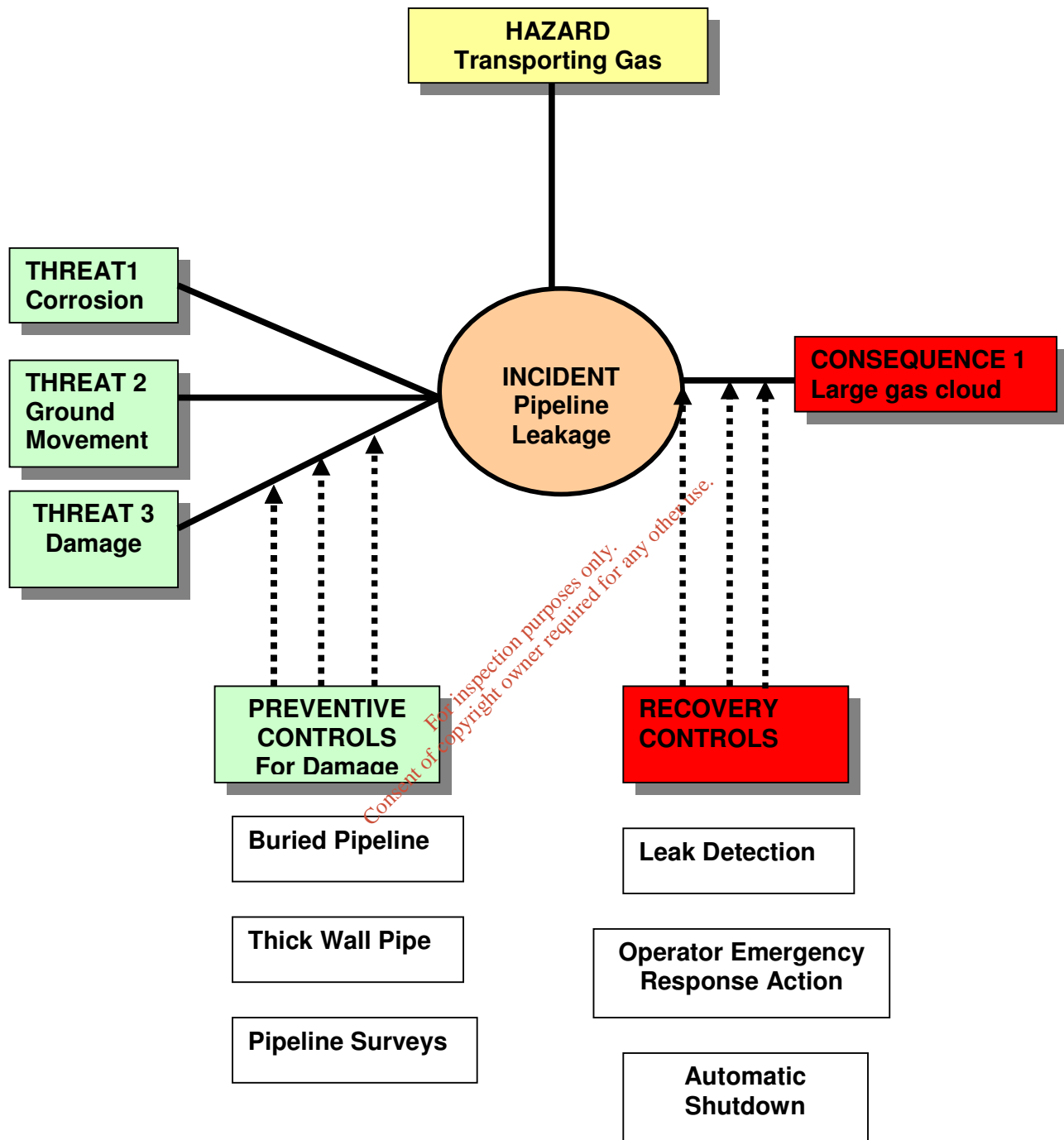


FIGURE 24 EXAMPLE OF A BOWTIE ANALYSIS FOR THE THREAT OF LEAKAGE

## 10 IDENTIFICATION OF THREATS TO THE ONSHORE PIPELINE

SEPIL examined a number of threats to the onshore pipeline and these are defined in the *EIS Appendix Q6.3A /Q6.3B– Risk register with the bowtie analysis given in Figures B5.1/B5.2/B5.3*. These figures have been reproduced in Appendix 4 of this report

SEPIL Identified a 32 threats to the pipeline - *EIS DNV Report on Managing Risk Section 6.3*

SEPIL has not submitted a pipeline population, which aligns with the Corrib onshore pipeline and therefore SEPIL had to select from the list of 32 threats which ones were insignificant. This selection process was based upon known statistics covering such events as a plane crash. Others were more arbitrary such as internal erosion, internal dynamic loading from liquids, brittle fracture and hydrates.

The elimination of these events is discussed below:-

### 10.1 Threats Eliminated by SEPIL as Not Significant

DNV has deleted a number of threats and failure modes either because they are assessed as non credible causes for loss of gas containment or have such low frequency of occurrence that their omission will have negligible impact on the QRA predictions.

These are discussed in the *EIS Appendix Q6.4 DNV Managing Risk Section 6.3.2* and given below in Table 6A

Table 6A Threat Description (Failure Cause)	EIS Q6.4 Section Reference
Peat fire	6.3.2.6
Methanol fire	6.3.2.7
Incident at terminal	6.3.2.9
Hot tapping	6.3.2.10
Impact damage of pipeline beneath public road crossing	6.3.2.14
Fuel tanker explosion at road crossing	6.3.2.15
Seismic events	6.3.2.16
Plane crash onto pipeline	6.3.2.17

## 10.2 Threats Eliminated by PIMS Control Barriers

The remaining threats that were eliminated by the application of design or control barriers are shown below in Table 6B and discussed below:-

Table 6B Threat Description (Failure Cause)	EIS Q6.4 Section Reference
Internal erosion	6.3.2.1
Low temperature brittle fracture	6.3.2.2
Hydrate Formation	6.3.2.3
High temperature (of fluid inside pipeline)	6.3.2.4
Pipeline expansion (thermal, pressure)	6.3.2.8
Overpressurisation	6.3.2.5
Internal dynamic loads (e.g. liquid slugs, hammering, vibration)	6.3.2.12
Future exploration well	6.3.2.11
Fatigue	6.3.2.13

### 10.2.1 Internal Erosion of Pipeline

Discussed in *EIS Appendix Q6.4 Section 6.3.2.1 & Appendix Q4.9 Section 5*

In the 2009 EIS Appendix Q5 sub Appendix 3.3 states that erosion damage is possible as selected wells may have to be fractured and treated with proppant materials. However to date only one well 18/25-3 has been fractured and treated with Coated Ceramic Proppant. The worst-case assumption is that proppant production of 2.5Kg/day will occur. SEPIL do not expect sand production from the wells

SEPIL plan to monitor the production of solids from the wells via an acoustic monitor fitted to the manifold

On the onshore pipeline it is assumed that the erosion will occur at LVI and the 5 D bends at the terminal end of the pipeline. SEPIL have estimated that erosion of the pipe wall will be 0.03mm, which is negligible.

This threat does not normally occur in an onshore transmission pipeline because the gas has been filtered before entry into the pipe. Therefore failure rates will not appear on any onshore pipeline database in Ireland or the UK.

### 10.2.2 Mechanical- Pipeline Brittle Fracture due to Low Temperatures

Discussed in *EIS Appendix Q6.4 Section 6.3.2.2 & Appendix Q4.7 Section 4.4.1.5*

EIS Appendix Q2.1 Section 8 Table 8.1 gives the design temperature of  $-20^{\circ}\text{C}$  for the first 1.1km of the pipeline downstream of the LVI. This could occur under start up and blowdown conditions due to the Joule- Thomson cooling effect.

This threat was extensively discussed in NW report 143 Section 6.3. The threat is with the downstream pipeline operating at minus 20C and if a defect occurs under these conditions then a further temperature drop needs to be added for the pressure drop across the leaking defect. This could cause a rupture if the temperature drops below the brittle transition temperature of the steel.

SEPIL state that on blowdown operations procedures will be in place to try and limit the temperature drop to  $-10^{\circ}\text{C}$

This threat is normally not encountered on onshore gas transmission systems in Ireland or the UK because installations that require the pressure to be lowered have heaters to counteract the Joule- Thomson cooling effect. Therefore it is unlikely that failure rates from this threat will appear on any onshore gas transmission pipeline database in Ireland or the UK.

### 10.2.3 Methane Hydrates

Discussed in *EIS Appendix Q6.4 Section 6.3.2.3, Appendix Q4.5 Section 6 and Q2.1- Section 4.7 Hydrate Management*

The formation of Methane Hydrate in a pipeline is one of the highest risk events experienced by pipeline engineers. The hydrate is formed when natural gas reacts with water under certain pressure and temperature conditions. It can appear as slush blocking valves and neutralising control systems. Alternatively it can form as a block of Ice that acts as a plug in the pipeline.

SEPIL predicts that without the injection of methanol, hydrates will form inside the offshore and onshore pipeline even under steady state gas flow conditions.

One of the main concerns discussed at the Hearing was the formation of a plug of methane hydrate inside the pipe. SEPIL stated at the Hearing that the formation of the plug will not in itself cause the pipeline to leak. However removing the plug by swabbing with additional methanol or the application of external heat can be highly dangerous when there is a differential pressure across the plug. The plug has to be released with little or no differential pressure otherwise the plug will accelerate within the pipe and hit the nearest bend with the chance of a pipeline rupture.

Dr S Patterson discussed in his BoE<sup>38</sup> the management strategy to prevent the formation of methane hydrate. Also plans have been formulated by SEPIL to remove a blockage within the pipeline in the unlikely event that the management strategy fails to prevent the formation of a hydrate plug. However this is such a specialist (dangerous) operation that SEPIL's operational and maintenance staff at the terminal

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<sup>38</sup> BoE submitted by Dr S Patterson on Corrosion and Hydrate Formation Oral Hearing Doc Ref No 14

will not be allowed to perform the work. SEPIL will mobilise a Shell specialist global hydrate team from Amsterdam to write the procedures and perform the plug removal operations.

This threat would not be seen in onshore gas transmission systems in Ireland or the UK because the gas is dried to an agreed standard before being transported. Therefore it is unlikely that failure rates from this threat will appear in any onshore gas transmission pipeline database in Ireland or the UK.

#### **10.2.4 Internal High Temperatures**

Discussed in *EIS Appendix Q6.4 Section 6.3.2.4*,

The maximum design temperature for the operation of the pipeline is 50°C.  
(*Appendix Q 4.1 - Section 4*)

This could not occur from gas being fed from the well but could occur if gas was being back fed from the terminal to re-gas the downstream section SEPIL state facilities are in place to limit the temperature of the back fed gas from the terminal.

This depends upon operational procedures in PIMS and subjected to the problems of human error.

#### **10.2.5 Pipeline Expansion**

Discussed in *EIS Appendix Q6.4 Section 6.3.2.5*

Excessive movement caused by variations in operational temperatures can overstress the pipeline.

SEPIL claim that during start up and depressurization of the pipeline a wider temperature operating range is predicted but this will be maintained within the design range of the pipeline.

Again this depends upon operational procedures in PIMS and subjected to the problems of human error.

#### **10.2.6 Over Pressurisation**

Discussed in *EIS Appendix Q6.4 Section 6.3.2.5*

There are a comprehensive array of overpressure safety systems protecting both the 150barg MAOP and the 100barg MAOP sections of the onshore pipeline- as discussed in this report. If a failure occurred in either one of these systems then the pipeline design pressure of 345 barg is capable of withstanding the highest well pressure without the pipeline being overstressed.

Therefore the threat of a pipe failure from the failure of the overpressure protection systems is extremely remote.

### 10.2.7 Dynamic Loading from Liquids within The Pipeline

Discussed in *EIS Appendix Q6.4 Section 6.3.2.12, Appendix Q4.5 Section 5 and Appendix Q2.1 Section 4.6*

The flow regime inside the pipeline was extensively discussed in Section 6. During the hearing SEPIL predicted that the flow would be annular dispersed. SEPIL also stated that the pipeline has been designed for multiphase flow and will operate with low liquid loading hence dynamic loads will be low.

Large dynamic loads on the pipeline occur when slugs of liquid are formed and travel at high velocity towards the bends. The action of the slugs hitting the bend can generate large stresses in the bend.

The transient conditions which slugs of liquid could be generated are listed below

- Start up
- Ramp up
- Turndown
- Shut Down
- Production restart

SEPIL predict that the amount condensate and water exported from the wells is unlikely to cause a slug problem even when the water from condensation is added.

Mr. Hamilton was asked about the formation of slugs and their potential to damage the pipeline

**Answer** The type of slugs you refer to that have that kind of momentum, are the ones I described earlier as terrain slugs or severe riser based slugs. The difference there is that those slugs consist of large quantities of liquid traveling very close to the gas velocity. In this case, we saw nothing like that. Any minute instability that we saw at minimum turn down were not that type of slug and as such were traveling at normal liquid velocities with no excess momentum.

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The scenario being discussed here depends upon SEPIL performing an operation, which gives rise to a transient flow condition. SEPIL claim that this will not generate large damaging slugs because the wells will not generate large quantities of liquid. Therefore the level of liquid generated becomes critical in assessing this threat.

This threat would not be seen in onshore gas transmission systems in Ireland or the UK because the gas is dried to an agreed standard before being transported. Therefore it is unlikely that failure rates from this threat will appear in any onshore gas transmission pipeline database in Ireland or the UK.



### 10.2.8 Future Exploration Well – Different Gas Properties

Discussed in *EIS Appendix Q6.4 Section 6.3.2.11*

SEPIL has declared the Corrib gas as over 90% methane with small percentages of CO<sub>2</sub> and higher hydrocarbons. Also the gas will contain a minimum amount of liquid with no sand production. Many of the potential threats are deemed insignificant by SEPIL because the gas composition is judged to be very favourable when compared to other offshore wells. Therefore any changes gas composition, either through the age of the wells or new wells being added to the system, could give rise to threats not included in their analysis.

The question of new wells being added to the system was accepted by SEPIL ( Mr Costello's evidence Section 4.2) although as SEPIL stated this would be subjected to a separate regulatory approval process.

### 10.2.9 Mechanical Fatigue

Discussed in *EIS Appendix Q6.4 Section 6.3.2.13*

Fatigue failures in pipelines result from subjecting the pipeline to a critical number of stress cycles. Such cycling can arise from pressure variation in the pipeline combined with thermal variations during start ups or downturns in production.

The ideal operating regime for this pipeline is steady state constant gas flow. However the commercial market may demand peak flows to line pack the BGE system or turndown when demand is low. SEPIL (Dr Haswell 16<sup>th</sup> September) stated that any variations in pressure would be insignificant due to the low operating stress of the pipeline. SEPIL also stated that they would be monitoring the pressure cycles at the terminal.

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### 10.3 Potential Threats Accepted by SEPIL

The potential threats to the pipeline accepted by SEPIL are given in *EIS Appendix Q6 – Section 6.4 table 7*) and reproduced in this report under Table 7

In the 2009 submission, SEPIL used a generic dry gas transmission pipeline database that was not specific to the Corrib pipeline. The database did not recognize CO<sub>2</sub> internal corrosion or 3<sup>rd</sup> party Intentional Damage. Also ground movement was ignored but subsequently reinstated at ABP's request.

In the 2010 EIS all of the above 2009 omissions have been included in the list of threats given in Table 7 and discussed below

#### 10.3.1 External Corrosion

There are a number of different environments that will exist around the pipeline. These variations in environment are shown below:-

- Selected back fill in grass land
- Inside the Tunnel with electrically conducting alkaline grout
- Selected backfill in the stone road in bog conditions
- Selected backfill in the stone road resting upon a peat boulder matrix
- The estuarine Leenamore River with concrete coating

The external threat from corrosion is the similar for any buried gas transmission pipeline except for the conditions in the tunnel..

The prominent threats are discussed in *EIS Appendix Q6.4 section 6.4.2 and Q4.7 section 4.3* and listed below

- External corrosion
- Stress Corrosion Cracking
- Stray Current Corrosion
- Microbial Action

The pipeline will have a high quality 3 part external coating. Any areas of coating damage will be protected by cathodic protection. However the weakest barrier is the heat shrink-fit field coating over the butt welds. The application of this coating was criticized in the Advantica Report

In the tunnel it will be important that the CP is only protecting the pipe and not any adjacent metal structure such as the venting duct that will be left in place.

In the Pre LVI pipework SEPIL have ignored the advice of Advantica and will not fit an isolating joint between the two cathodic protection systems. These are the Anode protection working offshore and impressed current protection working onshore. SEPIL stated that they could achieve a balance between these two systems and avoiding either under protection or overprotection of the pipeline. This report accepts the expertise of Shell to manage the CP systems

<b>Failure Mode</b>	<b>Table 7 Threat Description (Failure Causes)</b>	<b>EIS Q6.4 Section Reference</b>
External Corrosion	External corrosion of the pipeline	6.4.2
Internal Corrosion	Internal corrosion along the bottom of the pipeline e.g. due to water, carbon dioxide or organic acid in fluid	6.4.3
	Internal corrosion along the top of the pipeline e.g. due to carbon dioxide and organic acid in condensed water and absence of corrosion inhibitor at top	
Construction/Material Defects	Error in manufacture	6.4.4
	Error during construction / installation	
Ground Movement	River / estuary crossings - movement / erosion of seabed, ground movement potential pipeline damage	6.4.5
Ground Movement:	Ground instability - peat slide affects pipeline	
Glengad and Aghoos to Bellanaboy Bridge Gas Terminal	Impact damage of the pipeline beneath the stone road - stone road settlement	
	Flooding / washout e.g. from heavy rain or water pipe failure	
Accidental External Interference	Accidental impact of the pipeline e.g. error during authorised or unauthorised 3rd party activities (excluding tunnel)	6.4.6
	Accidental impact of the pipeline at water crossings	
Intentional or Malicious Activities - Buried section	Intentional damage to the pipeline from unauthorised 3rd party activity e.g. sabotage, vandalism	6.4.7
Intentional or Malicious Activities	Intentional damage to the pipeline at water crossings (excluding tunnelled section) e.g. sabotage, vandalism	
Other/Unknown	Lightning	6.4.8

### 10.3.2 Internal – Corrosion

The 2009 EIS played down the risk from internal corrosion. However the 2010 EIS gives a great deal of detailed information on the type of corrosion mechanisms that could occur and the modelling of the expected corrosion rate see *Appendix Q6.4 section 6.4.3, Appendix Q4.7 section 4.2.1, Appendix Q4.8, Q4.9 Q 5.1*

The various types of corrosion that could occur are listed below:-

- CO<sub>2</sub> Corrosion
- Organic Acid Corrosion
- Top of the Line Corrosion
- Stray Current Corrosion
- Preferential Weld Corrosion
- Galvanic Corrosion
- H<sub>2</sub>S Corrosion

The internal corrosion threats are discussed below:- Further information *Appendix Q4.7*

#### CO<sub>2</sub> Corrosion – *Q4.7 section 4.2.1*

The presence of water and CO<sub>2</sub> results in Carbolic Acid being generated in the pipe. The rate of corrosion will depend upon the amount of water, CO<sub>2</sub>, gas conditions and the temperature of the gas. All these parameters need to be monitored for the life of the pipe and the quantity inhibitor adjusted accordingly. SEPIL predict relatively low levels of CO<sub>2</sub> at 0.3% , which is stated to be not very corrosive. This would normally occur at the bottom of the pipe in the presence of water.

#### Organic Acids Corrosion – *Q4.7 section 4.2.1*

The presence of organic acids can increase the corrosivity especially in pipelines, which have a relatively low CO<sub>2</sub> partial pressure. The organic acid content for condensed water is low (10ppm) but this will increase dramatically to 100ppm if the wells produce formation water

#### Top of the line Corrosion– *Q4.7 section 4.2.2*

Top of the line corrosion occurs under stratified flow. Under these conditions the inhibitor fails to prevent corrosion occurring at the top of the pipe were water condenses in the presence of CO<sub>2</sub> and organic acids. At the hearing SEPIL stressed that their analysis has predicted annular flow and stratified flow would not occur.

#### Stray Current Corrosion – *Q4.7 section 4.2.11*

Stray currents can occur when an isolation joint fails or is short-circuited by internal conducting fluids (wet gas and liquids). SEPIL stated that this mechanism has been observed in many of the wet gas pipeline in the Netherlands. The rate of metal loss can be high and is normally internal The Corrib pipeline has an isolating joint between the pipe and the terminal.

#### Galvanic Corrosion – Q4.7 section 4.2.4

Galvanic corrosion occurs when two metals with different electrochemical potentials are connected together without insulation. On the Corrib pipeline this situation occurs at the LVI where the carbon steel pipe is connected to the stainless steel tee. SEPIL state that this type of corrosion is not generally seen in oil and gas systems

#### H<sub>2</sub>S Corrosion – Q4.7 section 4.2.5

SEPIL state that H<sub>2</sub>S Corrosion is not expected in the Corrib system

### 10.3.3 Overall Corrosion Rate

SEPIL have extensively modelled the corrosion mechanisms of the pipeline using Shell's Hydrocor corrosion modelling software. EIS *Appendix Q4.9*

If the Gas is untreated, SEPIL expect the corrosion rate to be in the order of 1.3mm/year near the manifold. However if formation water is produced containing organic acids then this rate will increase to a maximum of 9.9mm/yr. Feeding methanol and corrosion inhibitor into the offshore gas stream will drastically reduce the rate to 0.12mm/year or 0.2mm/year if formation water is present.

By the time the gas reaches the onshore section of the pipeline the corrosion rate is predicted to fall to less than 0.05mm/year. This was used to calculate the 1mm corrosion allowance for a 20 years life. During the Hearing, Dr Paterson (Shell) stated that he expected the corrosion rates to be even lower at 0.02 mm/year as long as there is no formation water. This is based upon inhibitor trials that were still ongoing at the time of the Hearing.

Keeping the onshore pipeline corrosion rate as low as possible will again depend upon good management and maintenance standards at the Terminal. Tasks such as the maintenance of the inhibitor pumps or ensuring the O<sub>2</sub> levels in the methanol are monitored and remain as low as possible by the efficient operation of the O<sub>2</sub> scavenger process are essential to the safety of the pipeline .

### 10.3.4 Monitoring the Rate of Corrosion

SEPIL plan to use an ultrasonic fleximat, which allows continuous monitoring of the wall thickness around the circumference of the 20 in diameter pipe. This will be installed upstream of the pigging tee at the Terminal. In addition electrical resistance probes will be installed downstream of the pigging tee before the slug catcher. SEPIL predict that the gas conditions at these points in terms of pressure, temperature, flow and acidity will be representative of the corrosivity of the gas along the onshore pipeline.

#### 10.3.4.1 Intelligent Pigging

SEPIL plan to use periodic online inspections in addition to the fixed monitoring devices to ensure the pipeline is not suffering from excessive corrosion and is defect free.

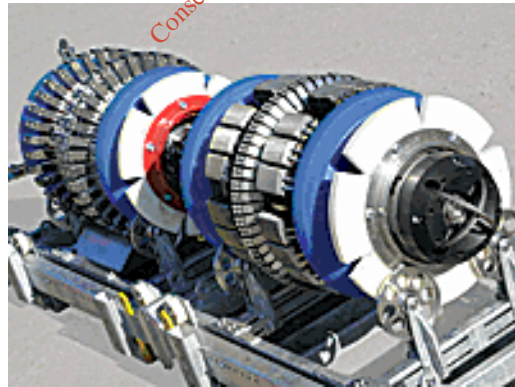
The type of intelligent pigging tools to be deployed is explained in *EIS Appendix 2.1 section 9.5* and described in Dr Paterson's BoE

SEPIL plan to use two intelligent in-line inspection systems to determine the condition of the pipeline. These are the traditional Magnetic Flux Leakage (MFL) tool, see Figure 25 and a new Rosen XGP (extended geometry) tool.

MFL tool inspections can detect the following defects:-

- Pipe Wall Anomalies
  - Pitting and general corrosion
  - Gouging
- Girth Weld Anomalies
  - Mill Features (metal loss)
  - Non – metallic inclusions
  - Lap
- Mechanically induced markings
- Wall thickness changes
- 

The loss of accuracy of the standard MFL tool when operated on thick wall pipe was highlighted by an Observer and discussed at the 2009 Hearing. Using a MFL pig on the Corrib pipe with a 27mm wall will give an error band of +/- 10% of wall thickness or +/- 2.7mm. This is a major problem when the corrosion allowance is only 1.0mm



**FIGURE 25 TYPICAL MAGNETIC FLUX LEAKAGE TOOL**

Therefore to obtain a meaningful inspection of the pipeline, SEPIL are also going to deploy the XGP geometry tool which incorporates a SIC (shallow internal corrosion) unit. This has eddy current sensors, which can detect internal wall loss features as shallow as 0.8mm to 1mm and dents 2.5mm deep



The XGP tool inspections cover

- Internal diameter anomalies
- Buckles
- Wrinkles
- Ovality
- Internal diameter changes
- Internal metal loss features

The deployment of the XGP tool and the SIC unit is essential if small changes in wall thickness and shallow defects are to be detected in such a thick wall pipe.

### **Overall Corrosion Comments**

SEPIL has published a greater amount of corrosion related information in the 2010 EIS compared to the 2009 version. They have accepted that internal corrosion mechanisms do exist and the final rate of the internal corrosion will depend upon:-

- The amount of formation water
- The effectiveness of the inhibitor and methanol mix to suppress the corrosion and the results of the laboratory trials, which were ongoing at the time of the hearing.
- The gas composition and the amount of water and solids produced does not substantially change over the life of the project.
- The flow remains annular and not stratified to ensure no top of the pipe corrosion occurs.
- The continuous monitoring probes and inline pigging inspections can produce an accurate picture of what is happening inside the pipe

In mitigation Shell stated that they operate a large number of pipelines with similar internal gas conditions without incident

Externally SEPIL were confident that the CP system will operate satisfactory inside the tunnel and that the alkaline grout would offer additional protection.

SEPIL still prefer to operate the offshore / onshore CP interface without an isolation joint. This may present a challenge to avoid under protection – overprotection conditions at the interface area between the two systems.

The three part coating used by SEPIL should offer a long term reliable barrier to external corrosion, providing the Polypropylene maintains its excellent adhesion to the epoxy undercoat over the life of the project.

The MAOP's of a 150 /100 Barg have large margins of safety when compared to the pipeline design pressure of 345 barg. It is not inconceivable that as the well pressure falls some of this excess wall thickness could be traded for additional corrosion allowance if the corrosion rates exceeds SEPIL's initial predictions.

Overall SEPIL has presented a robust technical solution to corrosion management on the Corrib onshore pipeline. However the safety of the pipeline will depend upon the efficiency and long-term diligence of the PIMS management and maintenance system to ensure sound practices are upheld over the life of the project.

### 10.3.5 Manufacture and Construction Defects

*This is discussed in EIS Appendix Q6.4 section 6.4.4*

The pipeline will be manufactured and tested inline with the approved standards DNV-OS-F101, I.S. 328 and PD8010.

The tunnel and the stone road are the novel parts of the construction programme. The construction of a tunnel to bypass areas of environmental sensitivity has been successfully pioneered in other parts of Europe. The contractor retained by SEPIL was involved in a similar 4km tunnel between the Netherlands and Germany. This ensures that the continuity of experience will be transferred to the Corrib project thereby minimising the risk.

A stone road has been used in Ireland by BGE for the construction of gas transmission pipelines. However in the BGE design the stone road was used for construction purposes only and the pipe was buried in the peat. SEPIL plan to bury the pipe in the stone road, which should provide a more stable environment than the peat.

### 10.3.6 External Ground Movement in Peat

*This is discussed in EIS Appendix Q6.4 Section 6.4.5 and details in Appendix M2*

SEPIL examined a number of scenarios in *Appendix M2* where ground movement could threaten the safety of the pipeline. These are given below:-

- A peat stability and potential for peat failure assessment over the proposed onshore pipeline route from the landfall at Glengad Headland to the Bellanaboy terminal site. This involved the assessment of the stability of natural peat slopes along the proposed pipeline route.
- Assessment of the proposed use of a stone road in areas of peat involving an assessment of ground investigation, an interpretation of ground conditions, and stability analysis of the stone road.
- Assessment of the ability of the stone road to resist lateral loading from any potential peat landslide impact.
- Assessment of the risk of instability of the stone road during the operation of the pipeline.
- Ground stability risk associated with landslides originating on Dooncarton Mountain.
- Erosion of the cliff at Glengad with the potential to lead to ground movement affecting the pipeline and the LVI.
- Ground stability in the vicinity of the pipeline and umbilical in the event of a ruptured water pipe.

SEPIL concluded from these studies that ground movement in the vicinity of the pipeline and umbilicals is not expected to impact upon the pipeline. SEPIL stated that the risk is assessed as negligible or unlikely to occur.

In Section 5.5 of this report - Stone Road, The stability of the stone road is discussed with respect to overstressing the pipeline. The predictions of the behaviour of the pipeline in the stone road are all based on computer models. These models predicted that the pipe laid in the stone road would only be moderately stressed during operational conditions. Modelling of the Type 2 construction is complex where a base layer of a peat and stone matrix is deployed between the stone road and the mineral soil. SEPIL at the Hearing admitted that they had not taken measurements of settlement of the existing stone road or held any discussions with Bord Gais on the performance of their stone roads.

However SEPIL claim that a considerable margin of safety exists over the predicted amount of stone road settlement and the degree of settlement, which would endanger the pipeline. SEPIL predict that the pipeline could tolerate 10 times the predicted settlement. Also the pipeline is capable of free spanning a distance of 40m, which is significantly greater than the predicted wash out span from a water pipe rupture.

### **10.3.7 External Ground Movement in Estuary Tunnel**

In Section 5.4 of this report – Sruwaddacon Bay Tunnel - SEPIL stated that during construction with the TBM, the tunnel is predicted to have a settlement no greater than 10mm. However after the tunnel is built no further settlement will take place because the tunnel and pipes are lighter than the TBM and will have virtually the same weight as the surrounding soils.

Therefore SEPIL are confident that no post construction tunnel settlement will take place.

### **10.3.8 External - Third Party Accidental Damage**

This is discussed in *Appendix Q6.4 Section 6.4.6 and Appendix Q4.10 denting*

SEPIL state that the main safeguards against failure due to external interference are:

- The pipeline has a wall thickness 27.1mm, which is considered extremely thick. The wall thickness is a major factor in the potential failure by external damage and there are no recorded failures of pipelines in the databases with a wall thickness in excess of 15mm.
- Burial of the pipeline with concrete slabs at road and small water crossings (onshore).
- Burial in a fully grouted tunnel beneath Sruwaddacon Bay.
- Fibre Optic cable along length of pipeline to monitor vibration from impact

SEPIL concluded that to puncture the pipe would require an excavator weighing in excess of 65tons. This force required is only obtained from the large 150-ton excavators. Smaller excavators or ploughs would have no effect due to the thick pipe wall. However if a small excavator only dented and gouged the pipeline and this damage was not discovered, then any subsequent increase in the pipeline pressure could lead to premature failure. This scenario is unlikely since SEPIL are going to

deploy a fibre optic cable along the pipeline, which will pick up any vibration from an external impact

### 10.3.9 External - Third Party Intentional Damage

This is discussed in *Appendix Q6.4 Section 6.4.7*

ABP specifically requested SEPIL to include this risk in the QRA since the Corrib Pipeline represents a major gas import facility for Ireland and therefore ranks alongside other security sensitive national infrastructures.

A number of observers at the Hearing raised issues concerning intentional 3<sup>rd</sup> party damage. Although discussion of this topic was not encouraged it never the less remains a fact of modern life that key strategic facilities are a target from dissident groups. The Australian standard A2885-1 recognises this threat and allows the risk to be included in the QRA.

During the Hearing, SEPIL enquired whether ABP had an opinion on placing concrete slabs over the umbilical in the vicinity of the LVI to increase their security. It was established at the Hearing that failure of the umbilical would not threaten the safety of the pipeline. Therefore any enhanced security involving the umbilical is a commercial matter related to the disruption of gas supply and therefore is not part of the planning safety review.

During the Hearing the security arrangements at the unmanned Glengad LVI were discussed by SEPIL. These consist of an outer stock fence and a 2.8m high boundary fence. Also present would be CCTV security systems. This level of security compares to an average Above Ground Installation on a gas transmission line.

SEPIL repeated that it is extremely difficult to damage the pipeline from an unauthorized entry into the Glengad compound in the short period of time before a response team arrives. However the Inspectors Team remains concerned over the lack of visual security and the unmanned status of the Glengad LVI. It is the view of the Inspector's team that the security of the LVI compound at Glengad should not be modelled upon a standard Above Ground Installation but should reflect its national importance to the energy supplies of Ireland and its high public profile.

### 10.3.10 Other/Unknown Threats

This is discussed in *Appendix Q6.4 Section 6.4.8*

The main risk identified from the databases is a lightning strike, although this is more likely to occur at the LVI rather than on a buried pipeline.

## 10.4 Identification of Threats to the Glengad LVI

SEPIL examined a number of threats to the LVI and these are defined in the *EIS Appendix Q6.3A – Risk register with the bowtie analysis given in Figures B4.1/B4.2*. These figures have been reproduced in Appendix 4 of this report. The threats are also discussed in *EIS Appendix Q6.4 section 6.7*.

At Glengad SEPIL identified 24 potential threats. These are similar to those defined for the pipeline. Like the pipeline many were rejected as being assessed as negligible or unlikely to occur. The critical threats rejected are:-

- Erosion
- Methane Hydrate
- Mechanical failure due to improper maintenance
- Incorrect Assembly
- Incorrect operation

Apart from erosion and the risk from methane hydrate, the remaining threats rejected by SEPIL are covered by their Quality systems in construction and operation.

The tees and bends at Glengad were identified in the EIS as the areas most at risk from erosion. Since these areas are not inspected by the inline inspection tools they remain vulnerable to wall thinning before detection.

The LVI is a potential location for the formation of methane hydrate due to cooling effect from the pressure drop across the LVI or closing /opening a valve. SEPIL have designed a methanol injection point at the LVI to mitigate this threat.

The remaining threats accepted by SEPIL are listed below:-

- Failure of Valves and equipment
- External Corrosion
- Internal Corrosion
- Manufacturing defects
- Other causes

### 10.4.1 Failure of Valves and Equipment

This is discussed in *Appendix Q6.4 Section 6.7*.

SEPIL identified that the significant threat to the LVI was the release of gas through the failure of valves and flanges.

### 10.4.2 Remaining Threats

This is discussed in *Appendix Q6.4 Section 6.7.1*.

The remaining threats below is assumed by SEPIL to be the same as the pipeline.

- External Corrosion

- Internal Corrosion
- Manufacturing or material defect
- Other – lightning strike

## **10.5 Discussion on Database and Threats to the Pipeline and LVI**

In the 2009 Oral Hearing, SEPIL used pipeline populations transporting dry natural gas, which could not be fully relied upon to quantify the risks arising from transporting wet untreated gas. The problem with the Corrib pipeline is that it does not fit neatly into the gas transmission databases used by BGE or UK pipeline operators which transport dry processed gas. Therefore one of the requests to SEPIL was that the revised Quantified Risk Assessment (QRA) should be site specific. Unfortunately SEPIL could not produce a database that could be aligned with the design and operation of the Corrib pipeline. Therefore SEPIL has assembled a composite database to perform the QRA. The European Gas Incident Data Group (EGIG) provided failure frequencies for Materials & Construction, External Corrosion and Other/Unknown (Lightning Strikes). The 3<sup>rd</sup> party damage frequencies were obtained from the PIE computer model, while the internal corrosion frequencies were obtained from the CONCAWE database, which is a European database for onshore oil pipelines. No directly comparable databases were produced for pipelines operating in a tunnel or for Above Ground Installations such as the Glengad LVI. Again for these locations SEPIL used indirect databases of similar components.

The Inspector's team has accepted the use of the composite database for the QRA with the prudent proviso that additional analysis is undertaken in the form of a Qualitative Risk Assessment and calculation of the Consequence Distances in the event of a full bore rupture at maximum pressure.

### **Threats to the Pipeline**

SEPIL were asked to perform a Quantitative Risk Analysis (QRA) on the potential failure of the pipeline. This would include a complete and comprehensive review of all potential failure mechanisms along the route of the pipeline arising from both the external and internal environments of the pipe. This QRA would also include a sensitivity analysis of the potential failure modes.

SEPIL has produced a very comprehensive analysis of 32 potential threats to the pipeline using the bowtie method. The threats were subdivided into three groups; threats eliminated as not significant, threats eliminated by control barriers managed by PIMS (Pipeline Integrity Management Scheme) and threats accepted by SEPIL.

The critical areas are the threats that would be managed by the PIMS control barriers. These covered events such as; internal erosion, hydrate formation, brittle fracture at low temperatures, high temperature of internal fluids, pipeline expansion, pipeline overpressure, Internal dynamic loads, and fatigue.

In the absence of a relevant database for the pipeline, the Inspector's team accept that credibility has to be given to the PIMS system to control the threats such as methane hydrate and erosion.



The remaining threats accepted by SEPIL were; internal corrosion, which had been missing from the 2009 analysis, external corrosion, construction defects, 3<sup>rd</sup> party accidental external damage and others such as lightening. SEPIL also included ground movement and intentional 3<sup>rd</sup> party damage as part of a sensitivity analysis requested by the Bord.

### **Threats to the LVI**

For the LVI the Bowtie analysis produced 24 threats. Again threats were eliminated either being implausible or managed by the PIMS control barriers. The dominant threat accepted by SEPIL was the failure of valves and equipment. Others included external and internal corrosion, manufacturing defect and lightening strikes. SEPIL could not produce a database for failures at above ground installations such as the LVI. Therefore they used the offshore database for hydrocarbon releases. The resultant analysis gives an overall failure frequency for a 16mm hole of 4.9E-04/year. This database completely dominated the analysis since it is many orders of magnitude above other threats from corrosion, manufacturing defects and 3<sup>rd</sup> party intentional damage

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## 11 ONSHORE PIPELINE - QUANTITATIVE RISK ASSESSMENT

A QRA is always the preferred method of assessing the risk to a pipeline as long as there are significant amounts of statistical data from a large pipeline population operating in a similar environment and transporting a similar product. The benefit of a QRA is that it produces mathematical data such as 'Frequency of Failure' and 'Number of Casualties Expected'

The 2009 NW report stated that the choice of a pipeline population failure database is critical to the level of risk predicted by the QRA. In their 2009 submission SEPIL used pipeline populations transporting dry natural gas, which could not be fully relied upon to quantify the risks arising from transporting wet untreated gas. The problem with the Corrib pipeline is that it does not fit neatly into the gas transmission databases used by BGE or UK pipeline operators which transport dry processed gas. Therefore one of the main ABP requests to SEPIL was that the revised QRA should be site specific.

In 2010 EIS Shell state they have extensive experience in managing thousands of Km's of unprocessed gas but have decided not to use this information as a foundation for their safety case. Instead they have assembled a range of databases from different pipeline populations and computer models to form a composite population to cover all the issues of the Corrib pipeline.

The QRA expresses the risk to the population in terms of Individual and Societal Risk. Individual Risk is normally expressed as the risk of a person suffering a fatal dose of thermal radiation in relation to their distance from the pipeline. Societal Risk relates the risk of an accident occurring against the number of expected fatalities over 1km of pipeline. Both measures of risk are examined in this report. Pipeline safety and the risk to the community were extensively covered in the NW 2009 report – sections 4 and 5.

### 11.1 Steps Involved in Modelling Pipeline Threats to Thermal Radiation Effects on the Local Population

SEPIL have described the models used in the 2010 QRA *in EIS Q6.4 Section 7.2.3*

A range of software models were used by SEPIL to link potential threats to pipeline rupture, quantity of escaping gas, ignition and the resultant risk to the public by thermal radiation

After the pipe has been ruptured, a release of gas occurs resulting in a fireball. The fireball model is based on the model used by the UK HSE when assessing risks from natural gas pipelines. Once the fireball has subsided the gas flowing from the rupture forms a jet fire and this has been modelled using DNV's PHAST software. Both of these models predict the resulting heat flux, which is then used to calculate potential building burning distances and fatalities. Figure 26 shows the modelling steps from defining the pipeline threats to the thermal radiation effects on the local population.

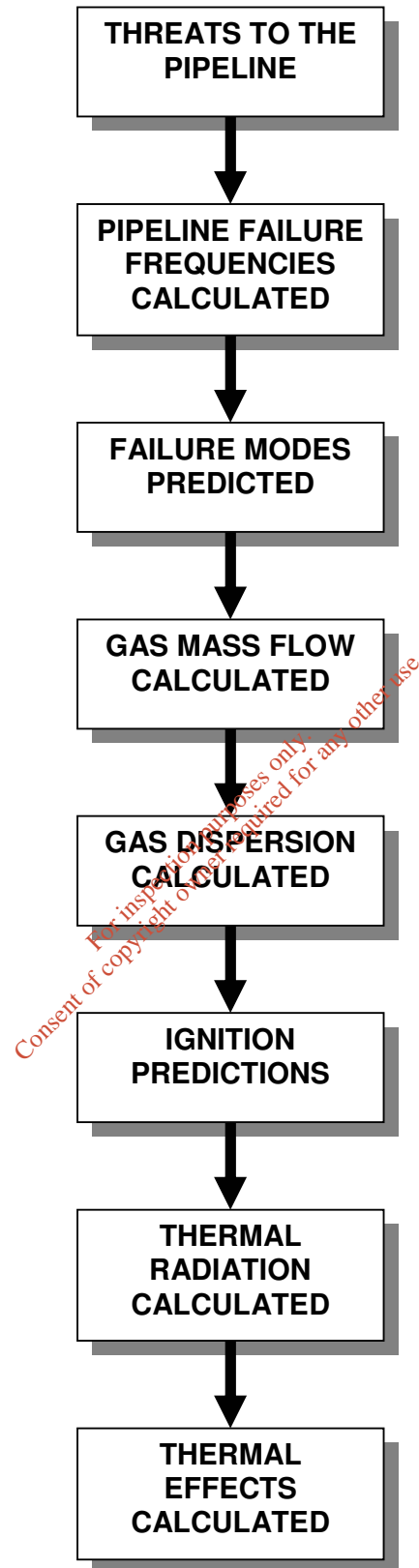


FIGURE 26 SHOWS THE SEQUENCE OF MODELLING FROM THE PIPELINE THREATS TO THE THERMAL EFFECTS ON THE POPULATION

## 11.2 Pipeline Threats Translated into Pipeline Failure Rates Using Composite Database

Throughout the 2009 hearing SEPIL were asked to submit a population of pipeline failures that matched the Corrib pipeline operating conditions. In the *2010 EIS Appendix 4.9A*, SEPIL have published a list of 157 pipelines transporting wet gas in the Netherlands. The majority of these pipelines have CO<sub>2</sub> in their composition and have been in service between 2 and 57 years. SEPIL also stated in the Hearing and in the *EIS Appendix 6.4 Section 6.6*, that Shell have unprocessed gas experience for 40384 km years. It would normally be expected that these pipeline populations would have formed the foundation of their safety case. Instead SEPIL has assembled a range of databases from different pipeline populations to form a composite population to cover all the issues of the Corrib pipeline.

To justify this approach Dr Crossthwaite stated in his BoE submission *That the total Shell experience with wet gas pipelines in Europe is over 40,000 km years without a loss of containment incident. As a result it would only be possible to use these data to derive a failure frequency by making a number of assumptions and a statistical calculation. Such a calculation was not considered appropriate to give a robust estimation of a failure frequency for use in this analysis, so it was necessary to use a more extensive but less specific database.*

This section of the report examines how the threats accepted by SEPIL (as described in Section 9) are translated into rates and types of failure, which then result in potential damage and fatalities by the exposure to thermal radiation.

The Quantitative Risk Assessment (QRA) methodology is extensively presented in the *EIS Appendix 6.4 DNV Managing Risk*, which also contains PIE document *Attachment A on frequency prediction on 3<sup>rd</sup> party interference*. Dr Crossthwaite present the BoE<sup>39</sup> on the QRA

An Bord Pleanala requested SEPIL to submit a new QRA that is 'Site Specific' also:-

- The QRA should cover different operating conditions at different locations along the pipeline route and incorporate a database that matches the conditions of the proposed development.
- A sensitivity analysis of the QRA is required which demonstrates the range of the failure frequencies for various potential failure modes of the pipeline especially when there is lack of published data.
- The database should be relevant for an upstream wet gas system
- QRA will include all failure modes including
  - Ground Movement
  - Intentional 3<sup>rd</sup> Party Damage at Glengad
  - Wet gas in the pipeline
  - CO<sub>2</sub> in the pipeline.
  - Potential for Methane Hydrate in the pipeline

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<sup>39</sup> Dr P Crossthwaite Written BoE Quantified Risk Assessment Hearing Doc Ref No 16

The threats accepted by SEPIL ( see section 9) and requested by ABP are summarized below in Table 8.

<b>TABLE 8 SUMMARY PIPELINE THREATS RELATED TO VARIOUS DATA BASES OF PIPELINE FAILURE RATES</b>		
<b>THREAT</b>	<b>DATABASE</b>	<b>COMMENT</b>
<b>Threats Found In Conventional Transmission Dry Gas Databases</b>		
Accidental External 3 <sup>rd</sup> Party Damage Buried Section	PIE Computer Model	Accepted by SEPIL
External Corrosion	EGIG 7	Accepted by SEPIL
Material & Construction	EGIG 7	Accepted by SEPIL
Other & Unknown	EGIG 7	Accepted by SEPIL
<b>Threats Requested By ABP</b>		
Internal Corrosion	CONCAWE Crude Oil	Accepted by SEPIL
Intentional 3 <sup>rd</sup> Party Damage	DeStefani	Accepted by SEPIL as a Sensitivity Study
Ground Movement at Glengad / Aghoos	PD 8010-3 & Specialist Reports	Accepted by SEPIL as a Sensitivity Study
Methane Hydrate	-	SEPIL rated as Negligible or Unlikely to occur
<b>Threats Not Found in Any Database</b>		
Accidental External Damage Tunnel Section	No Database Submitted	SEPIL rated as Negligible or Unlikely to occur

The threats in Table 8 can be divided into three groups and discussed below:-

- Threats found in conventional dry gas databases
- Threats requested by ABP
- Threats not found in any database

### 11.2.1 Threats Found in Conventional Dry Gas Databases

SEPIL used the European Gas Pipeline Incident Data Group (EGIG) 7<sup>th</sup> Report's database to obtain base failure frequencies for Materials & Construction, External Corrosion and Other/Unknown (Lightening Strikes) threats This covers incidents from 1970 – 2007. The previous EIS 2009 used an earlier 6<sup>th</sup> version of the EGIG database covering incidents up to 2004.

The data in the EGIG database covers a total exposure of 3,250,000 km years but is now predominantly used for the transport of dry gas. From the database the failure frequencies of the following threats were obtained;-

## External Corrosion

This is discussed in *EIS Appendix Q6.4 section 6.4.2.1*

The EGIG gives a generic base failure frequency of 1E-05 per km/year for natural gas pipelines with a polypropylene coating. However SEPIL applied a modifying factor of 3E-03 to account for having a wall thickness greater than 15.00mm. This gave a modified failure frequency of 3E-08 per km/year

The modification factors used by SEPIL have been obtained from de Stefani<sup>40</sup> who has developed an empirical model to estimate numerical modifiers to generic failure frequencies.

Again this highlights the lack of a database specifically selected for the Corrib pipeline and the use of empirical models to obtain a valid failure rate for the threat. Care should be exercised when applying this modification factor since the pipeline has only a 1mm corrosion allowance to cover the wall losses from erosion, internal and external corrosion. In the 150barg MAOP section the wall thickness is required to cater for the 345 barg design pressure.

## Materials & Construction

This is discussed in *EIS Appendix Q6.4 section 6.4.4.1*

The EGIG gives a generic base failure frequency of 6.36E-06 per km/year

The database shows that with improved quality assurance procedures and more frequent inspection no failure has occurred in this class of pipe since 2004. However in order to obtain a failure frequency SEPIL have used pre 2004 data

## Other/Unknown (Lightening Strikes)

This is discussed in *EIS Appendix Q6.4 section 6.4.8.1*

The EGIG gives a generic base failure frequency of 6.4E-06 per km/year

The only known cause specified in the database is lightning

## Accidental 3<sup>rd</sup> Party Damage

This is discussed in *EIS Appendix Q6.4 section 6.4.6.1*

In the EGIG database there are no record failures for pipes that have wall thicknesses of 15mm or more. Therefore SEPIL used PIE 's pipeline dent and gouge model in order to obtain a frequency of failure value for the Corrib line

This is given in *EIS Appendix Q6 Attachment A<sup>41</sup>*.

The declared failure frequencies from the PIE model are 2.24E-09 per km/year and 4.46E-09 per km/year for MAOP's of 100 barg and 150barg respectively

In this case the use of a model prediction is better than inserting negligible into the database.

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<sup>40</sup> De Stefani V Wattis Z and Acton M A Model to Evaluate Pipeline Failure Frequencies based upon design and Operating Conditions AI Chem spring meeting 2009

<sup>41</sup> Haswell J, Lyons C – PIE Report Failure Frequency Predictions due to 3<sup>rd</sup> Party Interference for Corrib Pipeline ref PIE/07/R0176



### 11.2.1.1 Threats Requested by ABP

#### Internal Corrosion

This is discussed in *EIS Appendix Q6.4 section 6.4.3.1*

SEPIL could not find a database for onshore pipes transporting wet gas with a percentage of CO<sub>2</sub>. Therefore SEPIL selected the CONCAWE<sup>42</sup> database. This is an European database for onshore oil pipelines. The data has been collected since 1971 and the experience comprises of 850,000 km/year.

The CONCAWE database gives a generic base failure frequency of 5.85E-05 per km/year. However SEPIL applied a modifying factor of 3E-03 to account for having a wall thickness greater than 15.00mm and an addition modification factor 0.175 for the use of online inspection. This gave a modified failure frequency of 3.1E-08 per km/year.

There is no logic for application of a inline inspection modification factor to the internal corrosion and then omit it for external corrosion.

#### Intentional 3<sup>rd</sup> Party Damage

This is discussed in *EIS Appendix Q6.4 section 6.4.7.1*

This has not been used in the base case but used in a sensitivity study.

SEPIL selected a value from De Stefani, which was the lowest from three categories associated with gas pipelines. This gives a failure frequency of 9.3E-06 per km/year. This figure relates to the 'Hole' category and since no figures were available for the LVI, so SEPIL applied a factor of 10 for holes in the LVI.

#### Ground Movement

This is discussed in *EIS Appendix Q6.4 section 6.4.5.1*

This has not been used in the base case but used in a sensitivity study.

SEPIL are convinced that the pipeline is not at risk from land slides or settlement in the stone road. Therefore in their base case they applied zero frequency to failure from ground movement. However because the threat was requested by ABP to be included they have used a failure frequency of 9E-08 per km/year obtained from the specification PD 8010- part 3. This value is at the upper end of the lowest land slip category.

#### Methane Hydrate

This threat was dismissed by SEPIL and negligible and unlikely

### 11.2.2 Threats Not Found in Any Database

#### Pipeline in the Tunnel - Accidental 3<sup>rd</sup> Party Damage

SEPIL stated that the potential 3<sup>rd</sup> party damage to the pipe in the tunnel is negligible or unlikely since it is difficult for a ships anchor to damage the pipe in the tunnel.

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42 CONCAWE (Conservation of Clean Air and Water in Europe) Report 7/08. Performance of European cross-country oil pipelines. August 2008.

### 11.3 Prediction of Damage Type and Frequency

The databases and the PIE model relate the failure events to various holes sizes. In this study SEPIL has also included the possibility of ruptures occurring.. A large hole can propagate into a rupture therefore it was necessary to calculate the critical hole diameter for a rupture to occur (equivalent to the critical defect length). At 100 barg the critical hole size is 80mm. Irrespective of the cause any hole greater than 80mm will propagate into a rupture. At 144 barg ( less than 150 barg but the nearest case that PIE analysed) the equivalent hole size is reduced to 38.5mm. It should be noted that this critical hole size is dramatically reduced to 6.7mm (1/4in ) at 345barg.

To calculate the frequency of a hole or rupture occurring, the threat failure frequency has been multiplied by the probability of getting a hole or rupture. These probabilities are given in Appendix 5

A summary of failure frequencies and the related hole size and rupture frequencies is given in Table 9. The SEPIL complete Table of data for the onshore pipeline is given in Appendix 5

Leaks ignited from pinholes would only affect the area very near the pipeline and therefore have been neglected by SEPIL.

### 11.4 Frequencies of Rupture and Holes

From *EIS Appendix 6.4 Table 9* SEPIL the individual frequencies for pinholes /holes and ruptures are given.

For 100barg MAOP buried section the frequencies are (Pinhole) 1.14E-05 per km/year / (Hole) 1.41E-06 per km/year (Rupture) 2.20E-09 per km/year

**This gives an overall failure frequency of 1.28E-05 for 100 barg MAOP buried section.** This is also the value for the tunnel section.

*Appendix 6.4 Table 9* does not give the higher Rupture result for the 150barg MAOP buried section, which is 2.84E-09 per km/year (Internal Corrosion - 2.15E-09 +External Damage - 6.92E-10). However, the inclusion of this figure instead of the 100barg MAOP rupture frequency dose not significantly change the value of the overall failure frequency.

### 11.5 Discussion on Pipeline Failure Rates

From Table 9 it can be seen that internal corrosion failures produced the largest threat for potential ruptures of the pipeline with failure rate of 2.15E-09. This is two orders of magnitude above the threat from external damage at 100barg MAOP and vindicates ABP request for a site specific QRA.

The internal corrosion would have had a greater impact on the overall frequency of failure if SEPIL had not factored down the base frequency from 5.85E-05 to 3.1E-08.

The wall thickness factoring certainly makes sense because of the difference between the design pressure of 345barg and the maximum MAOP 150 barg. This would allow additional pipe wall to be used for corrosion allowance in later life when the well pressures drops.

TABLE 9 SUMMARY PIPELINE THREATS RELATED TO VARIOUS DATA BASES OF PIPELINE FAILURE RATES								
THREAT	MAOP BARG	DATABASE	BASE FAILURE RATE /KM/YR	FACTOR AND SOURCE	FACTORED FAILURE RATE /KM/YR	PIN HOLE FREQUENCY /KM/YR	HOLE FREQUENCY /KM/YR	RUPTURE FREQUENCY /KM/YR
<b>BASE CASE</b>								
Accidental External Damage Buried Section	100	PIE Model	2.24E-09	none	2.24E-09	0	2.19E-09	5.35E-11
Accidental External Damage Buried Section	150	PIE Model	4.46E-09	none	4.46E-09	0	3.77E-09	6.92E-10
Accidental External Damage Tunnel Section	100	No Database Submitted	No Data	none	0	0	0	0
External Corrosion	All	EGIG 7	1E-05	0.003 DeStefani	3E-08	3E-08	0	0
Internal Corrosion	All	CONCAWE Crude Oil	5.85E-05	0.003 plus 0.175 DeStefani	3.1E-08	1.81E-08	1.04E-08	2.15E-09
Material & Construction	All	EGIG 7	6.36E-06	none	6.36E-06	5.28E-06	1.08E-06	0
Other & Unknown	All	EGIG 7	6.4E-06	none	6.4E-06	6.03E-06	3.17E-07	0
<b>Total for Buried Pipeline</b>						<b>1.14E-05</b>	<b>1.41E-06</b>	<b>2.20E-09</b>
<b>Total Pipeline in Tunnel</b>						<b>1.14E-05</b>	<b>1.41E-06</b>	<b>2.15E-09</b>
<b>SENSITIVITY CASE STUDIES</b>								
3 <sup>rd</sup> party Intentional Damage	All	DeStefani	9.3E-06	none				
Ground Movement at Glengad / Aghoos	All	PD 8010-3 & Specialist Reports	9E-08	none				

## 11.6 Pipeline Failure Rates at Glengad LVI

This is discussed in *EIS Appendix Q6.4 section 6.7*

The pipeline threats at the LVI were listed as

- Failure of Valves and equipment
- External Corrosion
- Internal Corrosion
- Manufacturing defects
- 3<sup>rd</sup> Party Intentional damage
- Other causes

### 11.6.1 Failures from Valves and Equipment

SEPIL could not produce a database for failures at above ground installations such as the LVI. Therefore they used the HCRD<sup>43</sup> offshore database for hydrocarbon releases.

The equipment specified was as follows:-

- Large valves (greater than 275mm diameter)
- Small valves (greater than 75mm diameter)
- Large Flanges (greater than 275mm diameter)
- Instruments

SEPIL screened the data to eliminate entries where:-

- The hole was less than 1mm
- The release was from equipments at a pressure of less than 1 bar
- The hole size was unspecified (but hole size was estimated if information given)

The failure rates were then group by hole size The data was given numerically up to 100mm and then greater than 100mm. The data below 100mm was divided in to subgroups and this is presented with the generic failure frequencies in Table 10

TABLE 10 FAILURE FREQUENCIES OF EQUIPMENT AT THE LVI SELECTED BY HOLE SIZE GROUPINGS						
Equipment	Total Failure Frequency per year	2mm (1-2.8mm) Frequency per year	12mm (2.8-16.7mm) Frequency per year	25mm (16.7-31mm) Frequency per year	75mm (31 - 100mm) Frequency per year)	Frequency >100mm per year
Large Valve	5.42E-04	4.09E-04	7.44E-05	3.72E-05	1.24E-05	8.69E-06 (1)
Small Valve	1.34E-04	6.36E-05	5.25E-05	8.75E-06	9.54E-06	
Large flange	1.41E-04	8.56E-05	4.28E-05	3.33E-06 (1)	9.51E-06	0.00E+00
Instrument	5.55E-04	2.83E-04	2.51E-04	1.52E-05	5.84E-06	

From *EIS Appendix Q6.4 Table 10*

<sup>43</sup> HCRD database Data in Offshore Hydrocarbon Releases Statistics 1993-2008

## 11.6.2 Remaining Threats and Failure Rates

### External Corrosion

This LVI frequency is taken as the same as the buried pipe modified value of 3E-08 per km/year

### Internal Corrosion

This LVI frequency is taken as the same as the buried pipe modified value of 3.1E-08 per km/year

### Manufacturing Defects

This LVI frequency is taken as the same as the buried pipe value of 6.36E-06 per km/year

### 3<sup>rd</sup> party Intentional Damage

This LVI frequency is taken as the same as the buried pipe value of 9.3E-06 per km/year. SEPIL allowed a factor of 10 increase for the potential holes at the LVI

### Others / No Known

This LVI frequency is taken as the same as the buried pipe value of 6.4E-06

### Threats Rated as Negligible or Unlikely

The list of threats at the LVI that SEPIL regarded as negligible or unlikely

- Erosion – This has been classified as negligible even though the LVI is the most likely site of erosion. This is based upon the predicted low quantities of solids in the gas stream
- Mechanical failure due to improper maintenance
- Operational errors
- Incorrect Assembly

## 11.6.3 Derivation of Failure Frequency for the LVI

SEPIL concentrated its analysis on the valve failures, which have rates of around XE-04 per km/year. While the remaining threats listed above have failure rates of XE-06 to XE-08 per km/year. These are several orders of magnitude below the equipment failures given in Table 10, and therefore have not appeared in the *EIS Appendix 6.4 Table 11 Base Failure Frequencies for the LVI* -

SEPIL separated the valve data into different valve types and removed some failures because of non credible failure modes such as holes above 100mm. Also the failure frequency of a large flange gives a hole in the range 16-31mm, which was thought to be improbable. Therefore a statistical value was used instead

The Overall failure frequency for a loss of containment of gas at the LVI was calculated by multiplying the 'Hole' frequencies in *SEPIL Table 11 Appendix 6* by the number of equipment items in high-pressure gas service.

**SEPIL has calculated an LVI overall failure frequency of gas through a 16mm hole as 4.9E-04 per km/year**

## 12 RISK TO THE LOCAL POPULATION

The highest risk to the local population is a pipeline rupture and the subsequent fireball and jet fire that produce damaging levels of thermal radiation.

The thermal radiation can either be expressed in terms of Heat Flux or Thermal Dose Units (tdu), Heat Flux is the intensity of the radiation in  $\text{kWm}^{-2}$ . This can be viewed as a contour of radiation. However as a person moves away from the heat, they will move through a series of heat contours until they are safe. During this time they will be accumulating damage. Therefore to measure this cumulative damage a term called Thermal Dose Units (TDU) is used. 1 TDU is expressed as

$$1 \text{ TDU} = (W)^{4/3} \times \text{time}$$

$W = \text{Flux} = \text{Intensity of thermal radiation } (\text{kWm}^{-2})$

Time = seconds

The critical level of thermal radiation accumulated by a person is called a 'Dangerous Dose'

The UK HSE define a dangerous dose of thermal radiation as a dose that:-

- Would cause severe distress to almost everyone
- Would require a substantial proportion to require medical treatment.
- Would cause serious injury, which could require prolonged treatment in some people.
- Could be potentially fatal to highly susceptible people

The various levels of tdu accumulated will cause various percentages fatality in an average group see Table 11 below

Table 11 Dangerous Dose Vs Percentage Fatality	
Thermal Dose (tdu)	Effect
3500	Assume 100% fatality (due to the spontaneous ignition of clothing)
1800	Assume 50% fatality For Societal Risk, the IGEM/TD/2 and PD8010-3 models are based upon the 1800TDU dangerous dose.
1000	Dangerous dose – Assume 1% fatality (typical population) HSE assumes 1000TDU dangerous dose for individual risk
500	Dangerous dose for a vulnerable or sensitive population.



### **13 RISK TO THE POPULATION – FAILURE FREQUENCY APPROACH**

Normally the risk to the local population is evaluated on a mathematical prediction of the chance of an incident occurring.

Historically the risk to the community has been expressed as permitted building proximity distances (BPD) This is the safe distance from the pipeline to dwellings and public buildings as specified in I.S. 328. The I.S. 328 BPD is a complex parameter taking into account consequences and frequency of failure. The critical frequency of failure is derived from dry processed gas databases where 3<sup>rd</sup> party accidental damage is the dominant risk. Therefore a pipeline transporting dry processed gas with a design factor of 0.3 and a wall thickness greater than 11.91mm has a BPD of 3m because it is unlikely to fail.

However for a wet unprocessed gas pipeline these historical databases have to be used with extreme care since they are useful for external factors such as accidental 3<sup>rd</sup> party damage but give no insight into factors such as construction in a 4.9km tunnel, internal corrosion with CO<sub>2</sub> and intentional 3<sup>rd</sup> party damage, which are site specific to the Corrib pipeline.

Therefore the use of BPD from a generic chart can be replaced by a more sophisticated statistical review of the threats, which is the QRA approach. This technique is used where the statistical approach can be shown to be valid. That is, based upon a large population of pipelines operating under similar conditions and transporting dry processed natural gas.

Using databases to develop a failure frequency is SEPIL's preferred method of assessing risk to the local population. In the EIS, SEPIL has taken a standard onshore dry gas database and supplemented it with failure data from onshore oil pipelines and computer models with modification factors to allow for the additional threats related to the Corrib pipeline see Section 10 for details.

ABP requested SEPIL demonstrate the risk to the local population using the UK HSE bands of risk threshold. The are described below and shown in Figure 27

- Above  $1 \times 10^{-5}$  per year an individual risk of dangerous dose or worse to the average householder - Inner Zone Intolerable  
The Original UK HSE threshold for intolerable is  $1 \times 10^{-4}$  but for the gas industry PD 8010 part 3 modifies this threshold to  $1 \times 10^{-5}$ .
- Between  $1 \times 10^{-5}$  and  $1 \times 10^{-6}$  per year an individual risk of dangerous dose or worse to the average householder - Middle Zone tolerable if ALARP (As Low As Reasonably Practicable)

ALARP is defined as the point where (when objectively assessed), the time, cost and difficulty of introducing further risk reduction measures become grossly disproportionate to the additional risk reduction achieved

- Below  $1 \times 10^{-6}$  per year of dangerous dose or worse to the average householder - Outer Zone Broadly acceptable
- Below  $0.3 \times 10^{-6}$  there are no restrictions

For Societal Risk, the IGEM/TD/2 and PD8010-3 models are based upon the 1800TDU dangerous dose.

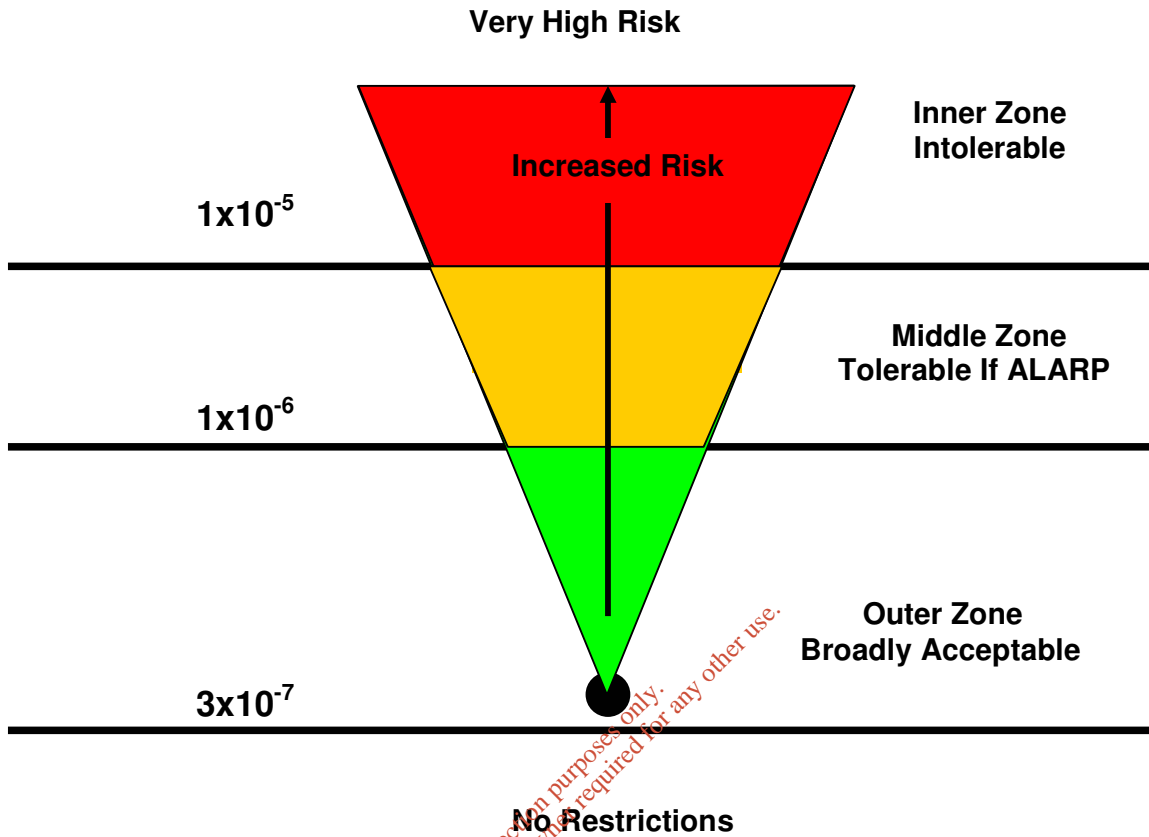


FIGURE 27 SHOWS THE THRESHOLDS BETWEEN RISK LEVELS

There are four thresholds used in the UK to review planning applications close to natural gas pipelines.

- 1 Building in the inner zone is not permitted.
- 2 Building in the middle zone is tolerated provided the applicant can demonstrate ALARP. That is he has reduced the risks to As Low As Reasonably Practicable.
- 3 Building in the outer zone is broadly acceptable
- 4 No Building restrictions below  $0.3 \times 10^{-6}$  per year.

### 13.1 Individual Risk Transects Results for Pipeline and LVI

The individual risk transects for a dangerous dose defined as 1000 tdu with 1% fatality are given below in Figure 28 for both the buried pipeline and the LVI. This is based upon one person spending 10% of his time outdoors and the remainder indoors

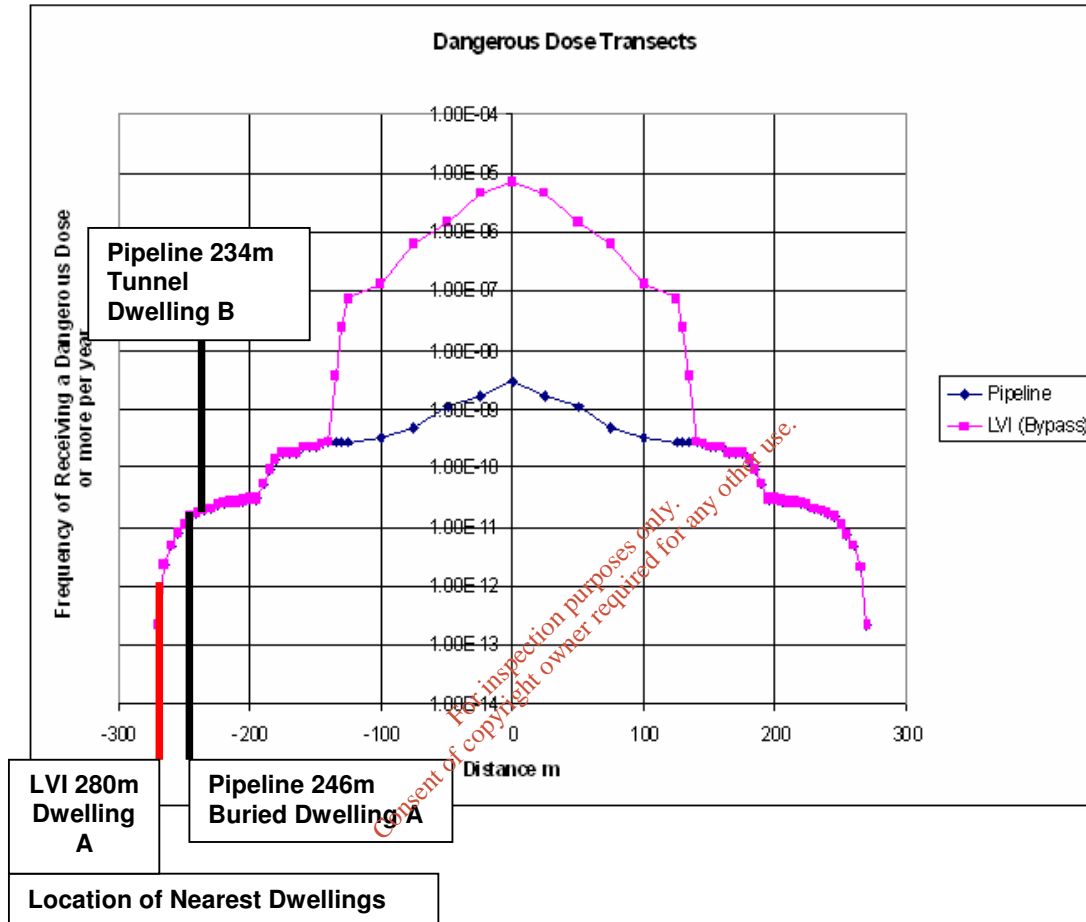


FIGURE 28 BASE CASE INDIVIDUAL RISK TRANSECTS FOR LVI AND PIPELINE

From *EIS Appendix Q6.4 Table 18* SEPIL predict that the individual risk of receiving a dangerous dose (1000 tdu's ) This is shown below in Table 12

Table 12 Risk of a Dangerous Dose of Thermal Radiation (1000tdu's) Measured by Distance from the Pipeline to Nearest Dwellings		
Location	Distance from pipeline (m)	Risk of Receiving a Dangerous Dose or more (per year)
At the pipeline	0	2.92E-09
Dwelling B opposite Tunnelled section	234	2.1E-11
Dwelling A opposite Buried section Nr the LVI	246	1.5E-11

The results in Table 12 and Figure 28 show that the risk of a dangerous dose of heat radiation was  $1.5E-11$  and  $2.1E-11$  for the occupants at dwelling A 246m away from the buried section and Dwelling B 234m away from the tunnel section of the pipeline respectively, see figure 33. These risk values are five orders of magnitude below the UK HSE 'Broadly Acceptable' level of  $1.0E-06$ .

The risk of a dangerous dose at the pipeline is  $2.92E-09$ . This risk value is two orders of magnitude below the UK HSE 'upper broadly acceptable level of  $3.0E-07$ .

### Risk at the LVI

The risk from the LVI is shown below in Table 13

Table 13 Risk of a Dangerous Dose of Thermal Radiation (1000tdu's) Measured by Distance from the LVI		
Location	Distance from LVI (m)	Risk of Receiving a Dangerous Dose or more (per year)
At the LVI	0	$6.91E-06$
UK HSE Broadly Acceptable	63	$1E-06$
UK HSE Upper level Broadly Acceptable	91	$3E-07$
1E-07 contour No Restrictions	111	$1E-07$
Closest Dwelling to the LVI	280	$1E-12$

The risks at the LVI are higher than the pipeline. The risk of a dangerous dose at the site of the LVI is  $6.91E-06$ /year. This is in the ALARP zone. The UK HSE No Restriction contour is 111m away from the LVI. With the nearest house 280m away from the LVI the risk drops to around  $1E-12$ /year. The base case at the LVI shows that the nearest dwelling has risk value of six orders of magnitude below the UK HSE 'Broadly Acceptable' level of  $1.0E-06$ /year. The Risk contours are shown in Figure 29

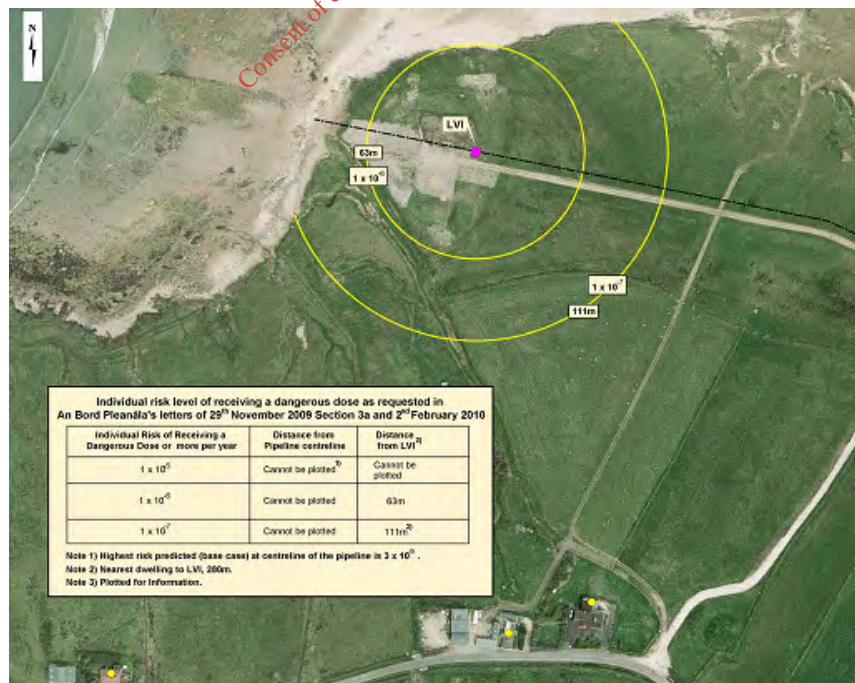


FIGURE 29 SHOWS RISK CONTOURS AROUND THE LVI

### 13.2 Sensitivity Analysis of the Risk of a Dangerous Dose

ABP requested SEPIL to perform a number of sensitivity studies on the pipeline and LVI base frequencies

#### Pipeline

For the pipeline the sensitivity studies were:-

- Moving away at 1m/s instead of 2.5m/s to reflect the speed of the elderly or children
- The threat from a land slip
- 3<sup>rd</sup> party intentional damage to the pipeline.
- Time spend outdoors increased from 10% to 36% (60 hours per week)

Figure 30 shows the individual transects for a dangerous dose of heat radiation

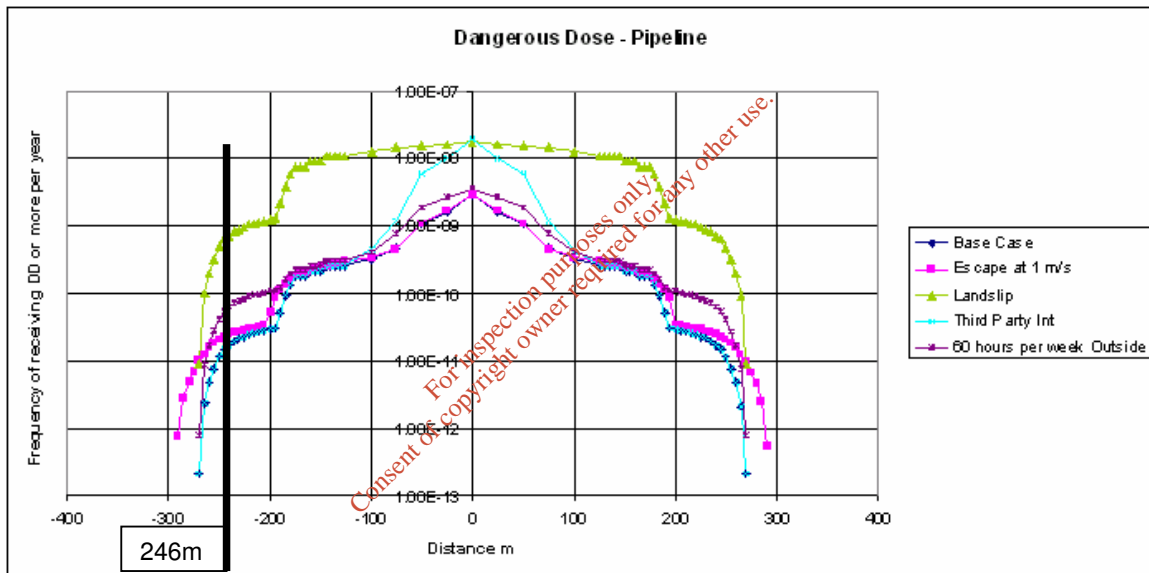


FIGURE 30 SHOWS INDIVIDUAL TRANSECTS FOR SENSITIVITY OPTIONS AT THE PIPELINE

Table 14 below gives the risk values at the buried pipeline and the nearest dwelling 246m away.

Description	Risk of receiving a dangerous dose or more at the pipeline (per year)	Risk of receiving a dangerous dose or more at 246m from the pipeline (per year)
Base Case	2.92E-09	1.5E-11
Moving away at 1 m/s	2.93E-09	2.29E-11
Landslip	1.73E-08	6.38E-10
Third Party Intentional	1.98E-08	1.52E-11
Increase Time outdoors	-	1.0E-10

From EIS Appendix Q6.4 table 19

From Table 14 it can be seen at the buried pipeline that threats from a landslip and 3<sup>rd</sup> Party Intentional Damage have the biggest impact upon the risk of getting a dangerous dose of heat radiation. The risk is increased from the base figure of 2.92E-09/year to 1.73E-08/year and 1.98E-08/year respectively. This is still well below the UK HSE threshold of 1E-06/year for broadly acceptable.

Also at the exact location of the pipeline moving at a slower speed is invalid and is the same as the base figure since no distance has been travelled.

At the nearest dwelling, which is 246m away from the buried pipeline, only the landslip option has a significant impact upon the risk. The increase of risk from the base figure to the landslip value was 1.5E-11/year to 6.38E-10/year respectively. Again this is still well below the UK HSE threshold of 1E-06/year for broadly acceptable.

Moving away from the heat source at 1m/s increased the risk from the base figure of 1.5E-11/year to 2.29E11/year.

Increasing the time spent outdoors from 10% to 36% ( 60 hours per week) increased the risk from 1.51E-11/year to 1.0E-10/year

Third Party Intentional damage has little impact on risk at 246m distance.

Overall all risks associated with the pipeline are below the UK HSE threshold of 1E-06/year for broadly acceptable.

### The LVI

For the LVI the sensitivity studies were:-

- Generic Valve failure at the LVI, which would allow both the upstream and downstream gas inventories to supply the jet fire. It was necessary to evaluate this threat to quantify the affect of 3<sup>rd</sup> Party Intentional damage at the LVI
- 3<sup>rd</sup> party intentional damage to the LVI.

Table 15 below gives the risk values at the LVI and the UK HSE 3E-07/year Upper Limit Broadly Acceptable Boundary .

Table 15 LVI Risk Values for Sensitivity Analysis – Dangerous Dose		
Description	Risk of receiving a dangerous dose or more at the LVI (per year)	Distance From the LVI m
Base Case	6.91E-06	0
LVI Generic	2.52E-05	0
Third Party Intentional	6.91E-05	0
Distance to a risk of receiving a dangerous dose of 3E-07 per year		
Base Case	3E-07	91
LVI Generic	3E-07	132
Third Party Intentional	3E-07	129

From EIS Appendix Q6.4 table 19

Figure 31 shows the individual transects for a dangerous dose of heat radiation at the LVI

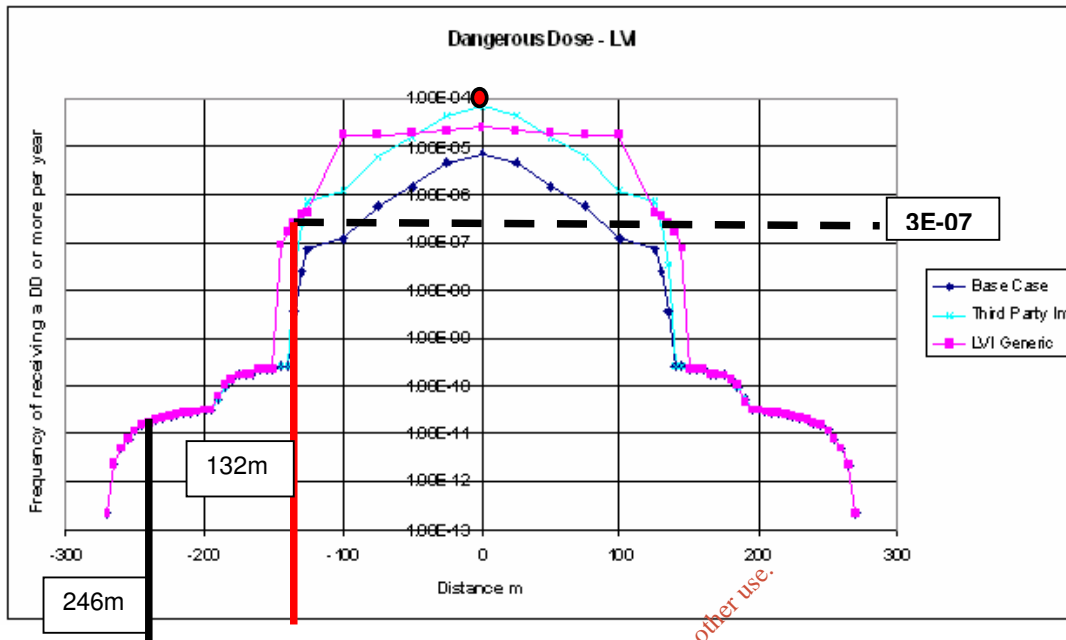


FIGURE 31 SHOWS INDIVIDUAL TRANSECTS FOR SENSITIVITY OPTIONS AT THE LVI

From Table 15 and Figure 31 it can be seen that the affect of a valve failure releasing gas at the LVI increases the risk at the LVI from the base value of 6.91-E06 to 2.52E-05, which is in the UK HSE inner zone. When the threat of 3<sup>rd</sup> Party Interference is added to the base case then the risk increases from 6.91-E06 to 6.91E-05. Both of these risks are classified as Intolerable. However this intolerable risk level is located specifically at the LVI which is isolated from the public by a security fence.

The Risk distances to the Upper limit of 'broadly acceptable' 3E-07/year are 91m for the base case and increase to 129m and 132m for the 3rd Party intentional damage and Generic LVI respectively. No dwellings are within these contours.

This clearly demonstrates that when specific risks are included in the QRA a more realistic understanding of the overall risk of the development is obtained

### 13.3 Discussion on Failure of Frequency Approach

#### Pipeline Quantitative Risk Assessment

SEPIL were asked to provide contours of individual risk at specific levels of  $1 \times 10^{-5}$ ,  $1 \times 10^{-6}$  and  $0.3 \times 10^{-6}$  /year inline with UK HSE risk thresholds. The individual risk transects for a dangerous dose defined as 1000 tdu with 1% fatality. This is based upon one person spending 10% of his time outdoors and the remainder indoors. Two dwelling groups 'A' and 'B' were identified by SEPIL as being the nearest to the LVI and the pipeline respectively. These were used by SEPIL to calculate the risk of a dangerous dose of heat radiation in the event of a pipeline rupture



The results were  $1.5E-11$  /year for dwellings 'A', 246m away from the buried section and  $2.1E-11$  /year for dwellings 'B', 234m away from the tunnel section of the pipeline. Standing next to the pipeline the risk of a dangerous dose increases to  $2.92E-9$  /year

SEPIL performed a sensitivity analysis on the risk of receiving a dangerous dose. Moving away from the heat at a slower speed of 1m/s, and third party intentional damage were similar in magnitude to the base cases of dwellings 'A' and 'B'. However when the risk of a landslip or increased time spent outdoors to 60 hours / week was included in the database, the risk of receiving a dangerous dose increased to  $6.38E-10$ /year and  $1.0E-10$ / year respectively.

At both dwelling locations the resultant risks were many orders of magnitude below the UK HSE threshold 'Broadly Acceptable' level of  $1.0E-06$ /year and therefore pose little threat to the public. It is the view of this report that the margin of safety between the calculated levels of risk and the UK HSE level for 'broadly acceptable' is necessary to cater for any potential uncertainties that may have occurred by adopting a composite database

### **LVI Quantitative Risk Assessment**

At the LVI the base case risk is  $6.91E-06$ /year, which is classified as ALARP by UK HSE risk levels.. When the threat of 3<sup>rd</sup> Party Interference is added then the risk increases to  $6.91E-05$ /year, which is classified as Intolerable. However this level of risk is only related to the LVI, which is isolated from the public by a security fence. This clearly demonstrates that when specific risks are included in the QRA a more realistic understanding of the overall risk of the development is obtained.

The closest dwelling to the LVI is 280m away and has an associated risk of a dangerous dose of  $1.0E-12$ /year. This is extremely low when compared to the UK HSE 'Broadly Acceptable' risk of  $0.3E-06$ /year

SEPIL also used the UK HSE risk levels to evaluate the contours of risk expressed as distance from the LVI. The Risk distances to the upper limit of 'broadly acceptable'  $3E-07$ /year are 91m for the base case and increase to 129m for the 3rd Party intentional damage. No dwellings are within these contours with the nearest dwelling being 280m away from the LVI.

## 14 SOCIETAL RISK

ABP requested SEPIL to perform a Societal Risk Assessment at the Glengad LVI. This is given in *EIS Appendix 6.4 Section 8.5*

In order to calculate the Societal Risk SEPIL made the following assumptions:-

- Four persons occupy a dwelling – recommendation in I.S.328
- For Glengad LVI Societal Risk it is assumed that per week
  - One person is outdoors for 50 hours
  - Two people are outdoors together for 25 hours
  - Three people are outdoors together for 10 hours
  - Four people are outdoors together for 5 hours

The Societal risk curve for the pipeline and Glengad LVI is shown below in Figure 32 together with the criterion line from PD 8010 – Part 3

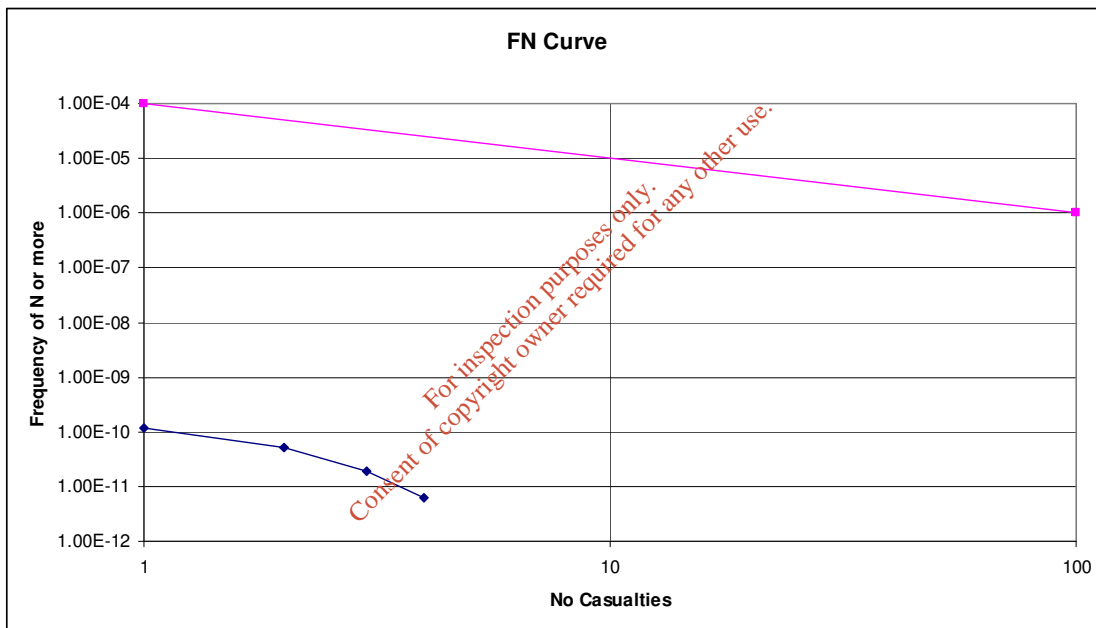


FIGURE 32 SHOWS THE SOCIETAL RISK AT GLENGAD

SEPIL predicted the maximum number of fatalities is associated with the maximum number of people in a house, which is four and the time spent outdoors since non of the dwellings are within the pilot ignition building distance of 205m i.e. all the dwelling are able to provide shelter.

The resultant Societal Risk Curve is one million times lower than the PD8010 – Part 3 acceptable threshold. Again there is a wide margin of safety between the Corrib results and the minimum acceptable values in the standard.

## **15 RISK TO THE POPULATION - CONSEQUENCE APPROACH**

The Inspector's Team was not convinced that using a dry gas database supplemented with failure data from onshore oil pipelines and computer models with modification factors were accurate enough to be totally relied upon and therefore the consequences of pipeline failure were considered in the safety review of the pipeline.

The major influences on the consequences of a pipeline failure are

- Type of pipeline failure
- Pressure in the pipeline
- The predicted release rates from the failure
- The heat radiation contours from the failed pipe
- The accumulation of heat radiation as a person escapes to find shelter expressed as thermal dose units (tdu's)
- The levels of radiated heat that would cause harm to the population – dangerous dose

The section describes the risk to the local population living near to the pipeline and the LVI. It does not take into account the frequency of failure, which is stated by SEPIL to be extremely low but examines the consequences and assumes an incident has occurred. The incident can either be a rupture of the pipeline or a jet fire from a hole in the pipeline.

For the purposes of calculating the individual risk within the QRA, SEPIL has assumed that people reside at their dwelling 365 days per year and 4 persons occupy each dwelling. It is also assumed that a typical resident spends 10% of his time outdoors and 90% indoors. A sensitivity analysis has been performed on the time spend outdoors and this is increased to 36% (60 hours per week) with the balance indoors.

### **15.1 Determination of Worst Case Scenario**

This is discussed in *EIS Appendix Q6.5(i) Sections 4 & 5*

SEPIL examined two 'worst cases'

- Case 1 Full bore rupture in the pre LVI onshore pipe operating at 150 barg
- Case 2 Full bore rupture anywhere downstream from the LVI operating at 100barg

Both of these case studies are discussed below

#### **Release Case 1**

This assumes a full bore rupture in the pre LVI onshore pipe operating at 150 barg. The LVI must be closed for the upstream pressure to reach 150 bar. A rupture in the pre LVI section of the onshore pipeline would release gas from the 83km of the offshore pipeline and around 50m of pipework to the closed LVI. However for modelling purposes SEPIL only considered the gas released from the upstream open end.

#### **Release Case 2**

This assumes a full bore rupture anywhere downstream from the LVI operating at 100barg. In this scenario a rupture in the pipeline at 100 barg would mean that the LVI would still be open at the time of the release. If the signal cables in the umbilical were

destroyed then cessation of the signal from the terminal would close the HIPPS valves at the LVI after 12 seconds. This would not influence the fireball but would limit the duration of the crater fire. However no credit was taken for this in the consequence distance calculations.

### Dwelling Locations

As part of the determination for the 'worst case' scenario it is necessary to examine the proximity of the dwellings. Two groups of dwellings were identified as determining cases. These are:-

- Group A - Closest to the LVI – controlled by Release Case 1
  - Group B – South of the bay closest to the pipeline - controlled by Release Case 2
- Table 16 provides details of each dwelling group

Table 16 Determining Cases				
Dwelling Group	Distance to Pipeline	Distance to LVI	Elevation above msl	Release Case Applied
A	246m	280	+25m	Case 1
B	234m	(Approx 900m )	+38m	Case 2

SEPIL modelled both dwelling groups as shown in Figure 33.

Dwelling group A and Case 1 is the worst case combination for the pipeline upstream of the LVI

Dwelling group B and Case 2 is the worst case combination for the pipeline downstream of the LVI. The nearest dwelling is 242m away from the pipeline, which has a positional tolerance of +/- 8m giving a minimum distance of 234m

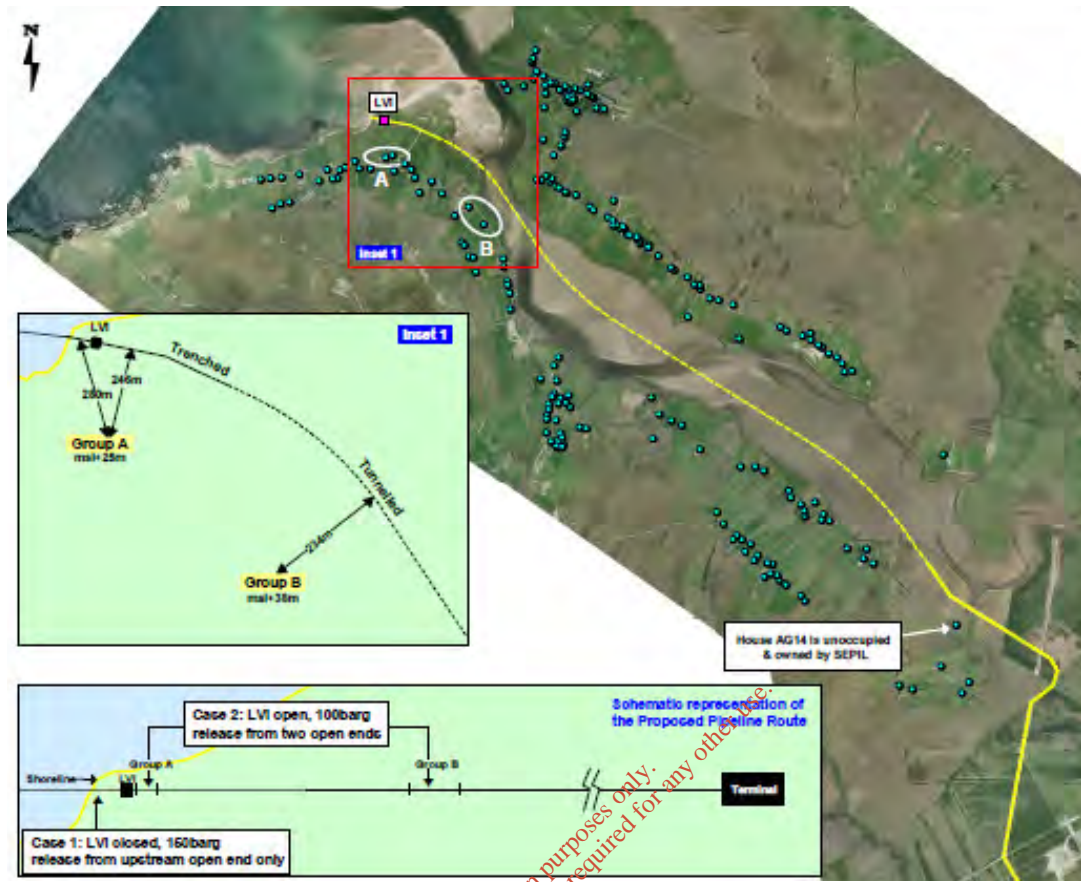


FIGURE 33 SHOWS THE LOCATION OF THE DWELLING GROUPS A & B

## 15.2 Case 2 / Group B - Rupture on the Pipeline Downstream of the LVI at 100barg MAOP

This analysis looks at a rupture of the pipeline downstream of the LVI on the group B dwellings which are the nearest to the pipeline at 234m

The effects on buildings and the local population in the event of the pipeline rupture are described in *EIS Appendix Q6.4 Section 7.3 Physical Effects* and discussed below.

Fatal injury is assumed where people are in the open or in buildings that are located within the flame envelope of a fireball or jet fire. Outside the flame envelope the effects are dependant on direct thermal radiation from the flame to the exposed person or building

These effects have been calculated by SEPIL for the 100barg MAOP section of the onshore pipeline. The discussion below has ignored the SEPIL owned dwelling at Aghoos, which is only 159.61m away from the pipeline which is within the building burning distance

**Up to 180m** away from the pipeline the building will ignite but it is assumed the people will leave the building and find shelter further away from the pipeline.

**At present there are no dwellings at this distance from the pipeline.**

**Up to 193m** away from the pipeline the heat flux will be  $40 \text{ kW/m}^2$ . At this level of heat flux it is assumed that buildings will spontaneously ignite and all occupants will die if they remain in the house.

**At present there are no dwellings at this distances from the pipeline.**

**At 205m** away from the pipeline, piloted ignition can occur in buildings and it is assumed the people will leave the building and find shelter further away from the pipeline.

**At present there are no dwellings at this distances from the pipeline.**

**Up to 205m** away from the pipeline the heat flux level will be  $35 \text{ kW/m}^2$ . At this level of heat flux it is assumed that there will be 100% fatality for people outdoors who cant find shelter

**216m** - This scenario was requested by ABP to establish the minimum distance to the pipeline, where people could take a specific action and move towards a dwelling and be safe. At 216m away from the pipeline; SEPIL defined that people standing 5m away from a dwelling who have been exposed to a heat flux level less than  $31.5 \text{ kW/m}^2$  and have a reaction time of 5 seconds before moving towards the dwelling at a speed of 2.5m/s will not receive a dangerous dose of heat radiation. Their maximum dose will be 580 tdu's.

At the 216m contour the Bord required SEPIL to perform a sensitivity study relating distance, speed of travel and the amount of thermal radiation adsorbed. SEPIL examined a slower speed of 1m/s, which is more representative of children or older people. Travelling the 5m to the dwelling at the slower escape speed will allow the maximum thermal radiation dose to increase from 580tdu's to 830tdu's. At this slower speed a person can only travel 7m before reaching the 1000 tdu dangerous dose.

SEPIL also calculated that 17m was the maximum distance away from the dwelling an able body person could move at 2.5m/s before reaching the dangerous dose. Again this assumes they have not been exposed to a fatal heat flux level of  $31.5 \text{ kW/m}^2$

**At present there are no dwellings at this distances from the pipeline.**

**At 218m** away from the pipeline people would have a reaction time of 5 seconds and move away from the incident at 2.5m/s for a distance of 75m at which point they would find shelter. This would expose them to 1800 tdu's and they would have a 50% of being fatally injured.

**At 273m** away from the pipeline: - this is the UK HSE bench mark. The HSE assumes people would move away from the heat source and seek shelter to avoid the dangerous dose threshold. This is defined by the UK HSE as 1000tdu's. In Rural areas it is assumed that people would avoid a dangerous dose by moving away from the incident at 2.5m/s for a distance of 75m at which point they would find shelter. In the QRA calculations SEPIL have added 5s reaction time before the person starts to move. Under these conditions 1% fatality is assumed

Although there is still a statistical chance of 1 % fatality for a person moving 75m to 273m away from the pipeline. This distance is considered relatively safe.

These distances for Case 2 / Group B are summarized in Table 17 for ruptures and Table 18 for holes. Overall view given in Table 20

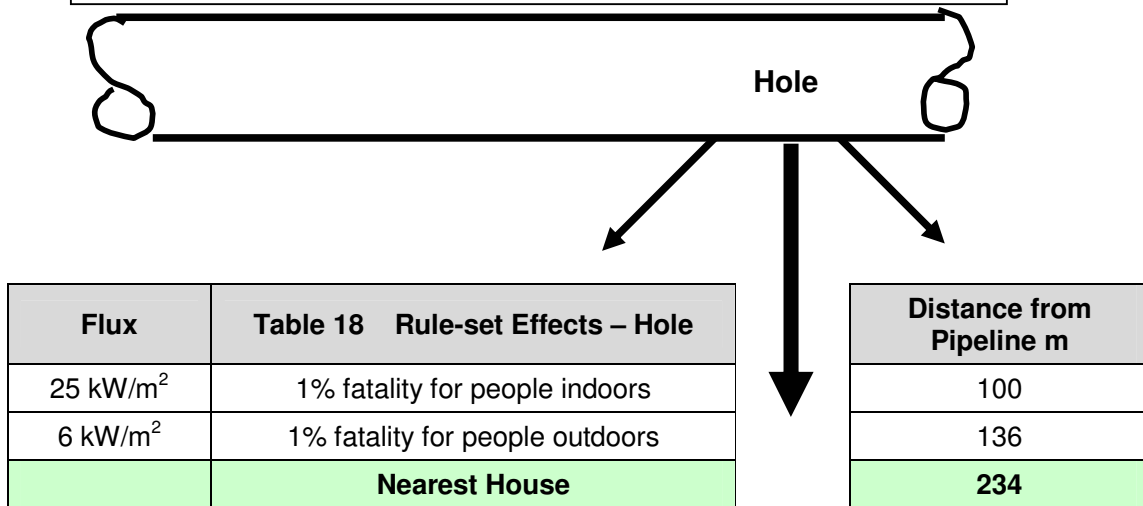
**Table 17 The Consequences of Case 2 Full Bore Rupture Pipeline Downstream from the LVI 100barg - Group B Dwellings**

Rupture

Dose or Flux	Rule-set Effects Rupture	Distance from Pipeline m
Spontaneous ignition of building	The building is assumed to ignite, and people initially inside the building will need to leave the building and seek shelter further away from the pipeline	180
40 kW/m <sup>2</sup>	Assume the building will ignite and all occupants are fatally injured	193
Piloted ignition of building	The building may ignite with ignition being induced, and in this case people will need to leave the building and seek shelter further away from the pipeline	205
Either 35 kW/m <sup>2</sup> or 3500 tdu	Assume 100% fatality for people outdoors	205
Exposed to a flux less than 31.5 kW/m <sup>2</sup>	ABP request:- Person standing next to a dwelling would not receive a dangerous dose	216
Less than 1000 tdu	SEPIL definition:- 5s stood still then move 5m at 2.5m/s – 580tdu's SEPIL definition:- 5s stood still then move 5m at 1m/s – 830tdu's	216
1000 tdu	Sensitivity Maximum distance from the dwelling at 2.5m/s is 17m Maximum distance from the dwelling at 1.0m/s is 7m	216
1800 tdu	If a person receives this dose level whilst stationary for 5s then moving away from the pipeline for 75m at 2.5m/s in the open air, it is assumed there is a 50% chance of becoming fatally injured.	218
	<b>Nearest Dwelling</b>	<b>234</b>
1000 tdu	If a person receives this dose level whilst stationary for 5s then moving away from the pipeline for 75m at 2.5m/s in the open air, it is assumed there is a 1% chance of becoming fatally injured.	273



**Table 18 The Consequences of Case 2 Hole in the Pipeline Downstream from the LVI - Group B Dwellings**



### 15.3 Case 1 / Group A - Rupture on the Pipeline Upstream of the LVI at 150barg MAOP

This analysis looks at a rupture of the pipeline upstream of the LVI on the group A dwellings which are the nearest to the pipeline at 280m

**Up to 155m** away from the pipeline the building will spontaneous ignite but it is assumed the people will leave the building and find shelter further away from the pipeline.

**At present there are no dwellings at this distance from the pipeline or the LVI.**

**At 178m** away from the pipeline, piloted ignition can occur in buildings and it is assumed the people will leave the building and find shelter further away from the pipeline.

**At present there are no dwellings at this distances from the pipeline or the LVI.**

**At 192m** away from the pipeline; people standing 5m away from a dwelling who have been exposed to a heat flux level less than 31.5 kW/m<sup>2</sup> and have a reaction time of 5 seconds before moving towards the dwelling at a speed of 2.5m/s will not receive a dangerous dose of heat radiation. Their maximum dose will be 247 tdu's. The maximum dose will increase to 352tdu's if they move at the slower rate of 1m/s over the 5m.

SEPIL calculated that 183m was the maximum distance away from the dwelling an able body person could be moving at 2.5m/s before reaching the dangerous dose of 1000tdu

At the lower speed of 1m/s, people can travel a maximum distance of 73m to the dwelling before reaching the dangerous dose of 1000tdu. Again this assumes they have not been exposed to a fatal heat flux level of 31.5 kW/m<sup>2</sup> .

**At present there are no dwellings at this distances from the pipeline or the LVI.**

These distances for Case 1 / Group A are summarized in Table 19 for ruptures. Overall view is given in Table 20.

**Table 19 The Consequences of Case 1 Full Bore Rupture Pipeline Upstream from the LVI 150 barg- Group A Dwellings**

Dose or Flux	Rule-set Effects Rupture	Distance from Pipeline m
Spontaneous ignition of building	The building is assumed to ignite, and people initially inside the building will need to leave the building and seek shelter further away from the pipeline	155
Piloted ignition of building	The building may ignite with ignition being induced, and in this case people will need to leave the building and seek shelter further away from the pipeline	178
Exposed to a flux less than 31.5 kW/m <sup>2</sup> Less than 1000 tdu	ABP request:- Person standing next to a dwelling would not receive a dangerous dose SEPIL definition:- 5s stood still then move 5m at 2.5m/s – 247tdu's SEPIL definition:- 5s stood still then move 5m at 1m/s – 352tdu's	192
1000 tdu	Sensitivity Maximum distance from the dwelling at 2.5m/s is 183m Maximum distance from the dwelling at 1.0m/s is 73m	192
	<b>Nearest Dwelling</b>	<b>280</b>

**Table 20 Results From Consequential Analysis**

Parameter	Criteria	Determining Cases		Outcome
		Case 2 Release Group B Dwellings	Case 1 Release Group A Dwellings	
Maximum pressure		100 barg	150 barg	
Release mode		2 ends open	1 end open	
Distance of person beside dwelling from rupture		234m	280m	
1. Highest thermal flux received	31.5kW/m <sup>2</sup>	25 kW/m <sup>2</sup>	14.5 kW/m <sup>2</sup>	All cases below criteria
2. Building Burn Distance, BBD	UK HSE	180m	155m	All dwellings are outside BBD
3. Dangerous dose moving to dwelling as shelter				
3a. 5s stood still then 5m @ 2.5m/s	1,000tdu	580 tdu	247 tdu	Criteria not exceeded for base cases
3b. 5s stood still then 5m @ 1m/s	1,000tdu	830 tdu	352 tdu	
4. Maximum distance without exceeding dangerous dose				
4a. 5s stood still then maximum distance @ 2.5m/s	1,000tdu	17 m	183m	
4b. 5s stood still then maximum distance @ 1m/s	1,000tdu	7 m	73m	
5. Piloted Ignition Distance	UK HSE	205 m	178m	All dwellings outside PID
6. Distance to thermal flux threshold of 31.5kW/m <sup>2</sup>		216m	192m	All dwellings outside PID
7. Dangerous dose moving away from the dwelling		Not relevant as all dwellings are outside PID		

EIS Q6.5(i) Table 4

### 15.3.1 Contours of Building Burning Distance (180m)/ Safe Distance (273m)

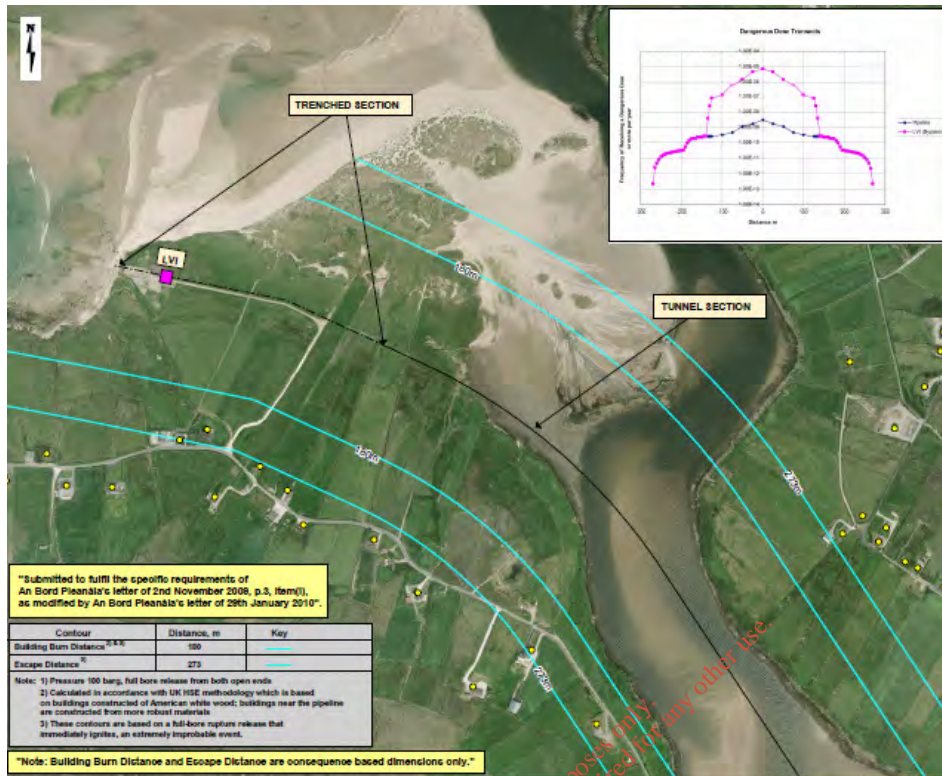


FIGURE 34 LVI SECTION SHOWING DWELLING IN 273M ZONE

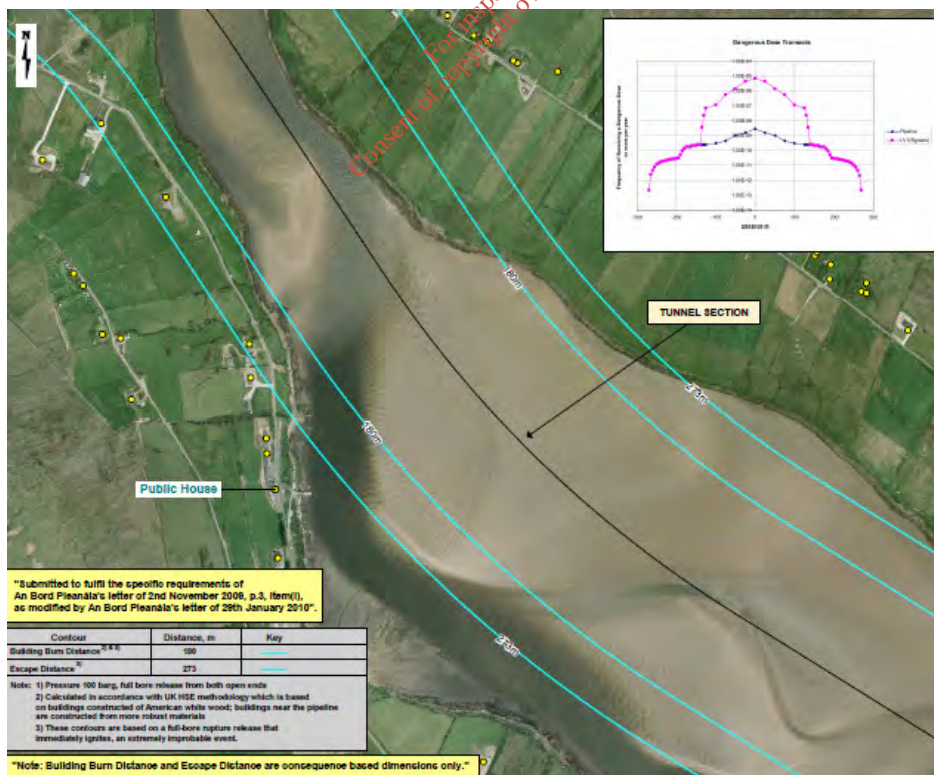


FIGURE 35 BARNACUILLEW SECTION SHOWING DWELLINGS INSIDE 273M ZONE



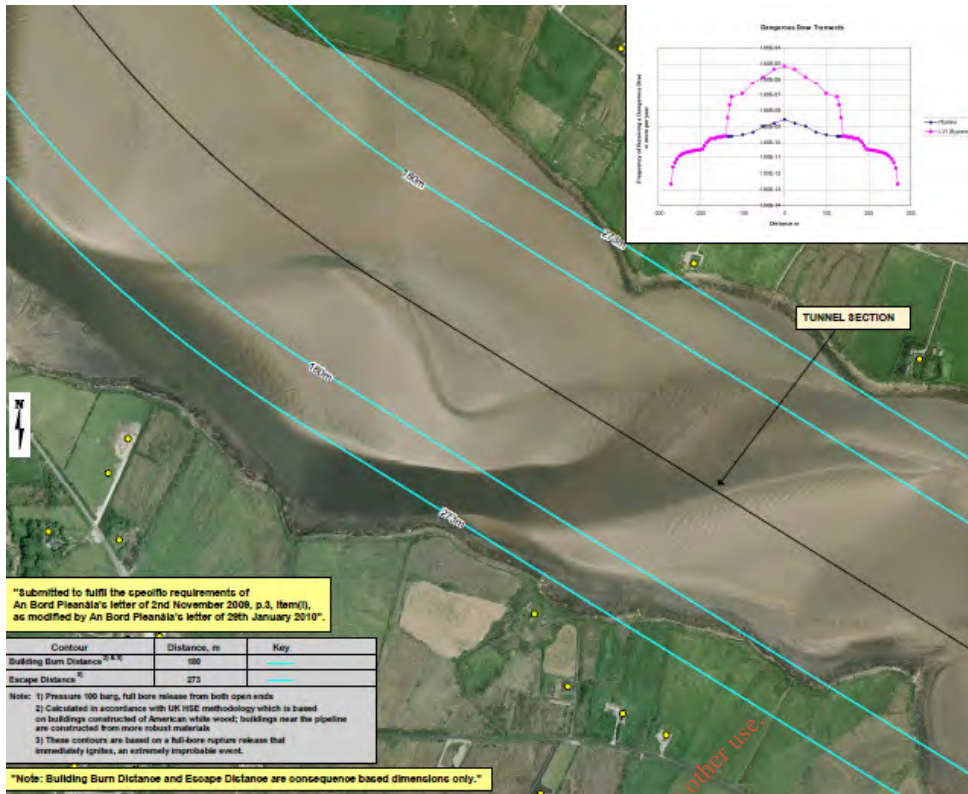


FIGURE 36 SHOWING TUNNEL SECTION 1

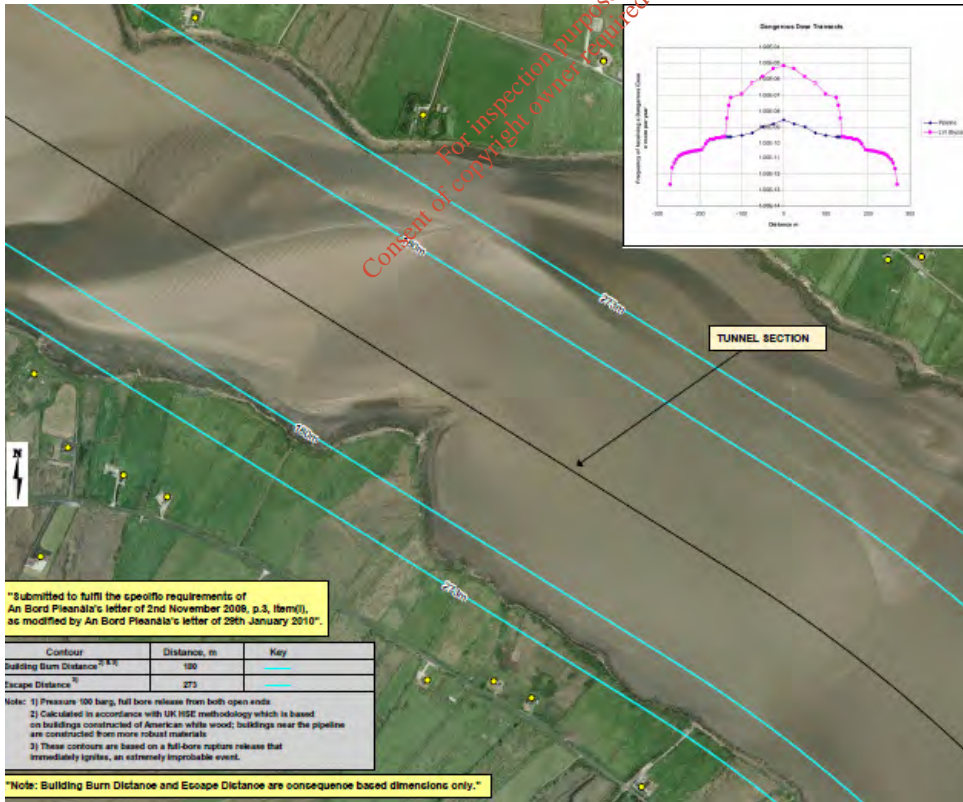


FIGURE 37 SHOWING TUNNEL SECTION 2

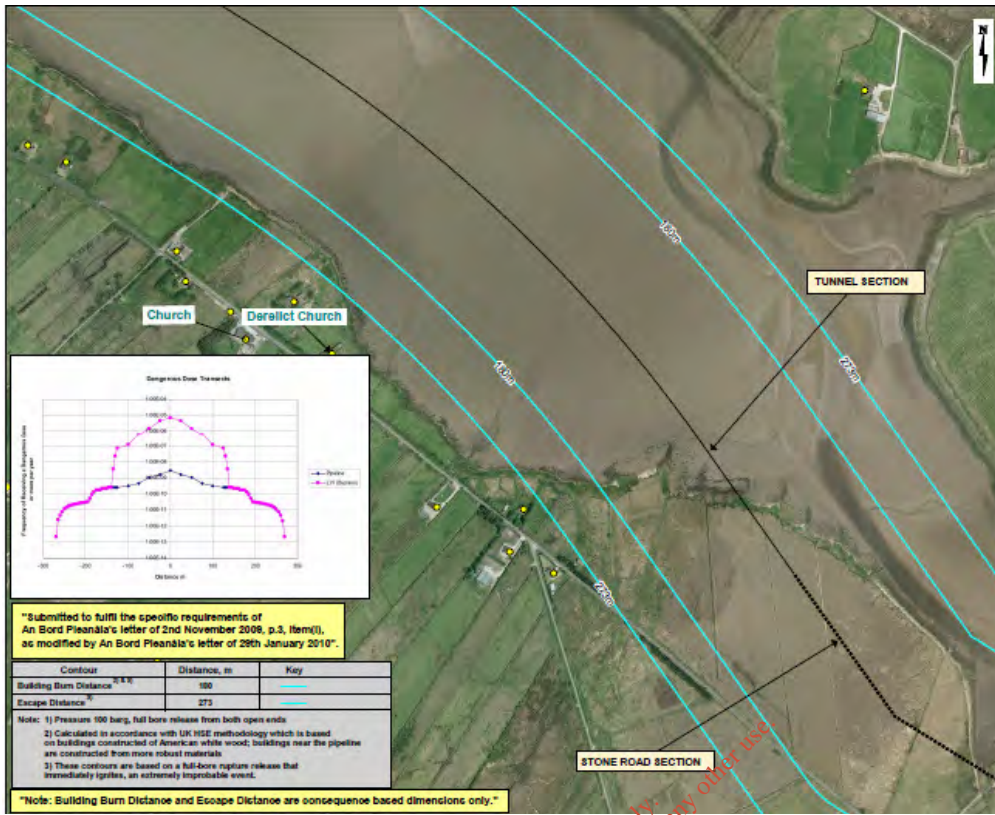


FIGURE 38 SHOWING AGHOOS SECTION

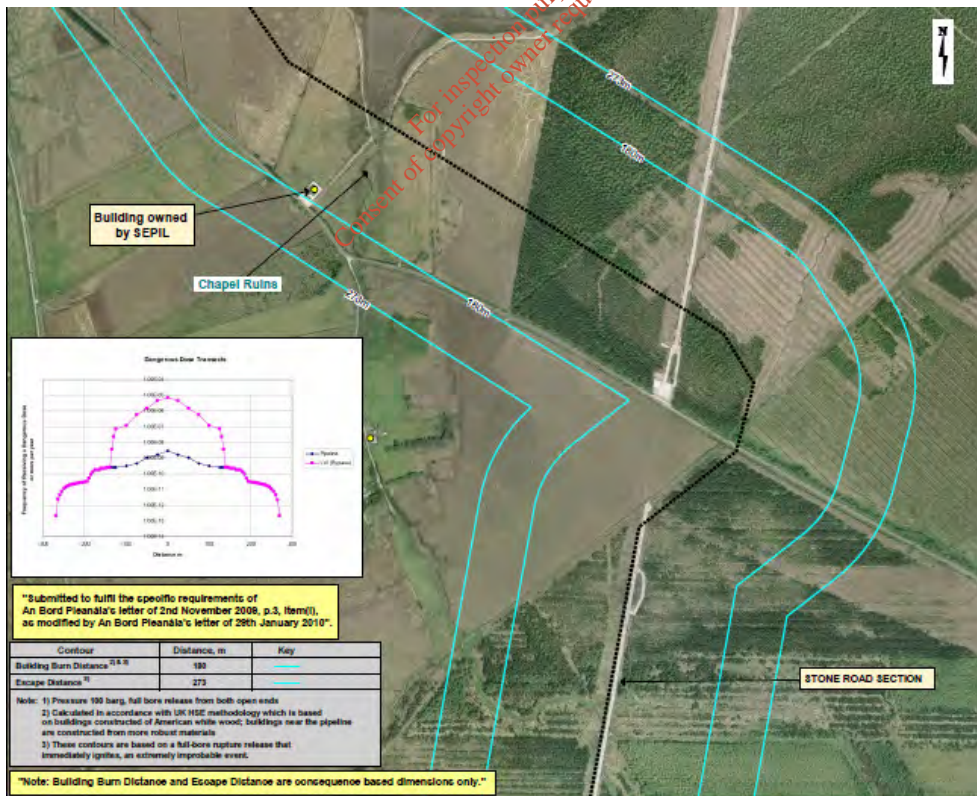


FIGURE 39 SHOWING START OF STONE ROAD



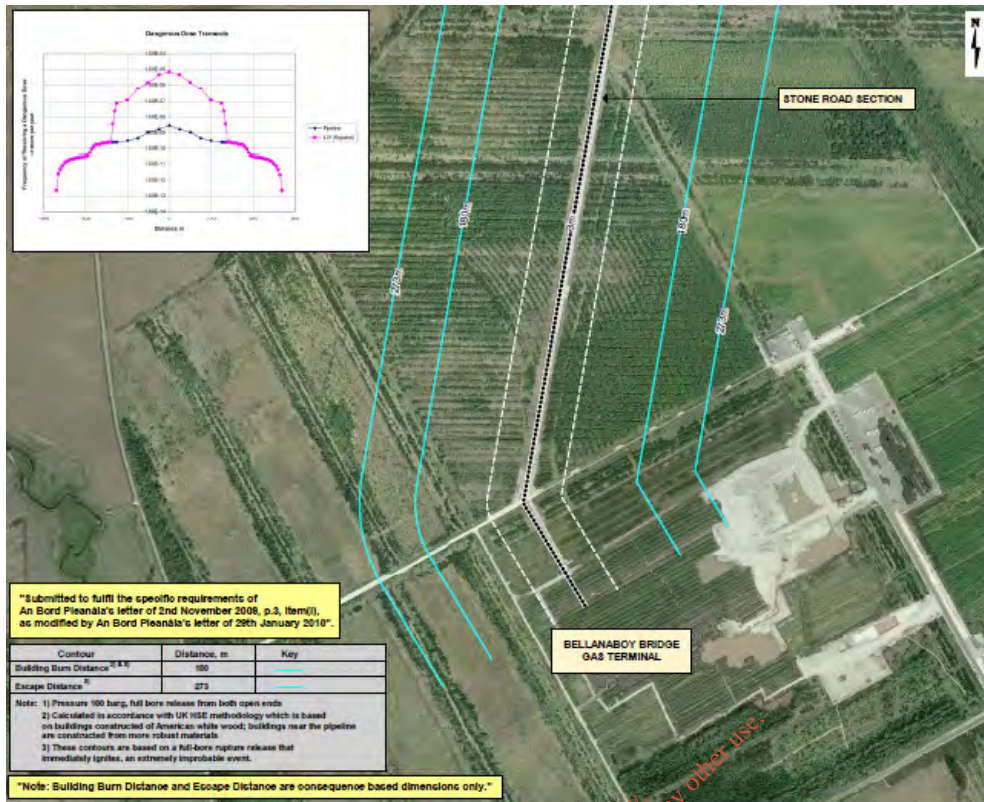


FIGURE 40 SHOWING TERMINAL SECTION OF STONE ROAD

### 15.4 Dwelling Distribution Vs Distance from Pipe by Location

Using Worst Case 2, rupture in the downstream pipe at 100barg, it can be seen from Table 21 that only the SEPIL owned dwelling is within the spontaneous burn distance. All other dwellings are above the 216m contour

Only four dwellings at Glengad and Barnacuillev are within the escape distance to either a dwelling or into a safe distance from the pipe

TABLE 21 DWELLING DISTRIBUTION – DISTANCE FROM PIPELINE BY LOCATION CASE 2 – ALL DWELLINGS								
	Pollatomish	Glengad	Barnacuillev	Leenmore	Aghoos	RossPort South	RossPort North	Total
Distance from the pipeline m	No of Dwellings							
Less 216	0	0	0	0	1*	0	0	1*
216 - 273	0	1	3	0	0	0	0	4
273-300	0	2	1	0	0	1	0	4
300-400	2	8	3	0	8	7	0	28
400-500	4	3	6	2	7	5	0	27
Above 500	31	11	0	3	19	37	37	138
Total	37	25	13	5	35	50	37	202

\*Dwelling owned by SEPIL



## 15.5 Discussion on Consequence Analysis

The determining case for the safety analysis is Worst Case 2 - Group B dwellings where the downstream pipeline ruptures at a pressure 100 barg and gas flows from both open ends of the pipe and immediate ignition occurs.

**Worst Case 2** - the nearest dwelling is 234m away from the pipeline, while the building burning distance caused by spontaneous ignition is 180m from the pipeline. Piloted ignition will occur at 205m.

ABP requested SEPIL to establish the distance where a person standing next to a dwelling would be safe. For this case study the distance of such a theoretical dwelling is 216m from the pipeline. SEPIL assumed a 5 second reaction time and the person would move at a speed of 2.5m/s over a distance of 5m to reach the dwelling. Moving at 2.5m/s, their maximum dose will be 580 tdu's. The maximum dose will increase to 830 tdu's if they move at the slower rate of 1m/s over the 5m.

Sensitivity studies conducted by SEPIL at the request of ABP showed that a person moving towards the dwelling at 2.5m/s without receiving a dangerous dose of 1000 tdu's could cover a maximum distance of 17m. Alternatively a child or an older person could move at a slower speed of 1m/s and still cover 7m without receiving a dangerous dose.

The Consequence Analysis gives a clear picture of how the new route up the bay makes a dramatic improvement to pipeline and public safety. Under the 2010-revised scheme there are no houses within the building burn distance or the 216m standing beside a dwelling contour apart from the SEPIL owned dwelling and only 4 dwellings within the escape distance. In the previous scheme routed through Rosspoint, 6 dwellings were within the building burn distance and 54 were within the escape distance.

**Worst Case 1** – A pipeline rupture at Glengad at a pressure of 150 barg affected Group A dwellings. In this case study the nearest dwelling is 280m away from the LVI, while the spontaneous ignition building burning distance is 155m from the LVI. The piloted ignition burn distance is 178m

The equivalent standing near a dwelling distance is 192m from the LVI. Again assume a 5 second reaction time and the person would move at a speed of 2.5m/s over a distance of 5m to reach the dwelling. Moving at 2.5m/s, their maximum dose will be 247 tdu's. The maximum dose will increase to 352 tdu's if they move at the slower rate of 1m/s over the 5m.

SEPIL did not examine the 3<sup>rd</sup> case, which is a pipe or equipment failure at Glengad LVI leading to a rupture of both the offshore and the downstream pipeline. This would have allowed the gas contents from both pipes to simultaneously feed the fireball and jet fire. SEPIL argued that this scenario was highly unlikely. However in the Quantitative Analysis when the threat from 3<sup>rd</sup> Party Intentional Damage was included the resulted risk was significant at 6.91E-05/ year. This is one of the highest rated risks in the whole analysis.

## 16 QUALITATIVE RISK ASSESSMENT

SEPIL have detailed their Qualitative assessment in *EIS Appendix Q6.3*. Ms S Hurst presented the BoE.

A Qualitative Analysis (QuA) should be employed where it is difficult to obtain meaningful mathematical failure statistics required by the Quantitative Risk Analysis (QRA). Instead of obtaining hard statistical values the QuA uses broader terms such as 'Likelihood of Failure' against 'Likely Consequences of Failure'. The information used to form an opinion is subjective and collected in broad terms such as Low, Medium or High. However this type of analysis is very informative where the information about the pipeline is sparse or an alternative method is required to validate the QRA.

During the 2009 hearing Shell did not have the Bowtie analysis completed to allow it to submit a Qualitative Risk Assessment (QuA). Therefore the ABP requested SEPIL to provide a QuA that covered different operating conditions and different locations along the pipeline route. The QuA should provide a comprehensive assessment of those events that can't be easily define mathematically.

In the *EIS Appendix Q6.3 Appendix A2* SEPIL has published a Pipeline Risk Register. This was used to construct the Shell Risk Matrix for the QuA as shown in Figure 41. The Matrix vertical axis rates the likely frequency of the hazard while the horizontal axis rates the likely consequence. The Shell Risk Matrix is shown below with 45 of the risk ratings identified from the risk register concerning 'People'.

		Shell Risk Matrix				
		5	4	3	2	1
		More than 3 fatalities	1-3 Fatalities	Major Injury	Minor Injury	Slight Injury
E	Frequent					1
D	Has Happened at location		2	2	1	1
C	Has Happened in UIE	3	9	7	4	
B	Heard of in Industry	1	5	6	1	
A	Highly Unlikely	1		1		

**FIGURE 41 SHOWS THE SHELL CORRIB ONSHORE PIPELINE RISK MATRIX FOR 'PEOPLE'**

- The 14 Risks in the blue cells have to be managed for continuous improvement through effective implementation of the Safety Management System.
- The 26 Risks in the yellow cells – SEPIL have to identify and implement controls to reduce the risk to ALARP
- The 5 Risks in the red cells – SEPIL have to identify and implement controls to reduced the risk to ALARP and provide documented demonstration of ALARP

The Red threats cover E5/4/3/, D5/4 and C5

Table 22 gives details of the highest red rated risks recorded on the register by SEPIL. These are classified as:-

C5 = Has happened in the UIE / More than 3 fatalities

D4= Has happened at Location / 1 to 3 fatalities

From Table 22 these threats are defined as:-

- C5 Glengad LVI – Gas release / Fire
  - Impact vehicle / dropped objects
  - Corrosion
  - Erosion
  - Material failure
  - Overpressure
  - 3rd party external damage
  - Intended damage
  - Ground Movement
  - Hydrate formation
- C5 Onshore pipeline
  - Impact
  - Corrosion
  - Erosion
  - Material failure
  - Overpressure
  - 3rd party external damage
  - Intended damage
  - Ground Movement
  - Hydrate formation
- C5 LVI Equipment Impact from truck or load from crane – Damage
- D4 LVI Falling objects dropped by crane - Gas release
- D4 Manual handling - loss of control impact – damage to plant

The Yellow threats cover cells E2, D3/2, C4/3, B5/4 and A5

These safety issues are predominately worker related and cover a range of risks related to Slips, Falls, Electrocution, Burns, Asphyxiation, chemical toxicity etc.

Table 22 Risk Potential – high level RED risks						
THREAT	CONSEQUENCE	RISK POTENTIAL				CONTROLS
		P	A	E	R	
Hazard - Glengad LVI – Loss of containment of the gas						
Impact Corrosion Erosion Material failure Over pressure 3 <sup>rd</sup> party Activities Intentional Damage Ground movement Hydrate formation	Un ignited Gas Release	<b>C2</b>	C5	C3	C4	
	Fire	<b>C5</b>	C5	C3	C5	
Hazard – Onshore Pipeline – Loss of containment of the gas						
Impact Corrosion Erosion Material failure Over pressure 3 <sup>rd</sup> party Activities Intentional Damage Ground movement Hydrate formation	Un ignited Gas Release	<b>C2</b>	C5	C3	C4	
	Fire	<b>C5</b>	C5	C3	C5	
Hazard – Dynamic Situations						
Driving Vehicles / Trucks Cranes	Impact with Equipment and structures	<b>C5</b>	C3	C2	C2	
Hazard – Objects overhead at the LVI						
Sling / Rigging failure Crane mechanical failure Equipment failure Severe Weather Human Error	Major Load dropped potential release of Gas	<b>D4</b>	D3	D2	D2	
Hazard – Ergonomics						
Manual handling Drums Equipment	Impact dropped object strikes plant	<b>D4</b>	D0	D0	D0	
P = People A = Asset E = Environment R = Reputation						
D= Has happened at Location C = Has happened in the UIE		4 = 1 to 3 fatalities 5 = More than 3 fatalities				

### 16.1 Matrix Alignment with Australian Standard 2885

During the hearing, the Inspector requested SEPIL to align the Shell QuA matrix with the format set out in the Australian Standard AS 2885.1 Appendix F<sup>44</sup> as discussed in NW2009 report section 9. This will allow the Shell matrix to be evaluated against an International qualitative pipeline matrix. The requested information<sup>45</sup> on the QuA alignment was submitted during the hearing. The Australian pipeline standard 2885 recognises that it is not always possible to assign a numerical value to a risk and therefore contains guidance on how to perform a Qualitative Risk Assessment. SEPIL have aligned their consequence and likelihood scales with AS 2885 in Table 23

<sup>44</sup> Australian Standard AS 2885.1 2007 – Appendix F

<sup>45</sup> Risk Assessment matrix – Consequence scale Oral hearing Doc ref 86

Table 23 Aligned Matrices				
Consequence Scale				
Shell Matrix			AS2885 Matrix	
1	Slight Injury	=	Trivial	Minimal Impact
2	Minor Injury	=	Minor	Injuries requiring 1 <sup>st</sup> aid
3	Major Injury	=	Severe	Injuries requiring Hospital treatment
4	1 to 3 Fatalities	=	Major	Few fatalities
5	More than 3 Fatalities	=	Catastrophic	Multiple Fatalities
Likelihood Scale				
A	Highly unlikely – never heard of in the industry	=	Hypothetical	Theoretically possible but has never occurred on a similar pipeline
B	Heard of in the Industry	=	Remote	Not anticipated for this pipeline at this location
C	Has happened in the UIE (or more than once per year in industry)	=	Unlikely	Unlikely to occur within the life of the pipeline but possible
D	Has happened at the location (or more than once per year in UIE)	=	Occasional	May occur occasionally in the life of the pipeline
E	Frequent – has happened more than once a years at the location	=	Frequent	Expected to occur once a year or more

UIE= Upstream International Europe

The Australian standard has a series actions related to the matrix see Tables F4 – F5 from AS 2885.1 – Appendix F shown below :-

**TABLE F4  
RISK MATRIX**

	Catastrophic	Major	Severe	Minor	Trivial
Frequent	Extreme	Extreme	High	Intermediate	Low
Occasional	Extreme	High	Intermediate	Low	Low
Unlikely	High	High	Intermediate	Low	Negligible
Remote	High	Intermediate	Low	Negligible	Negligible
Hypothetical	Intermediate	Low	Negligible	Negligible	Negligible

The resultant Australian 2885 matrix is given in Figure 42.

AS 2885 Risk Matrix					
	Catastrophic	Major	Severe	Minor	Trivial
Frequent					1
Occasional		2	2	1	1
Unlikely	3	9	7	4	
Remote	1	5	6	1	
Hypothetical	1		1		

FIGURE 42 SHOWS THE CORRIB ONSHORE PIPELINE AS2885 RISK MATRIX FOR PEOPLE

TABLE F5  
RISK TREATMENT ACTIONS

Risk rank	Required Action
<b>Extreme</b>	Modify the threat, the frequency or the consequences so that the risk rank is reduced to 'intermediate' or lower For an in-service pipeline the risk shall be reduced immediately
<b>High</b>	Modify the threat, the frequency or the consequences so that the risk rank is reduced to Intermediate or lower For an in-service pipeline the risk shall be reduced as soon as possible, typically within a timescale of not more than a few weeks
<b>Intermediate</b>	Repeat threat identification and risk evaluation processes to verify and, where possible, quantify the risk estimation; determine the accuracy and uncertainty of the estimation. Where the risk rank is confirmed to be 'intermediate', if possible modify the threat, the frequency or the consequence to reduce the risk rank to 'low' or 'negligible' Where the risk rank can not be reduced to 'low' or 'negligible', action shall be taken to— (a) remove threats, reduce frequencies and/or reduce severity of consequences to the extent practicable; and (b) demonstrate ALARP For an in-service pipeline, the reduction to 'low' or 'negligible' or demonstration of ALARP shall be completed as soon as possible; typically within a timescale of not more than a few months
<b>Low</b>	Determine the management plan for the threat to prevent occurrence and to monitor changes that could affect the classification
<b>Negligible</b>	Review at the next review interval

Tables F4 and F5 show that AS 2885 has a series of 5 action points compared to 3 action points of the Shell matrix



## 16.2 Comparison of Matrices

A comparison of both rankings and actions is given below in Table 24

Table 24 Comparison of Risk Ranking and Actions				
Shell	N°		AS2885	N°
Red & Yellow Cells Reduce Risks to ALARP	31	=	Orange cells – High Reduce risks to intermediate or Lower	15
			Yellow cells – Intermediate Reduce to Low or demonstrate ALARP	15
Blue cells Manage Risk Via Safety Management System	14	=	Light Blue – Low Manage Via Safety Management System	13
			Dark blue – negligible Review at next review date	2

## 16.3 Discussion on Qualitative Analysis

This type of analysis is very informative where information on historic data is not available or an alternative method is required to validate the QRA. Instead of obtaining hard statistical values the QuA uses broader terms such as 'Likelihood of Failure' against 'Likely Consequences of Failure'. The information is used to form an opinion and is subjective and collected in broad terms such as Low, Medium or High.

A comparison was made between the Shell Matrix and the Australian Standard AS 2885.1 Appendix F matrix. There was good agreement between the matrices. The main difference between the two schemes is that in the Australian matrix the 'High' risks have to be reduced to intermediate or lower rather than ALARP. Overall the two groups High/ Intermediate and Low /Negligible were numerically similar between the two qualitative schemes.

Under the Shell matrix there were 5 high-risk cells, which required reduction to ALARP status and documented demonstration of ALARP. These risks are concerned with the operation of the onshore pipeline such as Methane Hydrate and Erosion, and handling heavy objects or truck movements near the LVI. This reduction to ALARP will again be achieved via the PIMS

The Qualitative Analysis is more sensitive in identifying the risks that matter even though the process is subjective. The role of Qualitative Analysis is to alert the operator to the potential hazards when operating the pipeline. All the specific risks identified by the Inspector's team at the hearings are labelled 'high' in the Shell matrix and require action. In the Quantitative analysis these risks were either dismissed or given a very low frequency. SEPIL claim they are aware of the hazards and have control barriers in place to prevent an incident under PIMS and the Inspectors team accept this.



## 17 CONCLUDING COMMENTS

### SEPIL's Response to An Bord Pleanála's Requests

Following the 2009 Oral Hearing, ABP wrote to SEPIL on 2<sup>nd</sup> November 2009 and again on the 29<sup>th</sup> January 2010 outlining the need to provide further clarification on a number of design and safety issues. The response from SEPIL has been positive and many of the actions have been implemented. There are a few areas where SEPIL has decided on alternative strategies. In these cases the facts have been presented by robust technical arguments and accepted by the Inspector's Team.

The largest impact on the design and safety of the pipeline was the Bord's request that the pipeline should be rerouted up the Sruwaddacon Bay to Aghoos thus avoiding Rossport. The Bord also requested that SEPIL should declare a Maximum Allowable Operating Pressure (MAOP) for the pipeline and that a person standing beside a dwelling will not receive a dangerous dose of thermal radiation in the worst case scenario of a full bore pipeline rupture when operating at the MAOP.

SEPIL has responded positively to these requests by planning to construct the pipeline in a 4.9km long tunnel running under Sruwaddacon Bay from Glengad to Aghoos. In addition, the pressure in the offshore pipeline and the section of onshore pipe running from the beach to LVI will be reduced from 345 barg to a MAOP of 150 barg. Furthermore the operating pressure in the section of the onshore pipe from the LVI to the Bellanaboy Bridge Terminal will be reduced from 144barg to a MAOP of 100 barg. It is also the intention of SEPIL to retain the use of the 27.1mm wall pipe at these lower operational pressures.

**These design and operational changes when combined with the use of a thick wall pipe represents a significant contribution to the safety of the pipeline and allows SEPIL to meet the safety criteria from both the frequency of failure and hazard distance requirements**

### Risks to the Onshore Pipeline and LVI

In the 2009 Oral Hearing, SEPIL used pipeline populations transporting dry natural gas, which could not be fully relied upon to quantify the risks arising from transporting wet untreated gas. The problem with the Corrib pipeline is that it does not fit neatly into the gas transmission databases used by BGE or UK pipeline operators which transport dry processed gas. Therefore one of the requests to SEPIL was that the revised Quantified Risk Assessment (QRA) should be site specific. Unfortunately SEPIL could not produce a database that could be aligned with the design and operation of the Corrib pipeline. Therefore SEPIL has assembled a composite database to perform the QRA. The European Gas Incident Data Group (EGIG) provided failure frequencies for Materials & Construction, External Corrosion and Other/Unknown (Lightning Strikes). The 3<sup>rd</sup> party damage frequencies were obtained from the PIE computer model, while the internal corrosion frequencies were obtained from the CONCAWE database, which is a European database for onshore oil pipelines. No directly comparable databases were produced for pipelines operating in a tunnel or for Above Ground Installations such as the Glengad LVI. Again for these locations SEPIL used indirect databases of similar components.

**The Inspector's team has accepted the use of the composite database for the QRA with the prudent proviso that additional analysis is undertaken in the form of a Qualitative Risk Assessment and calculation of the Consequence Distances in the event of a full bore rupture at maximum pressure.**

## Threats to the Pipeline

SEPIL were asked to perform a Quantitative Risk Analysis (QRA) on the potential failure of the pipeline. This would include a complete and comprehensive review of all potential failure mechanisms along the route of the pipeline arising from both the external and internal environments of the pipe. This QRA would also include a sensitivity analysis of the potential failure modes.

SEPIL has produced a very comprehensive analysis of 32 potential threats to the pipeline using the bowtie method. The threats were subdivided into three groups; threats eliminated as not significant, threats eliminated by control barriers managed by PIMS (Pipeline Integrity Management Scheme) and threats accepted by SEPIL.

The critical areas are the threats that would be managed by the PIMS control barriers. These covered events such as; internal erosion, hydrate formation, brittle fracture at low temperatures, high temperature of internal fluids, pipeline expansion, pipeline overpressure, Internal dynamic loads, and fatigue.

**In the absence of a relevant database for the pipeline, the Inspector's team accept that credibility has to be given to the PIMS system to control the threats such as methane hydrate and erosion.**

The remaining threats accepted by SEPIL were; internal corrosion, which had been missing from the 2009 analysis, external corrosion, construction defects, 3<sup>rd</sup> party accidental external damage and others such as lightning. SEPIL also included ground movement and intentional 3<sup>rd</sup> party damage as part of a sensitivity analysis requested by the Bord.

## Pipeline Quantitative Risk Assessment

SEPIL were asked to provide contours of individual risk at specific levels of  $1 \times 10^{-5}$ ,  $1 \times 10^{-6}$  and  $0.3 \times 10^{-6}$  /year inline with UK HSE risk thresholds. The individual risk transects for a dangerous dose defined as 1000 tdu with 1% fatality. This is based upon one person spending 10% of his time outdoors and the remainder indoors. Two dwelling groups 'A' and 'B' were identified by SEPIL as being the nearest to the LVI and the pipeline respectively. These were used by SEPIL to calculate the risk of a dangerous dose of heat radiation in the event of a pipeline rupture

The results were  $1.5 \times 10^{-11}$  /year for dwellings 'A', 246m away from the buried section and  $2.1 \times 10^{-11}$  /year for dwellings 'B', 234m away from the tunnel section of the pipeline. Standing next to the pipeline the risk of a dangerous dose increases to  $2.92 \times 10^{-9}$  /year

SEPIL performed a sensitivity analysis on the risk of receiving a dangerous dose. Moving away from the heat at a slower speed of 1m/s, and third party intentional damage were similar in magnitude to the base cases of dwellings 'A' and 'B'. However when the risk of a landslip or increased time spent outdoors to 60 hours / week was included in the database, the risk of receiving a dangerous dose increased to  $6.38 \times 10^{-10}$  /year and  $1.0 \times 10^{-10}$  / year respectively.

**At both dwelling locations the resultant risks were many orders of magnitude below the UK HSE threshold 'Broadly Acceptable' level of  $1.0 \times 10^{-6}$  /year and therefore pose little threat to the public. It is the view of this report that the margin of safety between the calculated levels of risk and the UK HSE level for 'broadly acceptable' is necessary to cater for any potential uncertainties that may have occurred by adopting a composite database**

## Threats to the LVI

For the LVI the Bowtie analysis produced 24 threats. Again threats were eliminated either being implausible or managed by the PIMS control barriers. The dominant threat accepted by SEPIL was the failure of valves and equipment. Others included external and internal corrosion, manufacturing defect and lightning strikes. SEPIL could not produce a database for failures at above ground installations such as the LVI. Therefore they used the offshore database for hydrocarbon releases. The resultant analysis gives an overall failure frequency for a 16mm hole of 4.9E-04/year. This database completely dominated the analysis since it is many orders of magnitude above other threats from corrosion, manufacturing defects and 3<sup>rd</sup> party intentional damage

## LVI Quantitative Risk Assessment

At the LVI the base case risk is 6.91-E06/year, which is classified as ALARP by UK HSE risk levels.. When the threat of 3<sup>rd</sup> Party Interference is added then the risk increases to 6.91E-05/year, which is classified as Intolerable. However this level of risk is only related to the LVI, which is isolated from the public by a security fence. This clearly demonstrates that when specific risks are included in the QRA a more realistic understanding of the overall risk of the development is obtained.

**SEPIL also used the UK HSE risk levels to evaluate the contours of risk expressed as distance from the LVI. The Risk distances to the upper limit of 'broadly acceptable' 3E-07/year are 91m for the base case and increase to 129m for the 3rd Party intentional damage. No dwellings are within these contours with the nearest dwelling being 280m away from the LVI.**

## Societal Risk

At the request of the Bord, SEPIL analysed the Societal Risk to the residents around Glengad pipeline and LVI. SEPIL predicted the maximum number of fatalities is four at an extremely low frequency

**The resultant Societal Risk Curve is one million times lower than the PD8010 – Part 3 acceptable threshold. Again there is a wide margin of safety between the Corrib results and the minimum acceptable values in the standard**

## Consequence Approach to Risk

The Bord requested SEPIL to provide hazard distances, building burn distances and escape distances in contours for the entire pipeline with the acceptance criterion that a person standing beside the dwelling will not receive a dangerous dose of thermal radiation in the event of a full bore rupture. To calculate the safe distance SEPIL defined that people standing 5m away from a dwelling who have been exposed to a heat flux level less than 31.5 kW/m<sup>2</sup> and have a reaction time of 5 seconds before moving towards the dwelling at a speed of 2.5m/s will not receive a dangerous dose of heat radiation.

The consequence analysis was based upon two worst-case scenarios. Case 1 is a single ended rupture at 150 barg next to dwellings 'A' and Case 2 is a double-ended rupture at 100 barg next to dwellings 'B'. For the pipeline Case 2 was the selected.

From Case 2 the following critical distances have been calculated by SEPIL. Distance to the nearest home is 234m

- **Up to 180m** At this distance it is assumed that buildings will spontaneously ignite and all occupants will die if they remain in the house.

- **At 216m** - This scenario was requested by ABP to establish the minimum distance to the pipeline, where people could take a specific action and move towards a dwelling and not receive a dangerous dose..
- **234m** Nearest house to tunnel section of the pipeline
- **At 273m** away from the pipeline, this is the UK HSE bench mark defined as the 1000tdu's contour

At the 216m contour the Bord required SEPIL to perform a sensitivity study relating distance, speed of travel and the amount of thermal radiation adsorbed. SEPIL examined a slower speed of 1m/s, which is more representative of children or older people. Travelling the 5m to the dwelling at the slower escape speed will allow the maximum thermal radiation dose to increase from 580tdu's to 830tdu's. At this slower speed a person can only travel 7m before reaching the 1000 tdu dangerous dose.

SEPIL also calculated that 17m was the maximum distance away from the dwelling an able body person could move at 2.5m/s before reaching the dangerous dose

SEPIL has produced contour maps for the whole pipeline from LVI Glengad to the Terminal This shows that that only the SEPIL owned dwelling is within the spontaneous burn distance. All other dwellings are outside the 216m contour and therefore are classified as safe.

There are four dwellings located at Glengad and Barnacuillew that are within the escape distance from 216 to 273m. Within these contour distances people can either move to a dwelling or to a safe distance from the pipe.

**The Consequence Analysis gives a clear picture of how the new route up the bay makes a dramatic improvement to pipeline and public safety. Under the 2010-revised scheme there are no houses within the building burn distance or the 216m standing beside a dwelling contour apart from the SEPIL owned dwelling and only 4 dwellings within the escape distance. In the previous scheme routed through Rossport, 6 dwellings were within the building burn distance and 54 were within the escape distance.**

### **Consequence Distances at the LVI**

For the Consequence distances at Glengad LVI Worst Case 1 is used. In this case study the nearest dwelling is 280m away from the LVI, while the spontaneous ignition building burning distance is 155m from the LVI. The piloted ignition burn distance is 178m

The equivalent standing near a dwelling distance is 192m from the LVI. Again assume a 5 second reaction time and the person would move at a speed of 2.5m/s over a distance of 5m to reach the dwelling. Under these conditions their maximum dose will be 247 tdu's. The maximum dose will increase to 352 tdu's if they move at the slower rate of 1m/s over the 5m.

### **Qualitative Risk Analysis (QuA)**

This type of analysis is very informative where information on historic data is not available or an alternative method is required to validate the QRA. Instead of obtaining hard statistical values the QuA uses broader terms such as 'Likelihood of Failure' against 'Likely Consequences of Failure' The information is used to form an opinion and is subjective and collected in broad terms such as Low, Medium or High.

A comparison was made between the Shell Matrix and the Australian Standard AS 2885.1 Appendix F matrix. There was good agreement between the matrices. The main difference between the two schemes is that in the Australian matrix the 'High'

risks have to be reduced to intermediate or lower rather than ALARP. Overall the two groups High/ Intermediate and Low /Negligible were numerically similar between the two qualitative schemes.

Under the Shell matrix there were 5 high-risk cells, which required reduction to ALARP status and documented demonstration of ALARP. These risks are concerned with the operation of the onshore pipeline and the LVI and handling heavy objects or truck movements near the LVI. This reduction to ALARP will again be achieved via the PIMS

**The Qualitative Analysis is more sensitive in identifying the risks that matter even though the process is subjective. The role of Qualitative Analysis is to alert the operator to the potential hazards when operating the pipeline. All the specific risks identified by the Inspector's team at the hearings are labelled 'high' in the Shell matrix and require action. In the Quantitative analysis these risks were either dismissed or given a very low frequency. SEPIL claim they are aware of the hazards and have control barriers in place to prevent an incident under PIMS and the Inspectors team accept this.**

### **Safeguarding the Integrity of the Onshore Pipeline**

Designing, manufacturing, constructing and commissioning the pipeline to the prescribed codes and standards should ensure the initial integrity of the onshore pipeline. In the longer term the PIMS and an overpressure safeguarding strategy should ensure the ongoing integrity of the pipeline...

### **PIMS – Pipeline Integrity Management Scheme**

On the Corrib pipeline there are many tasks that have to be continuously undertaken throughout its life to ensure its integrity remains at the highest level. Being a wet gas pipeline there are additional tasks to be undertaken by SEPIL compared to the gas transmission pipelines operated by BGE. These include flow assurance, internal corrosion control and the suppression of methane hydrate and the monitoring of particles and erosion.

One of the key outputs of the PIMS is the publication of the Pipeline Annual Report. This assesses the health status of the pipeline via a traffic light system. The lights run from Red, Amber to Green. When the status is RED this must include a recommendation to cease operation or immediately adopt an operating mode that avoids the potential failure of the pipeline. SEPIL intend to issue the Annual Report to the Irish Statutory Authorities.

### **Overpressure Protection Systems**

The operating pressure of the pipeline is well below the wellhead shut in pressure of around 345barg. Under these conditions the pipeline codes require a pipeline overpressure protection system to be installed. SEPIL has proposed two separate overpressure protection systems covering the two different MAOP sections of the pipeline.

High Integrity HIPPS valves at the LVI will protect the 100 barg MAOP section of the pipeline. The probability of failure on demand for the HIPPS valves at the LVI is  $7.4 \times 10^{-4}$ , which equates to a SIL 3 rating reliability. An independent verification authority has certified this rating.

To prevent overpressure of the 150 barg MAOP section of the pipeline, SEPIL will reconfigure the control system at the terminal to allow the system's pressure sensors to automatically close the offshore operational valves by releasing the hydraulic



pressure in the umbilical at the terminal. SEPIL will also use a sequence of trip levels based upon pressure limits at the terminal and LVI of 93barg and 99 barg respectively. These systems will operate automatically or can be manually activated from the control room to close in the flow at the wellhead and Manifold.

It is essential that an external independent regulator DCENR or CER as the case maybe verifies the reliability of this arrangement, before operating this pipeline.

**One of the key elements of the Corrib onshore pipeline design is that the pipeline will be hydrotested to 504 barg. This is related by the codes to the design of the pre LVI section of the onshore pipeline. However the hydraulic test pressure is extremely high when compared to the MAOP's of the pipeline sections. Therefore the design of the pipeline should provide additional protection even if the overpressure protection systems fail and the pipeline is subjected to the full downhole tubing pressure of 345 barg.**

### **Loss of Umbilical and Control of Subsea Valves**

The Bord required SEPIL to provide an analysis of what are the consequences of severing the umbilical resulting in loss of control of the wellhead and manifold valves.

The overpressure protection systems at the wellhead or the LVI are designed to fail closed with any loss of hydraulic power or the wing valves will close if electrical power is lost. If only the communication cables are severed then alarms sound in the control room and the operator can manually closedown the system by venting the hydraulic pressure in the umbilical.

**SEPIL claim that overall there is no credible scenario, which would allow the gas pressure to exceed the MAOP by severance of the umbilical. The inspector's team accept this analysis.**

### **Pipe in the Tunnel**

Routing of the pipeline under Sruwaddacon Bay via a 4.9m tunnel is one of the biggest contributions to pipeline safety, along with lowering the pipeline pressure.

**The evidence presented by Mr. T Jaguttis of Motte & Partner GmbH at the Hearing was crucial, especially his experience in building a similar tunnel carrying a 79.9 barg gas transmission pipeline. This was the 4km Ems tunnel between Germany and the Netherlands.**

**The Inspector's team was satisfied that the design of the tunnel over such a long distance was feasible and did not involve unproven technology. Also the design and construction of the pipe in the tunnel was practical. Mr. T Jaguttis was confident that the Tunnel Boring Machine could handle the geotechnical conditions found in the bay**

SEPIL were also confident that there would be no pipeline operational problems within the tunnel since the tunnel would be fully grouted after the pipeline is built and tested. The grout is able to conduct an electrical current and therefore can support the cathodic protection system inside the tunnel. Should any pipeline damage occur in the tunnel, SEPIL were confident that an intervention pit could be used to repair the pipe or a new smaller diameter pipe could be inserted up the bore of the existing pipeline.

### **Pipe and Umbilicals in the Stone Road**

SEPIL were asked to examine the risk to the pipeline and umbilicals from settlement in the stone road and provide an estimate of the stone road settlements. From the



calculations and modelling work performed, SEPIL were confident that under operational conditions the stresses on the pipeline and umbilicals would be low.

SEPIL performed a sensitivity analysis on what settlement would cause the pipeline to reach 100% SMYS. This concluded that a settlement ten times greater than the predicted 0.6m would be required. SEPIL also varied the unsupported pipe span from 2m and 40m, which only changed the percentage of the allowable stress from 25% to 37%. The stress analysis predictions for pipe in the stone road were based upon computer modelling. Modelling of the Type 2 design is complex where a base layer of a peat and stone matrix is deployed between the stone road and the mineral soil. At the Hearing SEPIL admitted that they had not taken measurements of settlement of the existing stone road to verify the model's predictions.

**This report accepts the conclusion from the SEPIL modelling that the pipe and umbilicals will not be overstressed from any ground movement. However since there are areas of concern SEPIL need to obtain actual data to confirm their modelling predictions**

### ***Recommendation***

It is recommended that SEPIL set up the required instrumentation to measure ground movements at the areas of concern. These are; the LVI offshore pipeline interface, at the transition areas between the grouted pipe in the tunnel and the buried sections, in the stone road at the deep peat sections and at the interface between the existing and newly laid sections of the stone road. Also SEPIL should deploy stable strain gauges (including vibrating wire gauges with protective housings) on the pipeline to verify the maximum predicted stress levels on the pipe and confirm the modelling accuracy. The instrumentation needs to remain insitu until steady state levels are confirmed and a sufficient period of time has elapsed to ensure exposure to a variety of environmental conditions.

### **Design of the LVI**

ABP requested SEPIL to examine three potential modifications to the design layout of the LVI at Glengad with the aim of improving the safety ratings for the population around Glengad.

The resultant risk of the straight pipe rather than a loop showed no reduction in the risk level around Glengad. The risk analysis at the LVI concentrated on the number and size of valves used and with this method of assessing risk there was little difference between the two schemes. Other risks associated with the loop such as no inspection by inline inspection methods and the removal potential erosion of bends were not included. SEPIL argued that the barriers imposed by the PIMS minimized these threats.

SEPIL were asked to examine the use of a temporary relief vent to replace the permanent fast acting isolation valves. It emerged during the Hearing that these valves were not installed to prevent the slow rise in pressure from leaking valves but to prevent the pressure rising to 105 barg under an unplanned pressure trip at full flow. Under these conditions SEPIL stated that a large diameter vent would be required which makes the use of a vent at Glengad undesirable.

SEPIL were asked to provide details on valve reliability and potential valve leakage on the wellheads, which could cause the pipeline pressure to rise and exceed the MAOP. SEPIL concluded it would take hundreds of days for the pressure to rise to the MAOP unless the leakage was grossly exaggerated.

**It is the view of the Inspector's team that the security of the LVI compound at Glengad should not be modelled upon a standard Above Ground Installation but should reflect its national importance to the energy supplies of Ireland and its high public profile.**

***Recommendation***

SEPIL should redesign the security fencing at the LVI to include a double high security fence and gates with a suitable flood lit 'dead zone' between the inner and outer fence. The outer fence should be electrified for additional protection.

**The Inspector's team accept the robust technical arguments put forward by SEPIL and no changes are proposed to the design of the LVI at Glengad apart from the increased security arrangements of the perimeter fence .**

**Application of Codes & Standards**

SEPIL was asked to clarify the code and test pressure requirements between the high-water mark and the downstream weld at the LVI (Chainage 83+390 to 83+470) and confirm that the design at this location meets the requirements set down by the Technical Advisory Group (TAG). There was some confusion over whether DNV.OS.F101 was supplemented by IS 328 and BS PD 8010 for this section of onshore pipeline.

**During the Hearing the Inspectors team has satisfied itself that the DCENR has examined the use of the offshore specification DNV.OS.F101 with the above supplements and found it acceptable for the design, construction and operation of the onshore pipeline between the high water mark and the downstream weld of the LVI. Also a hydraulic test pressure of 504 barg can be applied to the latest section of the Pre LVI onshore pipeline, while the existing section was hydraulically tested to 380barg**

The Inspectors Team felt it was extremely important to fully define what design and operational standards apply to the pre LVI section of onshore pipeline since TAG had made no recommendation covering this situation.

***Recommendation***

The best way to deal with this matter going forward would be for the DCENR together with NSAI to reinforce this conclusion by issuing a document clarifying what supplements apply to DNV.OS. F101 when used for onshore sections of an offshore pipeline.

**Gas Properties and Production– Impact on Safety**

SEPIL stated that the predicted gas properties remain as described in the 2009 hearing. This is important to the design, operation and ultimately the safety of the pipeline. At present the gas is described as predominately methane but is wet and contains a small percentage of CO<sub>2</sub>. Water in the pipeline can create potential problems from internal corrosion and the formation of methane hydrate, which have to be suppressed by pumping in methanol and corrosion inhibitor at the wellhead. SEPIL predicted the volumes of water would be low, which benefits the operational control of the gas and minimise the formation of damaging water slugs during transient flow conditions. SEPIL also predicted that the production of solids such as sand or proppants in the gas will be very low and thus erosion is not seen as a problem. These conditions are never found in BGE transmission pipelines since the gas is dried and treated before it enters the onshore transmission system.

SEPIL also confirmed at the hearing that no traces of hydrogen sulphide H<sub>2</sub>S have been detected.. This statement is important since high concentrations of hydrogen sulphide would have serious consequences related to the rate and type of corrosion and hence the safety of the pipeline. SEPIL confirmed that the levels of H<sub>2</sub>S will be monitored throughout the life of the field.

SEPIL expect the overall internal corrosion rate to be below 0.02mm/year, which is far less than the design value of 0.05mm/year. With corrosion allowance of 1mm the life of the pipeline could be extended far beyond its 20-year design life. If the rates of internal corrosion remain low then the pipeline may remain in operation between 30 and 50 years. During the hearing SEPIL confirmed that it had spare slots in the manifold and would allow additional gas pipelines to be tied into the Corrib System if the gas quality was compatible in order to maintain the throughput of the Terminal.

The Inspector's Team accept SEPIL's view that they expect the condition of the mixed phase gas flow to be benign. However, it is also noted that the nature of the gas and associated volumes of water and solids play a key role in the design and operation of the pipeline.

### **Overall Safety Role of PIMS and Annual Pipeline Report**

SEPIL has identified numerous threats to the pipeline that are controlled and managed by the PIMS systems. This reinforces the need for the PIMS to be deployed in a consistent manner over many years to ensure the safety of the pipeline. The Irish Regulating Authorities will in turn rely on the Annual Pipeline Report to confirm this.

**It is the view of this report that the Annual Report is the key to ensuring the long-term safety of the pipeline However it is essential that the information presented in the report is subjected to independent 3<sup>rd</sup> party scrutiny and that a summary is made available to the public**

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## Appendix 1 SUMMARY OF AN BORD PLEANALA REQUEST FOR FURTHER INFORMATION

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Item No.	An Bord Pleanála Request for Further Information items (2 <sup>nd</sup> November 2009)	EIS section
Top of page 2	...the Board should, therefore, (a) adopt the UK HSE risk thresholds for assessment of the individual risk level associated with the Corrib Gas Pipeline, individual risk level above $1 \times 10^{-5}$ – intolerable, individual risk level between $1 \times 10^{-5}$ and $1 \times 10^{-6}$ – tolerable if ALARP (As low as reasonably practicable) is demonstrated, individual risk level below $1 \times 10^{-6}$ broadly acceptable, and	App Q6.4 (Section 8.3 and Fig. 13)
Top of page 2	(b) adopt a standard for the Corrib upstream untreated gas pipeline that the routing distance for proximity to a dwelling shall not be less than the appropriate hazard distance for the pipeline in the event of a pipeline failure. The appropriate hazard distance shall be calculated for the specific pipeline proposed such that a person at that distance from the pipeline would be safe in the event of a failure of the pipeline.	App Q6.5(i)
(a)	Clarify the code requirements and pressure test requirements for the pipeline from chainage 83+390 (HWM) approx. to chainage 83+470 (downstream weld at LVI)	App Q2.1 (Section 3 & Section 5.4)
(b)	Provide confirmation that the design of this section of the pipeline meets the requirements set down by the Technical Advisory Group (TAG).	App Q2.1 (Section 3)
(c)	Provide an integrated set of design documentation in the form of a revised Appendix Q.	App Q
(c)1	The documentation should integrate the analysis provided in the incidental and individual documents at the oral hearing.	App Q & App Q1 (Attachment Q1B, Table B1)
(c)2	The whole set should provide a transparency of the design for the complete pipeline from the HWM to the terminal. This transparency should relate to the different site and design conditions along the pipeline and should relate to the codes.	App Q2.1 & App Q3.2
(c)3	The design should include the analysis related to ground stability	App Q4.1 (including Attachment Q4.1A) & App M2
(c)4	and should provide a system for monitoring movement of the pipeline in those areas of deep peat.	App Q4.1, Chapter 15 & App M2 (Section 8.5 & Drawing 001)
(c)5	Furthermore, the maximum allowable operating pressure (MAOP) for the pipeline should be stated.	App Q2.1 (Section 4.5) & App Q4.5 (Section 2)
(d)	Submit a new QRA that presents the analysis of risk at the different operating conditions and different locations along the pipeline route.	App Q6.4 (Table 9 & Section 8)
(d)1	The QRA should be site specific.	App Q6.4 (Table 9 & Section 8) & App M2
(d)2	The QRA should include ground movement and incorporate a database that matches the conditions of the proposed development.	Q6.4 (Section 6.4.5) & App M2/M3
(d)3	A sensitivity of the QRA is required which demonstrates the range of risk that relates to any uncertainty (in the database) of failure frequencies for the various potential failure modes of the pipeline.	App Q6.4 (Sections 7.4 & 8.7)
(d)4	The database should be relevant for an upstream wet gas.	App Q4.9 & Q6.4 (Sections 6.2 & 6.4.3.1)
(d)5	In order to eliminate any doubt please note that all failure modes should be included including the possibility of third party intentional damage at Glengad,	App Q4.10, App Q6.3 (Attachment Q6.3A, p. A5 and Attachment Q6.3B Fig. B4.5, p. B22) and Q6.4 (Section 6.4.7, Attachment B - Figs 18, 19 &

		Table 20)
(d)6	wet gas in the pipeline,	App Q4.7-4.9, App Q6.3 (Attachment Q6.3B, Figs. B3.4-B3.9 & Figs. B5.4-B5.9) & App Q6.4 (Sections 6.4.3 and 6.7.1.2)
(d)7	CO2 in the pipeline and	App Q4.7-4.9, App Q6.3 (Attachment Q6.3B, Figs. B3.4-B3.9 & Figs. B5.4-B5.9) & App Q6.4 (Sections 6.4.3 and 6.7.1.2)
(d)8	potential for Methane Hydrate in the pipeline.	App Q4.5 (Section 6), App Q6.3 (Attachment Q6.3B, Fig. B3.13) & App Q6.4 (Section 6.3.2.3)
(e)	Provide a qualitative assessment of risk. This should be prepared for the different operating conditions and different locations along the pipeline route and should provide a comprehensive assessment to include those events that cannot be easily defined mathematically.	App Q6.3
(f)	Submit an analysis of the condition where the umbilical becomes severed and the control of valves at the wellhead and the subsea manifold is lost. The analysis needs to identify what conditions apply to the onshore pipeline and the risks involved in that circumstance.	App Q4.5 (Section 3.2) & App Q6.3 (Section 4.4 & Attachment Q6.3B, Figs. B6.1-B6.4)
(g)	An examination of the potential for pressure in the offshore pipeline to increase to wellhead pressure levels in the event that all wellhead valves had to be shut in over a prolonged period and in that period incremental leakage past the valves occurred.	App Q4.5 (Section 4)
(g)1	The concept of a vent at Glengad as a measure to protect against pressure at the wellhead side of the pipeline at the landfall rising above the maximum operating pressure should be examined.	App Q4.5 (Section 7)
(g)2	Information should also be provided on the reliability of the subsea shut down valve system proposed for the wellhead and manifold offshore.	App Q4.6
(h)	Provide details of the examination of the potential increase in safety for the population at Glengad by the use of a straight pipe at the landfall and	App Q4.4
(h)1	provide full justification for the proposed design as submitted (and any revised design that may result from the modifications requested herein).	App Q4.3
(i)	Provide details of the hazard distances, building burn distances and escape distances in contours for the entire pipeline.	App Q6.5(i) & (ii)
(i)1	The applicant should indicate the outer hazard line contour which should show the distance from the pipeline at which a person would be safe. A number of these contours were provided at the oral hearing (copies of which are attached to this letter), however, the set of hazard contours should be complete and should include the entire onshore pipeline as far as the terminal.	App Q6.5(i)
(i)2	Please indicate the assumption made in determining these hazard contours and indicate any limitations that apply to these hazard contours.	App Q6.5(i) & (ii)
(j)	Provide details separately of the inner zone, middle zone and outer zone contour lines for the pipeline. These shall represent the distance from the pipeline at which risk levels of $1 \times 10^{-5}$ , $1 \times 10^{-6}$ and $0.3 \times 10^{-6}$ per kilometre of pipeline per year exist.	App Q6.4 (Section 8.6 and Fig. 15)
(k)	Provide an assessment of the societal risk for Glengad and the societal risk along the revised route. This should be fully documented.	App Q6.4 (Section 8.5)
(l)	Submit precise section by section details of the proposals for temporary peat turve storage, which take into account the condition of the existing	App M2 (Section 5, Table 2 & Drawing 001)



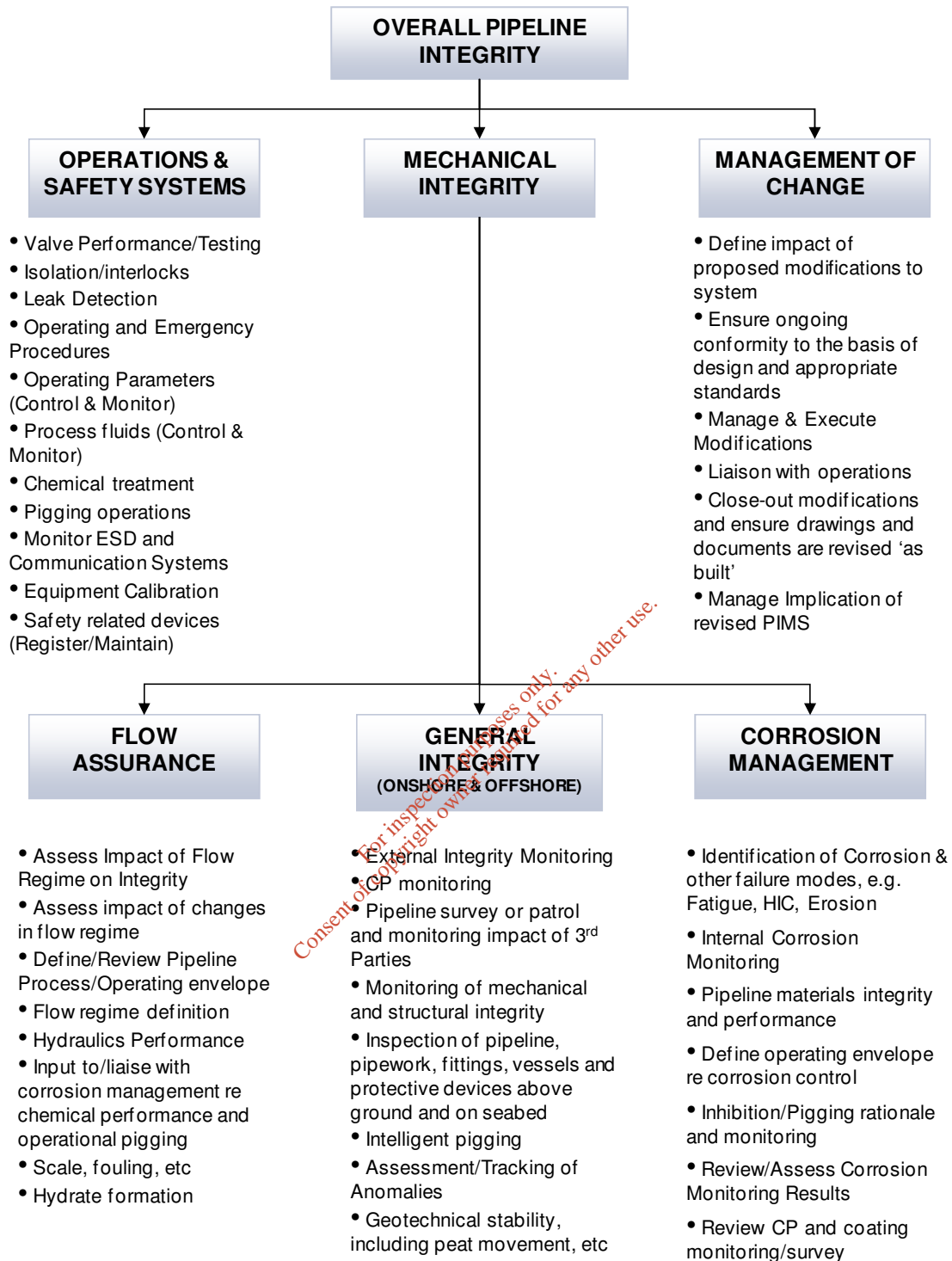
	surface layer of the peat and which specifically identify where peat turves or remoulded peat will be stored on bog mats adjacent to the stone road (or elsewhere).	
(m)	Submit details of the specific risk mitigation measures that would be proposed for each of the sections within the peat lands (Sections 1 to 18 were the relevant sections in the route as originally proposed and as set out in the qualitative assessment of relative peat failure potential which was presented as additional information at the oral hearing). These details should identify in particular where there would be limits on the storage of peat on bog mats adjacent to the stone road excavation and where a conservative approach would be proposed to the use of design factors and in the assessment of peat stability.	App M2 (Section 5, Table 2 & Drawing 001)
(n)	Submit an assessment of the potential impact of the estimated stone road settlements on the umbilical pipeline and service ducts that will also be constructed within the stone road,	App M2 (Section 8) & App Q4.1 including Attachment Q4.1A
(n)1	including an assessment of the risks associated with failure due to rupture of these umbilicals or services.	App Q4.5 (Section 3), App Q6.3 (Section 4.4 & Figs. B6.1-B6.4) & App Q6.4 (Sections 6.3.2.7, 6.4.5 & 8.1)
Page 4, para 1	Revised drawings should be submitted which fully describe the full extent of the onshore pipeline from the HWM to the terminal site.	Book of drawings & App A
Page 4, para 2	The site of the proposed development has been incorrectly detailed in the EIS between chainage 91.537 and chainage 92.539, i.e., the existing stone road at the Terminal end of the pipeline. The applicant is invited to amend the details of the proposed development at this location.	App M3 (Drawing DG0112R14)

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Item No.	An Bord Pleanála Letter (29 <sup>th</sup> January 2010)	EIS section
1	The Board's specific concern is that the undertaker should provide sufficient information and design detail to enable the assessment of whether or not the revised proposed development would give rise to an unacceptable risk to the public, having regard to the very high pressures involved, the site conditions through which the pipeline traverses and the hazards associated with the transport of untreated wet gas. It is a matter for the undertaker to provide sufficient information to enable the Board to assess the proposed development.	App Q
2	The UK HSE risk thresholds which are contained in paragraph (a) of the Board's letter relate to individual risk of receiving a dangerous dose of thermal radiation. It is the Board's understanding that the UK HSE framework for Tolerability of Risk uses $10^{-5}$ , for gas pipelines, as the boundary between "tolerable [ALARP]" and "intolerable" risk levels. The Board in paragraph (a) (at top of page 2 of the Board's letter of 2 <sup>nd</sup> November, 2009) have set out the standard against which the proposed development will be assessed. In the event that individual risk of the $10^{-6}$ or higher applies then the undertaker will have to demonstrate ALARP.	App Q6.4 (Section 8.3 and Fig. 13)
3	In paragraph (b) (at top of page 2 of the Board's letter of 2 <sup>nd</sup> November, 2009) the intent of the Board is to ensure that persons standing beside the dwellings will not receive a dangerous dose of thermal radiation in the worst case scenario of a "full bore rupture" of the pipeline at maximum pressure.	App Q6.5(i)
4	In respect of the pipeline at Glengad the undertaker is asked to provide full justification for the design proposed and the undertaker is asked to provide details of a design examination and safety evaluation of the use of an alternate layout at Glengad which would consist of a pipeline without a loop i.e. the alternative gas pipeline configuration should be considered to consist of a straight pipe at Glengad. In the interests of clarity the term straight pipe should be construed to mean a pipe without a loop and does not preclude the normal longitudinal profile from curvature and geometrical pipe layout with gradual bends to match the requirements of ground profile and other local requirements (streams etc).	App Q4.4

## Appendix 2PIMS Structure of Integrity Management

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## Appendix 3 Details of the Layers of Protection for the Corrib Pipelines

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LAYER	APPLICABLE TO PIPELINES	TRIP PROTECTION	SET POINT	DESCRIPTION
Layer 1	Offshore & Onshore	Normal operating procedures	n/a	Normal pipeline operating procedures to control pressure within the selected operating pressure range of 80 to 85 barg in initial years, to minimise the risk of triggering the over-pressurisation protection system due to an upset in the Terminal.
Layer 2	Offshore & Onshore	Terminal inlet high pressure trip (SS3)	93barg terminal inlet	Initiates trip <b>SS3</b> : Closes well subsea tree wing, master and choke valves
Layer 3a	Offshore & Onshore	LVI pressure trip	99barg,	Closes <b>LVI</b> valves and initiates <b>SS3</b> and <b>SS2</b> trips. <b>SS2</b> releases hydraulic pressure from HP and LP hydraulic lines to subsea valves and thus closes actuated subsea valves (surface controlled subsurface safety valve (SCSSSVs), master valves, wing valves, well infield line isolation valves)
Layer 3b	Offshore & Onshore	Spurious closure of the LVI shutdown valves	Either LVI valve less than 95% open	Initiate <b>SS2</b> trip which releases hydraulic pressure from HP and LP hydraulic lines to subsea valves and thus closes actuated subsea valves (surface controlled subsurface safety valve (SCSSSVs), master valves, wing valves, well infield line isolation valves)
Layer 4	Offshore	Subsea manifold pressure trip	145barg subsea manifold pressure	Initiates an <b>SS3</b> trip which closes well subsea tree wing, master and choke valves.
Layer 5	Offshore & Onshore	Manual trip, SS0 or SS1	Manual operation	Initiates an <b>SS0</b> or <b>SS1</b> trip. <b>SS1</b> Closes production master valves, choke valves and wing valves, <b>SS0</b> closes the same as <b>SS1</b> and closes SCSSSV

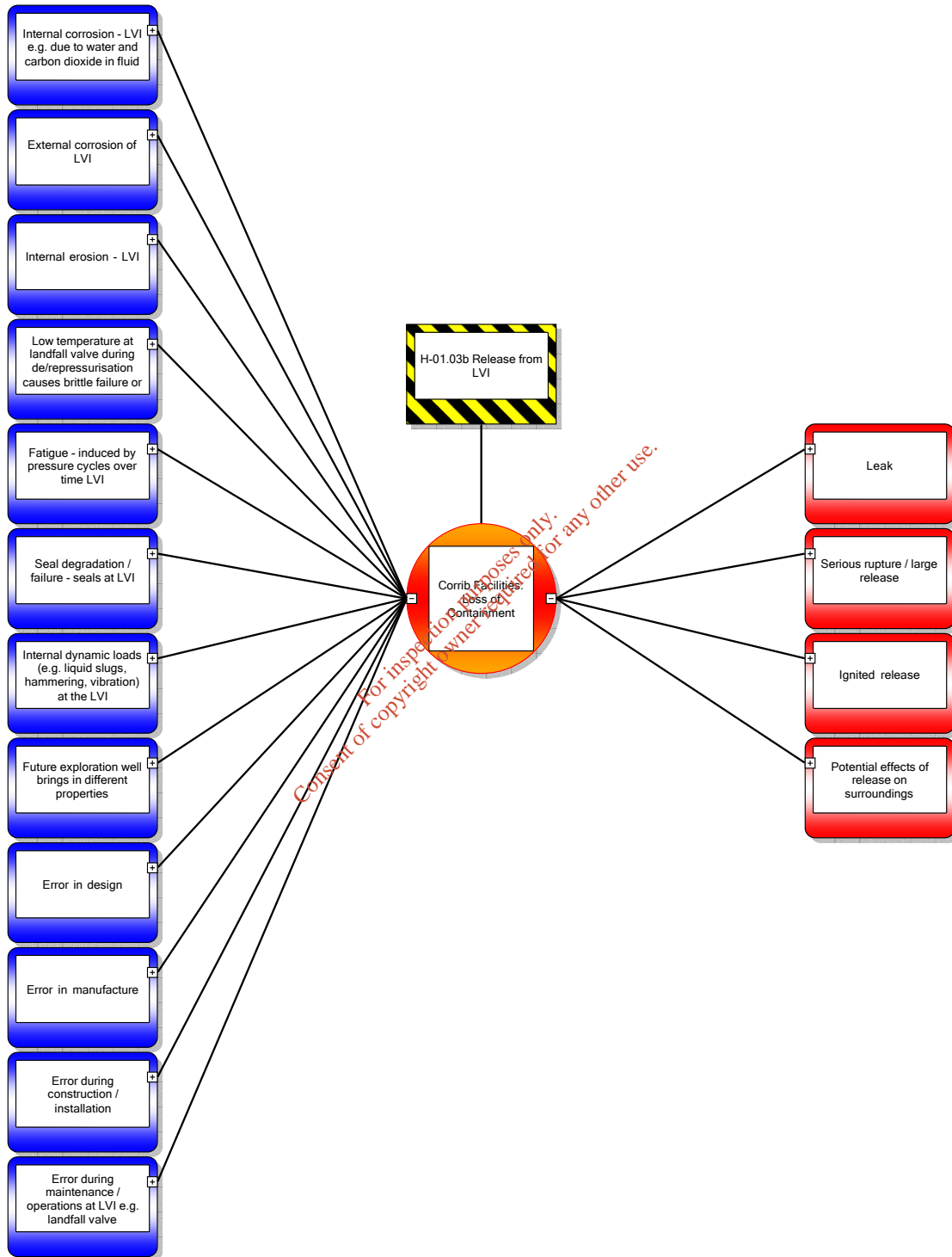
From EIS Appendix Q4.5 Table 2.2



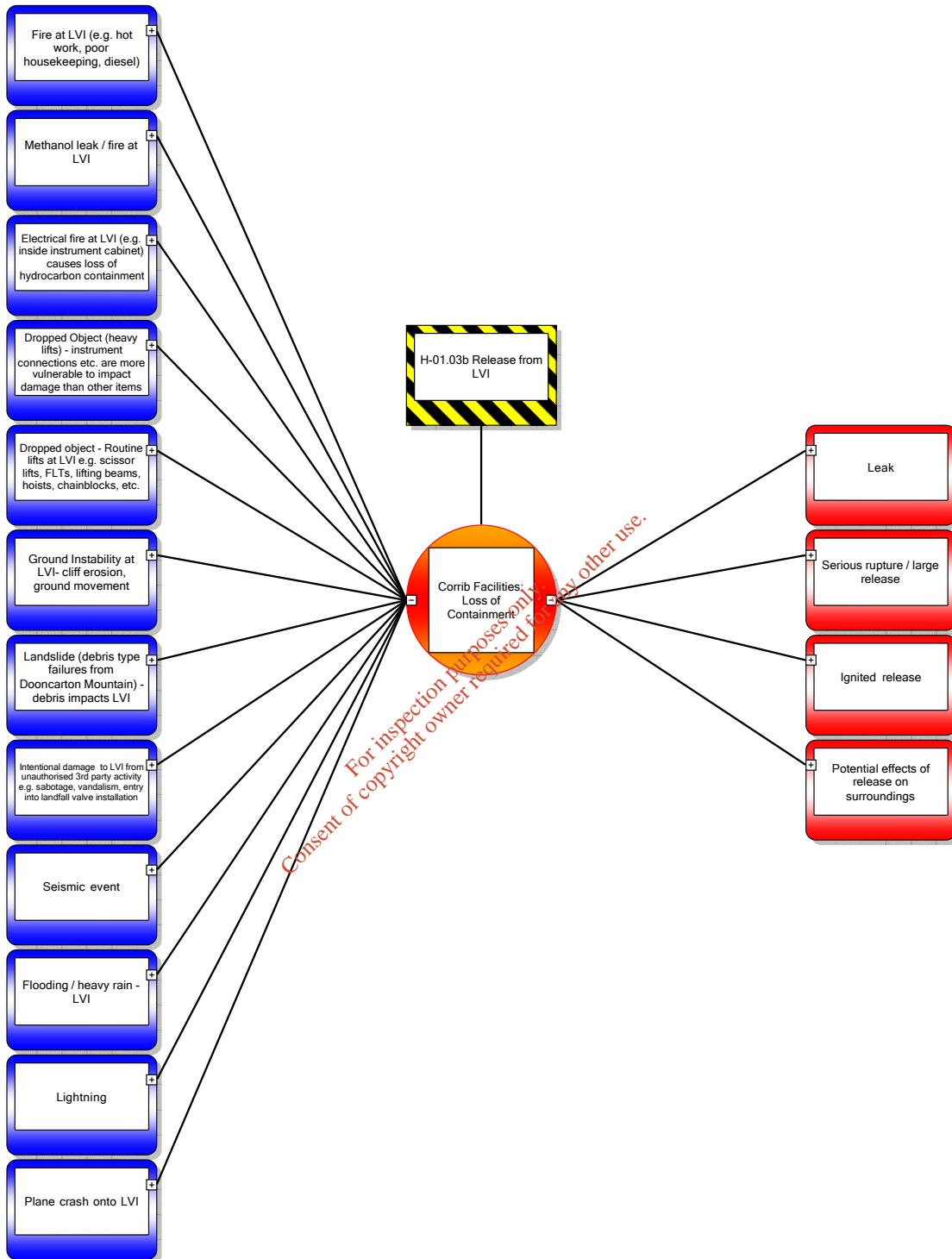
## **Appendix 4 Bowtie Analysis for the Release of Gas from the Glengad LVI and Onshore Pipeline (Overview of Threats and Consequences)**

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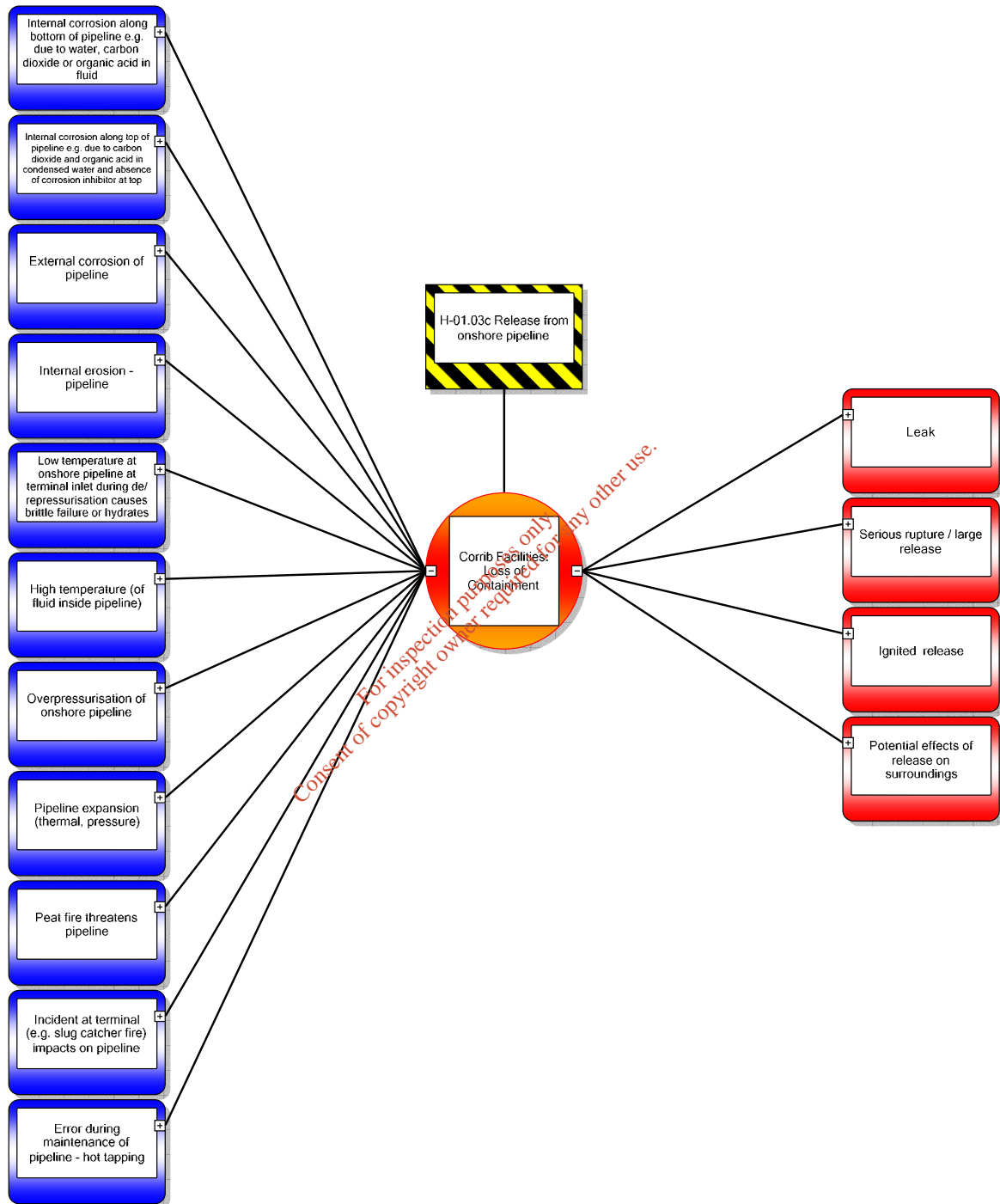
### EIS Figure B4.1 - H-01.03b Release from LVI Overview of Threats and Consequences



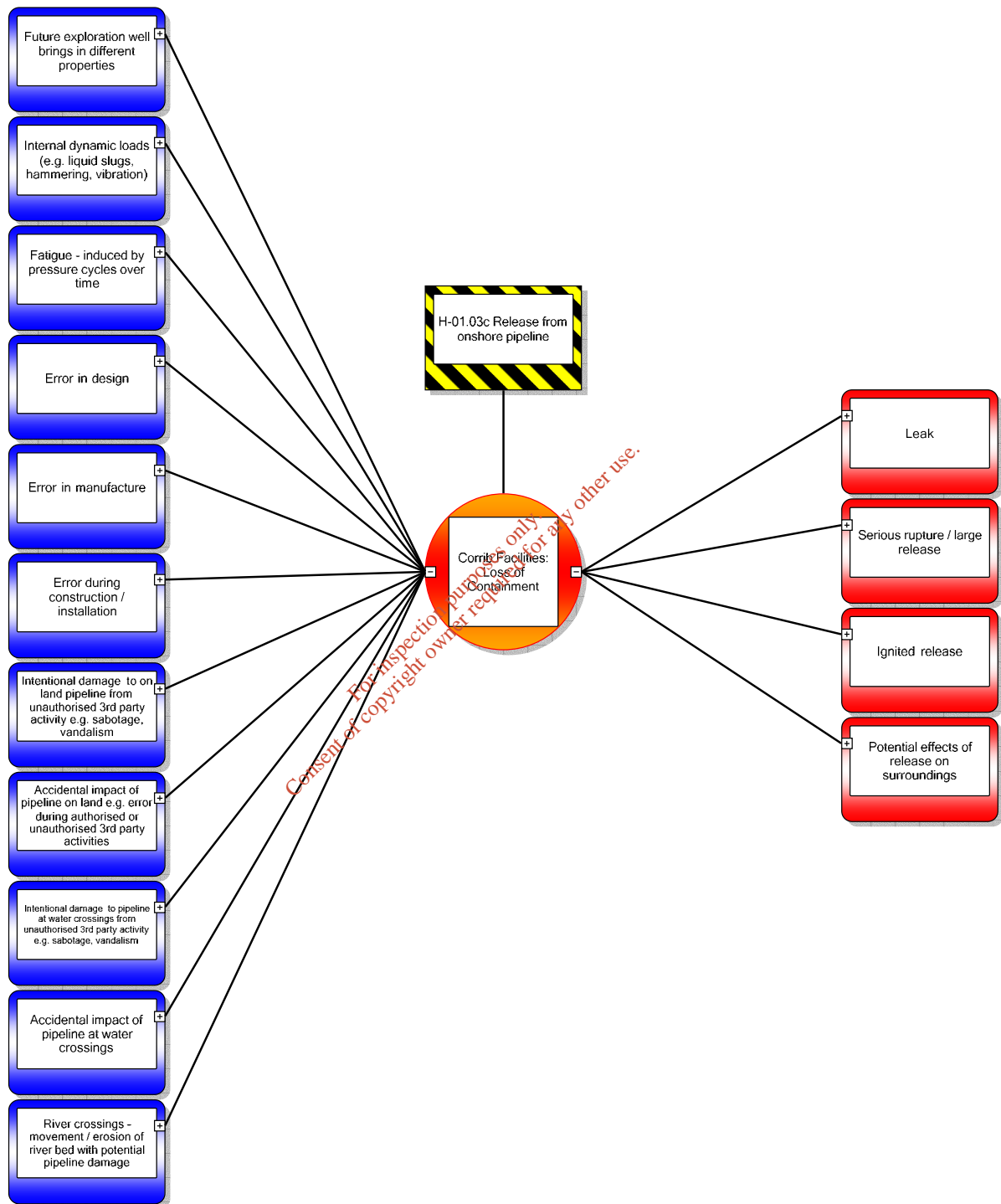
### EIS Figure B4.2 - H-01.03b Release from LVI Overview of Threats and Consequences (continued)



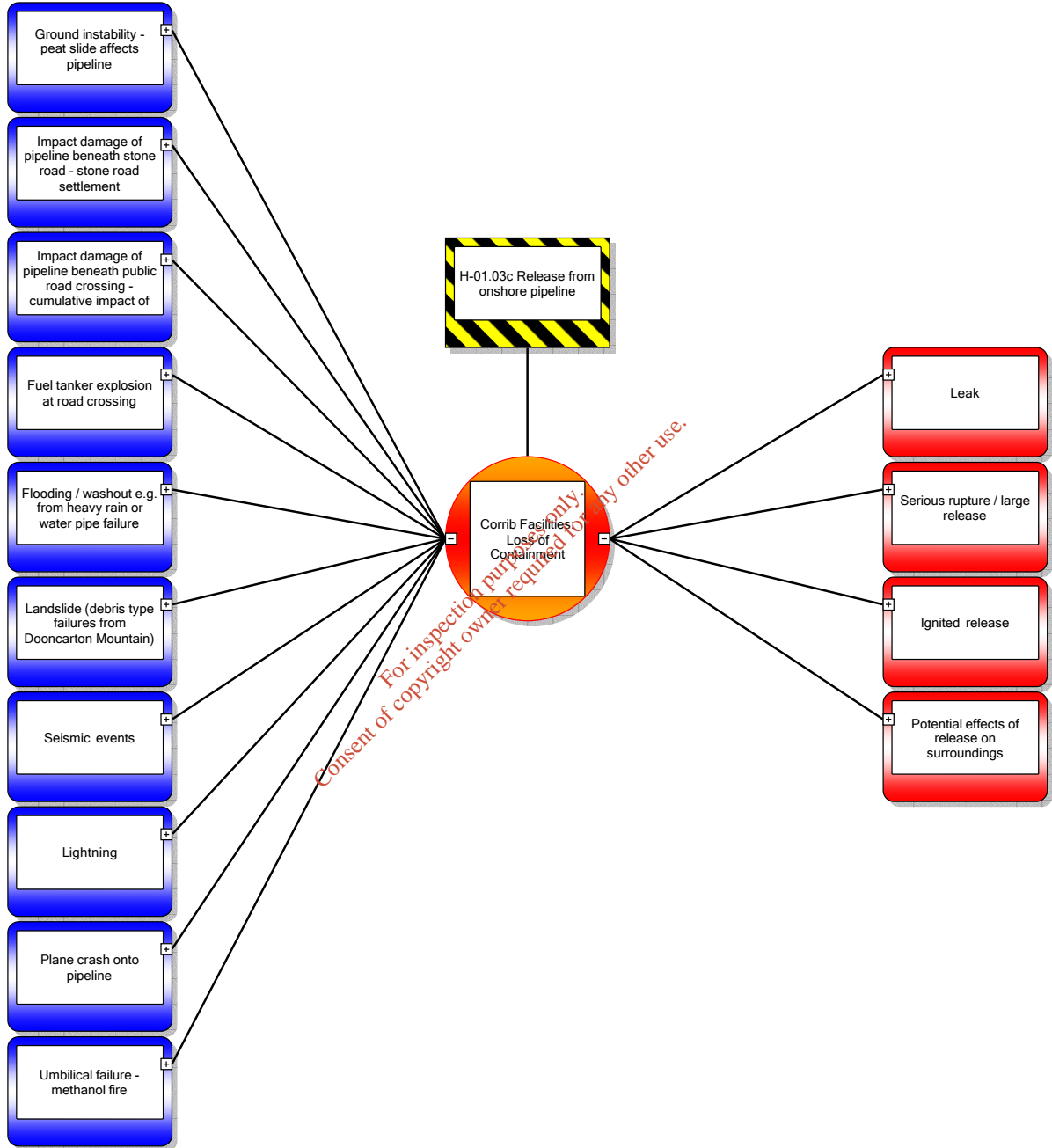
### EIS Figure B5.1 - H-01.03c Release from Onshore Pipeline Overview of Threats and Consequences



### EIS Figure B5.2 - H-01.03c Release from Onshore Pipeline Overview of Threats and Consequences (continued)



### EIS Figure B5.3 - H-01.03c Release from Onshore Pipeline Overview of Threats and Consequences (continued)





**Appendix 5 SEPIL Table 9**  
**Onshore Pipeline**  
**Threat Failure Frequency and**  
**Hole / Rupture Frequency**

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Data from EIS Appendix 6.4 Table 9 – pg 45

EIS APPENDIX Q6.4 TABLE9: BASE FAILURE FREQUENCIES FOR THE ONSHORE PIPELINE

Failure Mode	Pressure	Source of Base Data	Total Failure Frequency	Source of Hole distribution	Probability of Pinhole	Probability of Hole	Probability of Rupture	Pinhole Frequency (Per km per year)	Hole Frequency (Per km per year)	Rupture Frequency (Per km per year)
	barg		per km per year					per km per year	per km per year	per km per year
Internal Corrosion - All sections	All	CONCAWE Crude Oil	3.07E-08	CONCAWE	0.59	0.34	0.07	1.81E-08	1.04E-08	2.15E-09
External Corrosion - All sections	All	EGIG 7	3.0E-08	EGIG 7	1	0	0	3.0E-08	0	0
Material & Construction Defects - All sections	All	EGIG 7	6.36E-06	IGEM	0.83	0.17	0	5.28E-06	1.08E-06	0
Accidental External Interference – Buried Sections	100	ATTACHMENT A	2.24E-09	ATTACHMENT A	0	0.98	0.02	0	2.19E-09	5.35E-11
	150	ATTACHMENT A	4.46E-09	ATTACHMENT A	0	0.85	0.16	0	3.77E-09	6.92E-10
Accidental External Interference - Tunnelled Section	100		0		0	0	0	0	0	0
Ground Movement Glengad and Aghoos	All	PD 8010-3 and Specialist Reports	0		0	0	1	0	0	0
Other and Unknown - All sections	All	EGIG 7	6.4E-06	EGIG 7	0.95	0.05	0	6.03E-06	3.17E-07	0
Total for buried sections								1.14E-05	1.41E-06	2.20E-09
Total for tunnelled section								1.14E-05	1.41E-06	2.15E-09

## Appendix 6 SEPIL Table 11 Base Failure frequencies for the LVI

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EIS APPENDIX Q6.4 TABLE 11: BASE FAILURE FREQUENCIES FOR THE LVI

Equipment	Total Failure Frequency (1) Per year	Probability of 25mm hole (Overall)	Probability of 75mm hole (Overall)	Probability of >100mm (Overall)	25mm hole Frequency Per year	75mm hole Frequency Per year	Frequency >100mm Per year	Number at LVI
Large Manual Block Valve (MBV)	2.45E-04	0.1	0.05	0	2.48E-05 (2)	1.24E-05	0.00E+00	3
Large Actuated Safety Shutdown Isolation valve (ASSV)	5.95E-04	0.04	0.12	0	2.48E-05 (2)	7.21E-05	0.00E+00	2
Small Manual Block Valve (MBV)	2.10E-05	0.17	0.04	0	3.66E-06	8.46E-07 (2)		23
Small Manual Choke Valve (MCOV)	1.71E-04	0.02	<0.01	NA	4.23E-06 (2)	8.46E-07 (2)		1
Small Manual Check Valve (MCV)	7.03E-05	0.06	0.01	NA	4.23E-06 (2)	8.46E-07 (2)		3
Large flange	6.18E-05	0.05	0.08	NA	3.33E-06 (3)	4.76E-06		5
Instrument	2.88E-04	0.02	0.01	NA	4.91E-06	3.50E-06		5