AN BORD PLEANALA

ORAL HEARING

RE: 08.GA0003

PROPOSED SHANNON PIPELINE

BETWEEN FOYNES CO. LIMERICK AND RALAPPANE, CO. KERRY

HEARD BEFORE INSPECTOR

MS ANNE MARIE O'CONNOR

ON MONDAY, 1ST DECEMBER 2008 - DAY 1

AT THE LISTOWEL ARMS HOTEL, LISTOWEL

Gwen Malone Stenography Services certify the following to be a verbatim transcript of their stenographic notes in the above-named action.

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CO. KERRY:	**MR. PAUL STACK**
	MR. MICHAEL McMAHON
	MR. DECLAN O'MALLEY
CO. LIMERICK:	
TARBERT DEVELOPMENT ASSOCIATION:	**MR. FOX**
	MS. JOANNE MURPHY
KILCOLGAN RESIDENTS ASSOCATION & SAFETY BEFORE LNG:	**MR. McELLIGOTT** **MS. GRIFFIN**

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THE ORAL HEARING COMMENCED ON MONDAY DECEMBER 1, 2008 AS FOLLOWS:

INSPECTOR: Good morning, ladies and gentlemen. My name is Anne Marie O'Connor. Can everyone hear me down in the back? It may be a bit loud. I am just going to -- I know we were due to start at 10. I am going to suggest that we delay until about a quarter past, because of the road conditions today, and people maybe have been delayed in that respect, so I now propose that we start the proceeding at 10:15. Thank you. 10:01 10:01

Morning everyone, welcome. My name is Anne Marie O'Connor. I am a Senior Planning Inspector with An Bord Pleanala. I have been appointed by the Board to conduct this oral hearing. I will be assisted by my colleague, Leonard Mangan, who works on the administrative side of the house. 10:17

The Board has also engaged the services of a stenographer to keep record of the proceedings. This record will not be made available until after the Board's decision has been made. No other person is permitted to make a recording of any kind of this hearing. 10:17

Before proceeding any further, I would ask everyone please to note the location of fire exits, and to

ensure that all mobile phones have been switched off.

There are attendance sheets on the tables for the various parties, and I would ask everyone to please complete these clearly in block capital letters. 10:18

This hearing relates firstly to PL 08.GA0003, a gas pipeline to connect the Shannon LNG Terminal at Ralappane County Kerry, to the natural gas network at Leahy's, County Limerick. This application is made 10:18 under Section 1(a)(2)(c) of the Planning & Development Act, 2000, as amended by the Planning & Development Strategic Infrastructure Act of 2006. It is accompanied by an Environmental Impact Statement.

10:18

Secondly, to PL08.DA0003, the related compulsory acquisition order, made under the Gas Act of 1976 as amended.

It is my intention to hear submissions in relation to 10:18 the compulsory acquisition order first, and then to move on to the planning application. The purpose of this hearing is not to arrive at a determination, but as an informal information gathering exercise to aid the Board's understanding of issues arising. It is my 10:19 intention that the hearing will be conducted without undue formality as required by Section 135 of the Planning & Development Act.

I would now like to take a quick roll call.

We have the applicant, Shannon LNG Limited in attendance.

MR. FITZSIMONS: Good morning, Inspector. My name is Jarleth Fitzsimons, instructed by Nicola Dunleavy of Matheson Ormsby Prentice, Solicitors. 10:19

INSPECTOR: Perhaps you can give a brief outline of your team here today, and the length of the duration of your initial submission. 10:19

MR. FITZSIMONS: Yes. The team, Inspector, to use that term, are a number of witnesses who will be giving based on their individual areas of expertise, and closely following the format of the Environmental Impact Statement that has been submitted to An Bord Pleanala with the application under PL 08.GA0003. 10:19

It is anticipated, Inspector, that around a dozen witnesses would give evidence to the oral hearing, and that that would certainly finish within today. 10:20

INSPECTOR: Thank you very much. We have -- from the Local Authorities we have Kerry County Council in attendance. Perhaps you can give your names please. 10:20

MR. McMAHON: Michael McMahon, Director of Services.

INSPECTOR: If you just pull the microphone closer to your mouth.

MR. McMAHON: Mike McMahon, Director of Services, Kerry. 10:20

INSPECTOR: I don't think the mike seems to be operational. I think the sound gentleman might be able to fix that for us. 10:21

Okay. Fire ahead.

MR. McMAHON: Micheal McMahon, Director of Services, Kerry.

MR. O'MALLEY: Declan O'Malley, Senior Executive Planner. 10:21

MR. STACK: Paul Stack, Senior Planner, Kerry County Council.

INSPECTOR: I don't think anyone from Limerick is in attendance at the moment. Perhaps they are delayed due to road conditions, but we will move on. 10:21

Are there any other prescribed bodies in attendance at the hearing today? Perhaps you can identify yourselves. 10:21

MR. CAGNEY: Dennis Cagney of the Commission for Energy Regulation.

INSPECTOR: Mr. Cagney, I understand

that due to time constraints, you might have to leave us this afternoon. Perhaps if you do wish to make a submission, you might let myself or Leonard know perhaps after lunch, and we could accommodate you at that point. 10:22

MR. CAGNEY: Fine, I appreciate that.

INSPECTOR: Now, can I ask if there are any objectors to the compulsory acquisition order who are in attendance here today? 10:22

MR. McELLIGOTT: John McElligott, Safety Before LNG.

MS. GRIFFIN: Catriona Griffin, Safety Before LNG.

INSPECTOR: Sorry, is the mike turned on there? 10:22

MS. GRIFFIN: Catriona Griffin, Safety Before LNG.

MR. O'MAHONEY: Brendan O'Mahoney, a local resident. 10:23

INSPECTOR: I understand from the submission that you have made on the CAO that your objections, much of them are -- all of them, in fact, are a duplication in relation to the planning application. Would you be happy therefore that we deal with the -- we deal with your submission through the planning and the planning module of the hearing? 10:23

MR. O'MAHONEY: Yes, but we would also

like, ma'am, since Dennis Cagney is only going to be here for one day from the CER, we think it is very relevant that he stays on for the full oral hearing because the planning application is being held in parallel, and the CER stated that they will not have any oral hearing if there is an An Bord Pleanala oral hearing. So I think it is not correct that he would leave very quickly, because there are a lot of questions that we have to ask him as well. 10:23

INSPECTOR: Okay. Well, we will take that into consideration. 10:24

Then any observers in relation to the planning application? Perhaps if I would just do a roll call of those who have made written representations, they are Tarbert Development Association. 10:24

MS. MURPHY: Joan Murphy, Tarbert Development Association.

INSPECTOR: Ballylongford Enterprise Association? 10:24

Catriona Griffin.

Thomas O'Donovan.

MR. McGELLICOTT: He will be coming later.

INSPECTOR: And the Kilcolgan Residents Association/Safety Before LNG. 10:25

Can I ask if there are any other observers in attendance today who would like who be heard by the

hearing in relation to the planning application?

Could you give your name please, sir?

MR. FOX: John Fox, Tarbert Development Association. 10:25

INSPECTOR: There is a fee of €50, Mr. Fox. Perhaps you could sort it out with Mr. Mangan here.

Are there any elected representatives in attendance here today who would like to be heard? No. Okay. Thank you very much. 10:25

In relation to the order of proceedings, we will begin with a brief description of the proposed by the applicant, which should not exceed 10 minutes. I'll then hear all objections to the CAO. In this respect I'll draw attention to Article 6 of the second schedule of the Gas Act 1976, which states that: 10:26

> A dispute as to the amount of compensation payable is not grounds for an objection to the making of an acquisition order.

The Applicant will then have an opportunity to make its presentation in respect if the CAO. Can I ask if Kerry County Council intend to make a submission in relation to the CAO? 10:26

MR. McMAHON: No.

INSPECTOR: We will then have any cross-questioning, and

finish with the closing summations by the parties. In relation to the planning application, I intend to hear submissions in the following order. The applicant, Local Authorities, other prescribed bodies, observers who have already made written submissions, and any late observers. I think, Mr. Fox, you are the only one of those at the moment. 10:27

Finally we will then have cross-questioning, and then finally closing submissions will be heard in the reverse order. There should be no introduction of fresh evidence during summations, and legal submissions should be made during your main submission. Parties may also make reference to possible conditions in their submissions, without prejudice to my recommendation to the Board or the Board's decision. 10:27 10:27

I note in relation to the roll call that the HSA are not present here today, and I know that that is an issue that has been raised by the observers, so I would just like to draw your attention to the written submission that the Board has received from the HSA, which is on the public file, which can be examined at any point during the proceedings from this table over here. It is free to anyone in the room who would like to have a look at the public file. 10:27 10:28

So before we begin, I would just like to ask that the speakers begin by introducing themselves, and as

clearly as possible for my colleague, the stenographer over here please. And when giving expert evidence, please outline your qualifications.

Speakers are asked to make their submissions brief and to the point, and to avoid undue repetition. 10:28

I would also stress that no one should be interrupted during the making of their submission except by myself, should it be necessary. I would ask parties to avoid conferring and moving around during the presentation of others. Are there any questions before we commence? 10:28

MR. McELLIGOTT: Yes. We would like to have our witness ask questions as well. We would like to interrogate the HSA. The above-ground installation of the current application is on a site that is a SEVESO 2 top tier site. It is inconceivable that a member of the HSA cannot be here to defend his presentation. The QRA for the pipeline was only presented very late, and how can we have a proper oral hearing if you do not have an HSA person who is going to decide on the safety aspects, not even here to answer questions. That is the first problem immediately. 10:28 10:29

INSPECTOR: And your expert witness is with you here today? 10:29

MR. MCELLIGOTT: He is arriving. He is caught in traffic on the roads.

INSPECTOR: Well, perhaps we will wait until later in the proceedings and we will deal with the matter then.

I would now like to call upon the Applicant, Shannon LNG Limited to make a brief presentation of the proposed development. 10:29

MR. FITZSIMONS ADDRESSED THE ORAL HEARING AS FOLLOWS:

MR. FITZSIMONS: Thank you, Inspector. Inspector, before Mr. Power delivers the brief presentation to which the Board has adverted in its order of proceedings, very briefly I would like to clarify from the Applicant's perspective the purpose of the hearings that have been convened by An Bord Pleanala pursuant to the legislation. As you, Inspector, are well aware, and the members of the Board are well aware, the Oireachtas has transferred certain functions to An Bord Pleanala that hitherto were exercised by the Commission for Energy Regulation, and that transfer takes place only in circumstances where an undertaker intends to carry out a strategic gas infrastructure development as defined in the Act. Again, as the Board is well aware from the pre-application consultations and the process set out in that regard, this pipeline development is such a strategic gas infrastructure development, and therefore the application for the approval of that development is 10:29 10:30 10:30

made pursuant to An Bord Pleanala rather than to the Commission for Energy Regulation, and of course, again, as you are aware, Inspector, and as the members of the Board are aware, any such application for approval for proposed strategic gas infrastructure development must be accompanied by an Environmental Impact Statement, and this application was accompanied by an EIS.

10:31

In that circumstance, Inspector, Section 182(D) of the Planning & Development Act, 2000, as inserted by the 2006 Act, sets out the relevant or material considerations for An Bord Pleanala when it is considering whether to grant the approval sought pursuant to the application.

10:31

10:31

And in circumstances, where a decision is made to approve the proposed development, the Act further provides that in that circumstance of approval, no planning permission is required. Therefore, the development consent that is being sought by the developer on this application is an approval of the proposed strategic gas infrastructure development which is, as the public notices have set out, a pipeline. And that point is made, Inspector, to draw a clear line of distinction between the previous application made to Board under reference No. 08.PA0002, and that application related to the then proposed liquified natural gas regasification terminal located on the Southern shore of the Shannon Estuary in the townlands

10:31

10:32

of Ralappane and Kilcolgan Lower, County Kerry.

And that planning application made under the Strategic Infrastructure Act was determined by An Bord Pleanala on the 31st of March 2008. 10:32

A judicial review was brought challenging the decision of the Board to grant permission under that reference, and those proceedings were withdrawn before the High Court in October of this year. 10:33

In those circumstances, the permission granted by the Board in relation to the terminal, Inspector, deals with all terminal specific aspects. It is significant that condition No. 7 in that particular permission 10:33 required that:

> In accordance with the terms of this permission, the liquified natural gas terminal shall be for the purpose of supplying natural gas into the national grid, and may have the purpose of providing strategic reserve storage. No gas, whether in liquid or gaseous 10:33 form shall be permitted the site by road tanker, nor, except in the event of an emergency, shall there be any re-export of liquified natural gas from the site by tank or ship.

In those circumstances, Inspector, it is clear that the Board have conditioned that the gas is to leave the 10:33 terminal by way of pipeline because the alternative modes of transfer of the gas; namely, road storage and reshipment or re-export by shipment have been expressly precluded by the Board. That decision was made, that

decision was challenged, and that challenge was unsuccessful. In those circumstances, the subject matter of the planning application before you, Madam, and the Board, relates to the pipeline, and not to the terminal. In my respectful submission, any issues that have been determined already by the Board on the terminal application do not arise for reconsideration by the Board on this application. 10:34

Finally, Inspector, as the Board is aware, the second transfer of powers from the CER to the Board of relevance to this application are those in relation to the compulsory acquisition order. Again, where the acquisition order relates to strategic gas infrastructure development, An Bord Pleanala is vested with the powers of confirming the compulsory acquisition order. 10:34 10:34

In that respect, the Board is referred to Section 37 of the Planning Strategic Infrastructure & Development Act of 2006. And in addition to the functions of the CER being transferred to the Board for that purpose, there is also a transfer of functions to include all necessary ancillary powers in relation to deviation limits, substrata of land, easements, rights over land, including wayleaves and public rights of way. And of course, Inspector, those are the subject matter of the compulsory acquisition orders that are sought in respect of the proposed development. 10:35 10:35

Finally, Inspector, as the Board is aware, the 2000 Act makes clear provision for the holding of a joint oral hearing to determine both Environmental Impact Statement issues and compulsory acquisition issues, and 10:35
clearly, that is the discretion that the Board has decided to exercise in this particular respect.

Finally, in relation to what is before the Board, it is clear from that submission that there are two issues. 10:36
The application for approval of the proposed strategic gas infrastructure development; to wit, the pipeline, and secondly, the confirmation of the compulsory acquisition order.

10:36

The Commission for Energy Regulation, Inspector, retains its statutory function in relation to operational issues, and in that respect, the Board will note that an application has been made to the Commission for Energy Regulation pursuant to Section 10:36
39(A) of the Gas Act 1976 as amended, and an EIS has accompanied that submission, and those issues remain within the statutory agreement of the CER, and in my respectful submission, form no substantive part of the Board's consideration of the two aspects that are 10:36
before the Board. In those circumstances, Inspector, I would like to ask Mr. Power to deliver a brief presentation outlining the proposed development. Copies of that statement are being circulated to you,

Inspector, to the stenographer, and to the parties.

INSPECTOR: Thank you.

MR. FITZSIMONS CONCLUDED HIS REMARKS

10:37

MR. PADDY POWER ADDRESSED THE ORAL HEARING AS FOLLOWS:

MR. POWER: Good morning, Inspector. Good morning, ladies and gentlemen.

My name is Paddy Power, and I am the managing director of Shannon LNG. The company was registered in 2003 to promote the development of natural gas imports in Ireland, and the associated infrastructures such as the 10:37
Shannon pipeline.

The proposed pipeline will enhance security and diversity of supply to the island of Ireland. Shannon LNG notes that at the end of March, An Bord Pleanala 10:37
granted planning permission for the LNG terminal which Shannon pipeline will connect to, and condition 7 of that planning decision approved a gas terminal for the purpose of supplying natural gas to the national grid. In other words, it is the condition of An Bord Pleanala 10:38
that gas exports from the terminal are by pipeline, and the Shannon pipeline will facilitate this An Bord Pleanala permission and condition.

This pipeline will extend the national gas grid west from Foynes towards Tarbert, and into North Kerry for the first time. And let me just point out, this is an overview of the natural gas grid in Ireland. These are the interconnectors that are already existing from the U.K. into Ireland, and the grid -- the grid started out with the development of Kinsale gas field, it was extended into Cork and then up to Middleton and to Dublin, further extended here around the country in a ring main around the country, from Dublin to Galway, down to Limerick, et cetera. The pipeline extends up to Mayo, and also from -- the system now extends also up to Belfast and up to Derry, as you can see here. 10:38 10:38

So our proposal extends -- our proposal is to extend the national grid essentially out from here, out to the Shannon LNG site there. 10:39

This shows the local area, the Muster region, in a little bit more detail. You can see that the pipeline -- this is the ring main running around the country here. The gas comes in here from Kinsale. Recently a planning decision or planning application was made to An Bord Pleanala to extend the grid from here up towards Mitchelstown, and you can see that shown here in the dotted line. It is essentially running parallel with the existing grid. 10:39 10:39

Our proposal is to extend the grid from Foynes out to

North Kerry.

Hopefully this eventually will lead to the natural gas grid being extended to other centers of population and demand, such as Listowel, Tralee, Killarney and Kerry, 10:40
although it should be noted that future possible expansion does not form part of this application. A few other areas that will come up in my talk, a few other points of interest, is Tarbert, of course, which is in here just beside the site, Moneypoint power 10:40
station is directly across the river from the proposed site, Tarbert power station is almost encompassed by the large dot as well, is in that area.

I will address some questions that the Board had in 10:40
relation to those locations.

Additionally, the pipeline can facilitate a gas supply to power generation sites at Tarbert and Moneypoint, or elsewhere in the region if natural gas is required 10:40
there, and the commercial and regulatory arrangements are in place, and I'll discuss these in greater detail in my second statement.

Also, Shannon pipeline will serve as an alternative 10:41
import group for supplying natural gas to customers throughout the island of Ireland from Kerry to Belfast and Derry, and from Galway to Dublin.

You may have read in the local press recently that an affiliate company of Shannon LNG; namely, Ballylongford Electricity Company Limited, announced plans for a power plant adjacent to the proposed LNG terminal site. It should be noted that this possible power plant does not form part of this planning application, and would, or course, be subject to a separate planning application. 10:41

Turning to my role in the project, the purpose of my evidence is to inform An Bord Pleanala about my role in the project, and explain the need for the proposed development in Ireland at this time. I'll provide a description of the proposed development, and outline the benefits of the overall project as I see it. 10:41

The need for the Shannon LNG terminal has already been accepted through the planning approval for the terminal by An Bord Pleanala as I noted earlier. The need and purpose for the Shannon pipeline is to link the terminal to the national gas grid as it is shown here. 10:42

The Shannon pipeline will extend the grid west from Foynes to Ralappane in County Kerry. And Ralappane is underneath the white marker there. The pipeline will be 30 inches in diameter, and have a total length of about 26 kilometres. That is the dotted line shown on the map. 10:42

The design capacity of the pipeline is 1 billion cubic feet per day, and my colleague Leon Bowdoin will describe the pipeline design in more detail in his statement.

10:42

We looked at three broad pipeline corridors to connect the LNG terminal to the natural gas network. The three corridors are shown here in this figure.

Route corridor No. 1 was chosen -- this is this one here, and that goes -- possibly could have gone from the terminal northwards, across the river, over this way, past Moneypoint power station just over here. The LNG terminal is there, and we looked at bringing the pipeline this route, this route here, or this one here. This is possible route No. 1, possible route No. 2, and this is the proposed route, No. 1.

10:43

10:43

Route corridor 1 was chosen because it does not entail the difficulty of crossing the Shannon estuary. The estuary also contains the special potential areas -- special areas of conservation, or candidate special areas of conservation, proposed natural heritage area, and special protection area. These are designated areas which should be avoided if there is a viable alternative.

10:43

10:44

Corridor route No. 1 was selected, or should I say route corridor No. 2 and 3 were avoided based primarily

on the following considerations. In respect of corridors 2 and 3, the risks of the disturbance to the ecologically important estuary, with the designations of candidate special area of conservation, and in part special protection area and proposed national heritage area should be avoided if a viable alternative is available. And route corridors 2 and 3 include crossing the Shannon estuary, which should of course be avoided if a viable alterative is available. 10:44

My colleague Brendan Mangan will provide more details on why route No. 1, or the corridor route No. 1 was chosen as the optimum corridor. Again, just to remind everybody, this is the terminal site, the Tarbert is here, and Glin is -- the village of Glin is here, and Foynes is up here. 10:45

Shown on this map as well. This is the existing natural gas grid. This is in place and has been in commission for many years, and is operational. 10:45

An above ground installation will be built at each end of the Shannon pipeline. The above-ground installation is known as an AGI. The AGI in Foynes is located at the location where the proposed pipeline will connect to the national grid point, which is around here. I'll move on to the next one, which shows -- this is the proposed pipeline route here, and the Foynes AGI is proposed for this location here. I'll have an aerial 10:45

view of this in a moment.

A photograph of the proposed Foynes AGI is shown here. This is the -- the white line is -- this is Foynes, and this is the existing gas grid owned and operated by BGE. Our proposal is to bring -- our pipeline would come in -- the Shannon LNG pipe would come in here, go underneath the natural gas grid and connect down to this AGI location here that is outlined in red. 10:46

10:46

The connection to the pipeline then would be made within this boundary. The connection -- the two pipelines would connect in here.

The Foynes AGI is designed to accommodate the two-way flow of gas. That is, it will be possible to pipe natural gas from North Kerry into the national gas grid, and it would be possible for natural gas to flow from the national gas grid into North Kerry. The AGI at Ralappane, that is the AGI at the other end of the pipeline, is located on the site of the permitted LNG terminal. It is designed to accommodate the flow of natural gas from the terminal. 10:46 10:47

The AGI at Ralappane will contain odour injection and other improvement, and my colleagues Brendan Mangan and Leon Bowdoin will provide additional information of the routing of the pipeline and additional details of the AGIs, or the design of the AGIs. 10:47

In line with the European and Irish legislation, Shannon LNG will offer third-party access to potential users of the pipeline. The framework for third-party access and connections the pipeline will be approved by the Commission for Energy Regulation, the organisation appointed under statute for this purpose. To date Shannon LNG has not received any applications for a connection to the pipeline from potential third-party users. 10:47

Third-party access, in other words, means allowing a user of natural gas to connect to and use another company's gas pipeline. To give you an example of this, for instance, many large gas users of gas in Ireland purchase their gas directly in the United Kingdom, and use BGE's pipelines to transport their gas to their sites in Ireland. 10:48

The Shannon pipeline will be designed and installed under the National Gas Standard known as IS328, and my colleagues, Leon Bowdoin and Ger Breen will cover this subject in more detail. 10:48

The Commission for Energy Regulation is responsible for the regulations of the safety of natural gas pipelines under the Energy Miscellaneous Provisions Act of 2006. The CER has put in place a comprehensive framework covering the safety of the design, construction and operational phases of gas pipelines. Shannon LNG will 10:48

comply fully with all aspects of the CER's safety requirements.

Shannon LNG has applied for a Section 39 consent to construct the proposed pipeline from the CER under the Gas Act of 1976. It should, of course, be stated that the CER is conducting its own determination of the applications made by Shannon LNG to construct the pipeline. The Shannon pipeline will also need a license to operate under the Gas Interim Regulation Act of 2002. 10:49 10:49

Shannon LNG commissioned ERM to prepare a safety risk assessment on the proposed pipeline to ensure the safe design of the pipeline. This risk assessment was submitted recently to the Commission for Energy Regulation as part of the Section 39 approval process. 10:49

There are 72 landowners on the route of the pipeline, and Shannon LNG has acquired a permanent wayleave. I believe the number is probably from 67 of these landowners, although we will update that number for you later. So we are seeking five compulsory acquisition orders from five landowners, I believe would be the number. 10:49 10:50

Finally, to finish up on the benefits for Ireland from the proposed Shannon pipeline. The pipeline will provide Ireland with direct access to multiple and

diverse sources of gas around the world, and confer significant diversity of supply benefits to consumers on the Ireland of Ireland.

The pipeline would provide a new supply point to Bord Gais's high pressure transmission network. This would improve system reliability, and provide pressure maintenance in Ireland. At the moment, pressure maintenance for the Irish network is primarily provided in the U.K. 10:50

More importantly, from a local perspective, the pipeline will extend the national gas grid to North Kerry for the first time, improving the prospect of supplying gas to local towns and other customers. The pipeline is expected to generate approximately 200 jobs at the peak of construction. 10:51

In conclusion, Inspector, I believe that we have chosen the optimum route for the pipeline connecting the approved terminal and the national gas grid. I believe that my colleagues will demonstrate to you in their statements that the proposed pipeline has been routed and designed to meet best practice with regard to engineering design safety and environmental impacts. 10:51

In summary, I suppose really, this pipeline -- it is just a natural extension. It is just a natural extension westwards of the national gas grid from

Foynes into North Kerry, and extends the existing 2000 kilometres of national gas grid by another 26 kilometres. Thank you very much.

MR. POWER CONCLUDED HIS REMARKS 10:52

INSPECTOR: Thank you very much. Now before we begin the CAO module, I am just going to take a five-minute adjournment, because I understand that the Board has 10:52 received some correspondence this morning which has been faxed down, so if you'll just bear with me for a few minutes perhaps.
Thank you.

10:52

AFTER A BRIEF ADJOURNMENT, THE HEARING RESUMED AS FOLLOWS:

INSPECTOR: Thank you very much. We are now ready to move on to the CAO module of the hearing, and Mr. Fitzsimons, do you have anything?

MR. FITZSIMONS: Yes, thank you, Inspector. Inspector, as the Board will be aware, a Book of Reference was compiled dealing 10:58 with 16 plots of land along the route of the proposed pipeline. I should say that at the outset that the number of plots in total is 72, as between the termini of the pipeline. By the time of the preparation of the

Book of Reference, the vast majority of the landowners along the route of the pipeline had entered into voluntary agreements in relation to the acquisition of wayleaves. By the time of the Book of Reference, 16 remained who had not entered into such voluntary agreements. 10:58

As you'll be aware, Inspector, through correspondence with the Board, two have withdrawn some time ago, a further eight were withdrawn on Thursday of last week, and my instructions are this morning that one further objection has been withdrawn, and that is in relation to CWL 25. And in those circumstances, Inspector, Shannon LNG are seeking Compulsory Acquisition Orders in relation to the five remaining plots. And those are CWL 17, CWL 34, CWL 07A, CWL 65, and CWL 42. 10:58 10:59

From an abundance of caution perspective, it may make sense for evidence to be given in relation to CWL 25, notwithstanding the fact that the Board has been notified this morning of the withdrawal of the objection in that respect, and the entry into the voluntary wayleave agreement. But it makes perhaps some sense that that would be dealt with in the context of the other issues, even though at this stage an acquisition order is not being sought in relation to that sixth plot of land. 11:00 11:00

In those circumstances, Inspector, and subject to any

views that you have yourself, I propose to call Mr. Brendan Mangan to deal with the issues surrounding those six plots.

INSPECTOR: So are there any changes to or amendments to the Book of Reference in relation to land ownership? 11:00

MR. FITZSIMONS: Yes, Inspector. There is one amendment that is being sought pursuant to Article 10 of the second schedule of the Gas Act, and that relates to CWL 65. And in the Book of Reference, the owner or reputed owner is listed as Michael O'Connor, Leahy's, Foynes, County Limerick, and the same party is listed as the occupier or reputed occupier. 11:00

However, on further investigations last week, it was discovered that in fact, the owner or reputed owner of that plot of land is Mr. Patrick O'Connor, who is understood to be the father of Michael O'Connor, who is named therein. 11:01

In those circumstances, an application was made this morning at 9:00 o'clock by facsimile to the secretary of the Board pursuant to Article 10 of the second schedule of the Gas Act 1976 as amended, to amend the Book of Reference. To substitute the name of Patrick O'Connor for that of Michael O'Connor under the heading of owner or reputed owner in respect of the plot identified as CWL 65. 11:02

In those circumstances, pursuant to the statutory provision, a notice will be served on Mr. Patrick O'Connor today, advising him of the intention to seek the compulsory acquisition order and notifying him of his entitlement to raise a submission in respect thereof within three weeks of the service upon him. 11:02

And that notice has been communicated to An Bord Pleanala as an enclosure to the letter of today's date, notifying the Board of the application to so amend the Book of Reference. 11:03

In that respect, Inspector, I will refer you very briefly to Article 10 of the second schedule to the Gas Act 1976, which provides, under subsection or subarticle 1: 11:03

> Whereas regards a Book of Reference, an owner of land, including land comprising of serving tenement, or a person entitled to enjoy a right over land, who should have been included therein, is omitted, or the name included in such book as an owner or person so entitled is incorrect, or any land or right over land which should have been referred to in such book is omitted, or any land referred to in such book is incorrectly described, the Board -- in this instance, Shannon LNG Limited, may apply to the Minister -- in this instance, An Bord Pleanala -- in writing to correct or amend the Book of Reference. 11:03 11:04

And it is that correction that is being sought.

As a matter of formal proof, because the relevant landowner has actually entered into a voluntary

wayleave in respect of the area, but it was felt that it was prudent to ensure that the statutory entitlements of Mr. Patrick O'Connor were observed, and therefore the Board has been put on notice of that application, Inspector. 11:04

INSPECTOR: Thank you very much. Your presentation in relation to the CAO, it is fairly brief?

MR. FITZSIMONS: One brief presentation relating to six of the 11:04 remaining plots of land, which are now five, but for the reason I suggested to you, the sixth will be included just from the point of view of an abundance of caution.

INSPECTOR: Okay. Well, I propose that 11:04 we hear that now.

MR. FITZSIMONS: May it please you. Mr. Brendan Mangan, please.

MR. BRENDAN MANGAN THEN ADDRESSED THE ORAL HEARING AS FOLLOWS: 11:04

MR. MANGAN: Good morning, Inspector, ladies and gentlemen. My name is Brendan Mangan. I qualified with a Civil Engineering Degree from University College Cork in 1973, and have worked as an Engineer ever since. I also gained a law degree from UCC.

I worked for Bord Gáis Éireann for 22 years before joining Arup Consulting Engineers in 2005. In all, I have over 25 years experience in the gas industry in Ireland.

While with Bord Gáis I worked as a Senior Project Engineer and Project Manager on the design/construction of most of the gas transmission pipelines constructed in Ireland over the past 25 years. The more significant recent pipeline projects included The Gas Pipeline to the West; the Mayo-Galway Pipeline; the Gormanston to Ballough Pipeline; the Beattock to Cluden Pipeline in Scotland; Hollybrook to Wicklow Pipeline; the Ballough to Brownsbarn Pipeline in Dublin and the Pipeline to Tynagh, in Galway.

I have been responsible, inter alia, for the route design on many gas pipelines, but have worked mainly as Project Manager with responsibility for delivering projects within time and budget constraints.

Since joining Arup in 2005 I acted as Construction Manager on the Mayo-Galway Pipeline, which was constructed in 2005/2006; I had overall responsibility for overseeing site activities on behalf of the Client, Bord Gáis Éireann.

On the Shannon Pipeline I have had responsibility for Route Selection, which is addressed in Section 2.3 of

the Environmental Impact Statement.

I was involved in the initial Shannon LNG discussions with the farming organisations and, subsequently, at the detailed routing stage, liaised with the landowners.

My evidence today deals mainly with the Route Selection process on the Shannon Pipeline, but I am now going to go on and deal immediately with the CAO properties. We will deal later on with the high level routing, which shows how the 1 kilometre corridor evolved. However, I will deal now with the macro routing in relation to each of the six CAO orders.

Just reverting back to the 1 kilometre corridor, we first established the corridor, and then the next and final step, of course, is to thread the pipeline itself through the corridor and through the individual land holdings and the individual fields. This rationale, associated with the final step, is described below in the case of each of the six CAO applications.

So with each application there is a text which I will read and go through, and there is an accompanying A3 photo mosaic.

So first I'll deal with CWL-7A. Okay, with reference to the accompanying photo mosaic. As the pipeline

route approaches, the road passes immediately west of the property concerned, which road passes RDX3. The pipeline keeps south of the farm complex to the north, and north of the roadside house, and is then routed between the farm complex on the south side, and the individual house on the north side. Here, as the pipeline crosses an access road which leads to the individual house just mentioned, the pipeline enters the property of CWL-7A, crosses a small field, and exits the property at a stream. The pipeline then turns slightly left, to cross a fenceline at right angles, and is then constrained to go between the farm complex (south side) and roadside houses (north side) at the next road crossing, RDX4, which is the crossing immediately east of the property concerned. The property is 29 metres in length and comprises one grassland field. That's the end of CWL-7A.

So CWL-17. From the west the pipeline approaches RDX5, the N69, in the middle of the corridor, and swings south to keep clear of the house on the east side of the road. The route turns slightly north to minimise the length through alluvium, while also avoiding the large field containing a farm complex to the south. The pipeline route runs parallel to a fenceline on the south, crosses the minor road RDX6 into the property of CWL-17, keeps south of the archaeological feature, no. 24 on RMP Mapping, see Fig. 14.1 in EIS. It continues parallel to, and avoids crossing, the tree-lined avenue

to the south, while also keeping to the north of a further archaeological feature, no. 27 on the RMP Mapping, and exiting the CWL-17 property.

The large farm complex and significant north-facing slope constrains the pipeline route northwards to run along the bottom of the slope, parallel to a fenceline, before swinging south to ascend the slope at right-angles.

CWL-17 is 750 metres in length and comprises five numbered grassland fields.

So moving on to the next one, which is CWL-25. Generally, the pipeline route over this section has been constrained southwards, firstly by the houses, stables and horse gallops north of RDX7, and then by the ribbon development extending out from Glin along the RDX9 road. The pipeline route crosses RDX7, continues south of the farm complex, and maintains a straight alignment to the next road crossing RDX8 and beyond, before swinging southwards around an archaeological feature and ascending the hill at right angles to the slope, avoiding a cross slope on the spread to facilitate construction operations. The property of CWL comprises the three fields immediately west of RDX8.

CWL-25 is 380 metres in length and comprises three

numbered grassland fields.

Next is CWL-34. Generally, the pipeline route over this section has been constrained southwards, firstly by the houses, stables and horse gallops north of RDX7, and then by the ribbon development extending out from Glin along the RDX9 road. Having crossed RDX8, the route keeps north of the ring-fort, no. 17 on RMP Mapping, swings sharply to the south so as to ascend the ridge at 90 degrees to the slope for ease of construction. The pipeline route then crosses RDX9, before resuming its normal east-west orientation as it runs along the brow of the hill, again, for ease of construction, and turns south to descend down the slope at 90 degrees.

The pipeline route goes through the property of CWL-34 as it runs along the brow of the hill. CWL-34 is 119 metres in length and comprises one grassland field.

CWL-42. The property of CWL 42 is in the middle of a long, relatively straight section of pipeline, which for the most part is located centrally in the corridor; i.e., with no particular constraints to push the route either north or south. From the west, the pipeline route goes straight through a section of young evergreen forestry, continues through CWL-42 with a slight bend to the south to attain locally better ground, and continues across the next road crossing

with very minor local alignment changes. CWL-42 is 228 metres in length and comprises two grassland fields.

Finally, CWL-65. At the road crossing to the west the pipeline route keeps south to avoid a number of road-side houses, is then dictated by hedgelines, keeps south to avoid an area of trees and bushes and a number of outhouses before heading downhill to cross two farm roadways, enter the CWL-65 property where it parallels a hedgeline and runs reasonably straight to the Foynes AGI.

The routing here is broadly a straight line which takes the pipeline through the lands of CWL-65. CWL-65 is 159 metres in length and consists of one grassland field.

That concludes the CAO evidence.

INSPECTOR: Thank you very much. Does that conclude your presentation?

MR. MANGAN CONCLUDED HIS REMARKS

MR. FITZGERALD: Yes, Inspector. I should, in concluding the submission in relation to the CAO, note that the five remaining plots in respect of which Shannon LNG Limited is asking the Board to make the CAO arise not from a

failure to enter into leave agreements by way of an objection, but rather, for example, where there may be administration of estate difficulties, and those -- obviously have precluded any one person from being legally entitled to enter into a voluntary agreement in respect of the wayleave sought, and it is in those circumstances that developer has requested that an acquisition order be made. 11:14

So in those circumstances, Inspector, I can give you an example, CWL-17, the registered owner of the property, or the personal representatives of the estate, in circumstances where a grant of administration is not yet issued, the personal representatives would not necessarily have the legal authority to enter into a wayleave agreement, and it is in those circumstances, rather than an objection per se, that Shannon LNG is seeking the Board to exercise the powers to admit the CAO. So those types of considerations also apply in relation to CWL-34 and also similar issues in relation to CWL-07A, where both the reputed owner and the reputed occupier agree as to the ownership of the plot in question, but the land registry has not yet been perfected or amended in that respect. So those issues that remain in relation to the five plots, arise not from an objection, per se, but rather from an inability, for whatever reason, for the registered owner to actually enter into a wayleave pursuant to other legal issues that have to be pursued. 11:15 11:15 11:15 11:16

The final point, Inspector, that I should make, just in relation to the application made this morning to the Board pursuant to Article 10 of schedule 2 to the Gas Act, and that is to point out that the understanding of Shannon LNG Limited had been that Mr. Michael O'Connor was the owner of the lands, but it was only on further investigation, as previously mentioned, that it became apparent that Mr. Patrick O'Connor was in fact the registered owner of the lands, and therefore the inclusion of Michael O'Connor as the is owner or reputed owner was done in error, and it is in that circumstance that the amendment to the Book of Reference is being sought. Those are my submissions, Inspector, in relation to the CAO. 11:16 11:17 11:17

INSPECTOR: Thank you very much. I now propose to move on to the planning module, and I will be --

MR. McELLIGOTT: Can we cross-examine those people? 11:17

INSPECTOR: In relation to the CAO?

MR. McELLIGOTT: Yes, please.

INSPECTOR: I'll ask you to keep it brief and to the point.

MR. McELLIGOTT: John McElligott here. 11:17

MR. FITZSIMONS: I'm sorry, Inspector. My understanding was that the objections were being heard this morning pursuant to the order, and that that was primarily focused upon

those who had an interest in the 72 plots of land concerned, and of course while the Board has a statutory power to hear the evidence, whatever nature the Inspector feels appropriate, I think it would be helpful if Mr. McElligott would outline who exactly he represents in that respect, and his entitlement to cross-examine in respect to any of the 72 plots. 11:17

INSPECTOR: The situation in relation to the compulsory acquisition order is that Mr. McElligott's group have a written submission. There is nothing in the legislation which precludes the Board from accepting an objection to a CAO from a person who does not have a legal interest, so to speak, in the land. So I will allow in in that respect, but I would ask Mr. McElligott to really keep quite strictly to the issues that might be pertinent to the CAO, because he will have a full opportunity to deal with the other ones later. 11:18 11:18

MR. McELLIGOTT ADDRESSED THE ORAL HEARING AS FOLLOWS:

MR. McELLIGOTT: The first point I would like to point out is that each of the landowners what has signed the agreement, the wayleave agreement, has been precluded, has also found that they will not take part in any objections in the planning process. Now, this is extremely serious because we think that this is illegally preventing 11:18

landowners that have an interest from participating in the planning process. Because at the same time, they have been constantly told that it if they do not sign now, they will get nothing afterwards; the amount of money they will get later will be much less. So I know 11:19
from talking to some of the landowners that they are coming under huge pressure to sign, and they are being constantly harassed to sign the papers, because they say you'll get nothing afterwards.

11:19

But this means now that you have no landowner here objecting, because any landowner that has signed cannot object and raise his legitimate concerns. So they are caught between a rock and a hard place. That is the first point. Can you reply to that, please? 11:19

INSPECTOR: I would suggest, can you put everything together? Perhaps we'll hear questions, and then we can ask the Applicant to respond.

MR. McELLIGOTT: Okay. The second thing was 11:19
that I cannot understand why there is a compulsory purchase of land being undertaken, and we have not already got planning permission for the planning pipeline route. In other words, you are presenting a fait accompli to the 11:20
Planning Authority. Now, we did write to An Bord Pleanala, and we did point out that in your pre-consultations with An Bord Pleanala, the Shannon LNG informed An Bord Pleanala that they were in

consultations with the wayleave agreement on the route, the chosen route. So I cannot understand how An Bord Pleanala, we think you are guilty of agency capture because you have tacitly agreed the route for the compulsory purchase, since you have already been in 11:20
suggestions about the compulsory acquisition order. So we would like to know how can you discuss with the Applicant compulsory acquisition before any planning permission is given? Does that mean that you have already have already got planning permission for that 11:20
particular route? That is the second point.

The third point is that the -- there is a folio charge on a person's property for the pipeline route. If the pipeline is going through their land, there is a charge 11:21
for this whole property, their whole property. My understanding is that the latest people that have signed over the last few days have managed to get it changed to that agreement, where now there is new folio being created just for the pipeline route so that there 11:21
will not be a charge on the rest of their land.

I would put it to the Board and to the Applicant, do you not think that that is now unfair on the landowners that already signed under duress at an earlier stage, 11:21
convinced that there was going to be no extras given, where it is now clear that those holding out are getting a better deal as they hold out.

The fourth point I would like to make is that the solicitor who made the submissions for the objectors is not hear today to defend those submissions, and I would like to ask why he is not here.

They are the main questions at the moment.

MR. McELLIGOTT CONCLUDED

INSPECTOR: Perhaps Mr. Fitzsimons, you might like to respond. 11:22

MR. FITZSIMONS RESPONDED TO QUESTIONS POSED AS FOLLOWS:

MR. FITZSIMONS: Thank you, Inspector. Most of those are by way of submission to the Board rather than questions for my clients, but certainly my clients resent and totally disagree with any suggestion of harassment, and totally disagree with any suggestion of anyone signing under duress, and we feel that those remarks are improperly made to you and they should not be considered by the Board as they have not been proven and are unfair to my client. 11:22

In relation to the difficulty that Mr. McElligott has in understanding the purpose of the CAO, and in particular his criticism of the pre-consultation negotiations, that is a matter of statutory provision,

that pursuant to the Strategic Infrastructure Act, the Board is entitled, pursuant to statute, to enter into pre-consultation discussions with a proposed developer, and in those circumstances, if Mr. McElligott has a problem with the way in which the Oireachtas has set up that particular system, he has a right to bring a plenary action to the High Court, challenging the constitutionality of the Strategic Infrastructure Act of 2006. With respect, it is not a matter that can be determined by the Board. The Board itself is a creature of statute, and obviously must comply with and enforce and implement all statutory provisions of relevance to it. 11:23 11:23

So in those circumstances, it is simply not a matter for this Applicant, or, with respect, is it a matter for the Board to defend the concept of pre-consultation or pre-application consultations. The Oireachtas has specifically provided for it, and the Board and Shannon LNG entered into those statutory consultations pursuant to that particular provision. 11:23 11:23

In relation to the folio changes that have been referred to, again, Mr. McElligott unfairly made reference, without any substantiation whatsoever to signatures under duress, and my client rejects that contention. It may well be the case that certain terms and conditions agreed between Shannon LNG Limited and the particular landowner varied from folio to folio and 11:23

plot to plot, but that is a matter of private agreement between Shannon LNG Limited and the owner who has voluntarily entered into that agreement.

Of course, Inspector, those issues do not arise for the Board, because Shannon LNG is not asking the Board to confirm or make an acquisition order in respect of any plot with respect to which voluntary agreement has been entered into. So in those circumstances, with respect, it is simply not a relevant issue for consideration at this oral hearing. 11:24 11:24

I don't know how Mr. McElligott can conceive that I can explain why the solicitor for former objectors is not present. That is a matter for that individual, and clearly not a matter within my client's control or indeed the Board's control. 11:24

MR. FITZSIMONS CONCLUDED

11:24

INSPECTOR: Thank you very much. Thank you very much. Just to say that the -- I think there are two remaining objectors to the CAO at the moment. Their representative does not appear to be here today. Sorry, someone down in the back? Do we have the roving mike, please? 11:25

MR. O'DONOVAN: I am Tom O'Donovan and I am an objector to this whole operation actually. I feel it is my own personal

responsibility.

INSPECTOR: Sorry, Mr. O'Donovan, can I just interrupt you there? Is this an objection to the CAO or the planning application? 11:25

MR. O'DONOVAN: It is an objection to the pipeline. You know, you are discussing the pipeline today.

INSPECTOR: Yes. What we are dealing with, if I can just explain 11:26 at the moment, strictly relates to the compulsory acquisition order that the Applicant has sought. We will be dealing with the other issues directly afterwards, so I would ask that if your comments relate to the planning proposal, the pipeline, that perhaps 11:26 you could wait until we are dealing with those issues.

MR. O'DONOVAN: Okay, thank you. I just wanted to make my presence felt anyway.

INSPECTOR: I note that you have 11:26 arrived.

MR. O'DONOVAN: Thank you very much.

INSPECTOR: Yes, Ms. Griffin.

MS. GRIFFIN: Sorry if I miss Mr. Fitzsimon's explanation. 11:26 Just one of the questions that Johnny McElligott asked him about the landowners that signed the wayleave agreement, it was also in there in that document that if they signed the agreement, they were also signing to

say that they would not lodge any objection against the CAO or the pipeline application.

INSPECTOR: With respect, I am inclined to agree with Mr. Fitzsimons on the issue that those are matters that are outside the remit of this hearing, so we have heard your question, and we have heard the response, so I think that I would like to leave it at that at the moment. And then we can move on to the planning module, so we will begin with the presentation or the submission by the applicants, Mr. Fitzsimons. 11:27 11:27

MR. FITZSIMONS: Thank you, Inspector. Just one point of clarification if I may, Inspector. I think just before the last series of questions, you indicated your understanding that there were two remaining objectors to the CAO. Just from the point of view from a complete understanding on our side of the house, would you mind terribly identifying those please? 11:27

INSPECTOR: I have Mr. Patrick O'Connor, and I am not sure if that is the same Patrick O'Connor that is referred to in the change or not, and a Ms. Patricia Angela O'Connor. 11:27

MR. FITZSIMONS: In relation to Ms. Patricia O'Connor, my instructions are that an agreement was signed this morning in relation to that plot of land. And my understanding is that confirmation of that has been faxed to An Bord 11:28

Pleanala this morning. Obviously, it probably hasn't reached the Board, and that has been communicated to you, but that is the sixth plot to which I referred previously.

11:28

And in relation to Patrick O'Connor, that is the land holding which forms the subject matter of the application for the amendment to the Book of Reference, and why it is fair to say that that particular gentleman has 21 days from today's date to make a 11:28
submission, I don't understand that that means that he is at this stage an objector, but certainly that issue has not come to fruition, although my instructions are again that he has indicated his attention to enter into a wayleave agreement, and that is without prejudice 11:29
obviously to the statutory regime.

INSPECTOR: Thank you very much. So if perhaps you could begin.

MR. FITZSIMONS: Yes, Inspector. I'll ask Mr. Power to deliver his 11:29
statement please.

INSPECTOR: Sorry, Mr. McElligott, just very briefly.

MR. McELLIGOTT: Another point is that I would like to say that the 11:29
developer is not a government body. They are taking out a compulsory acquisition order for something that is not in the national interest.

The people, the landowners have had no legal representation here.

MR. FITZSIMONS: That's wrong.

MR. McELLIGOTT: So I would just like to ask the Board to take onboard 11:29 the fact that the threshold that the Board should apply for a compulsory acquisition order for a private company should be much higher than it would be, for example, a road, because of the dangers and the risks and the safety implications attached to that 11:30 acquisition order. So this is more just a plea to the Board to depend the rights of the people that are not putting in an objection because they signed an agreement with the developer not to object, but at the same time that does not preclude the Board from 11:30 assessing what would be in the interest of the individual. Thank you.

INSPECTOR: Thank you, Mr. McElligott. Mr. Fitzsimons.

MR. FITZSIMONS: Sorry, Inspector. While 11:30 Mr. McElligott is entitled to make submissions to you, he is not entitled to do so where he is demonstrably incorrect as a matter of fact. Mr. McElligott suggested to you, and therefore to the Board that the people signing the wayleave agreements 11:30 have not had legal advise. That is simply incorrect. You'll be aware, Inspector, and the secretary of the Board will be aware, that for example, on the 27th of November, a number of pieces of correspondence were

sent to An Bord Pleanala in respect of a number of landowners by Phillip J. Kilhane & Company, who were the solicitors representing those landowners. So it is demonstrably incorrect for suggestions to be made to the Board that people signing the wayleave agreements do not have legal advice. They do have legal advice and that is clear evidence of that. 11:31

In respect of Mr. McElligott's second point, again, if he has a criticism of the fact that the Oireachtas has amended the Gas Act to permit a private company such as Shannon LNG Limited from bringing forward a proposal for compulsory acquisition, well then he has his relief, and that is an application pursuant to plenary proceedings to the High Court, testing the constitutionality of the Gas Act. Absent that, with the greatest of respect, the Board can do nothing about it, my client can do nothing about it. Those are the statutory regulations that apply and they have been applied in full and complied with by my client in this respect. Thank you. 11:31 11:31

MR. McELLIGOTT: One final word.

INSPECTOR: No. I am actually just going to draw a line here, Mr. McElligott. I am anxious to move on to the planning module. 11:31

INSPECTOR: Mr. Power, please.

MR. POWER ADDRESSED THE ORAL HEARING AS FOLLOWS:

MR. POWER: Ladies and gentlemen, my name is Paddy Power, and I am the managing director of Shannon LNG. The company was registered -- I think I mentioned this earlier, so I won't repeat it. 11:32

I was educated in Tralee CBS and University College Dublin. I am a chartered engineer and a fellow of the Institution of Engineers of Ireland. I was involved from the beginning of the Irish natural gas industry at the exploration and development phase of the Kinsale Head gas field. 11:32

In 1978 I worked on the project team that built the first gas pipeline in Ireland from the Kinsale Head gas field through Inch Beach in County Cork. For over 30 years that pipeline has safely delivered natural gas to Irish homes, power stations and industry throughout the national gas grid. 11:32

Previously I was managing director of the semi state Irish National Petroleum Company, at the time owners of the Whitegate Refinery, and the world scale Bantry Oil Terminal. At the government's request, I led the team responsible for selling those facilities to Costco Corporation in 2001, thereby successfully prolonging the refining operation and the jobs there for a minimum 11:33

additional 15 years. These facilities have an outstanding safety record.

Shannon LNG was established to promote the development of natural gas imports to Ireland, and the associated infrastructure such as the pipeline. It is now a wholly owned Irish subsidiary of Hess LNG Limited, which is a joint venture of Hess Corporation and Poten & Partners. I am confident that Hess Corporation and the Poten & Partners will ensure that the Shannon pipeline is built to the highest health safety and environmental standards. 11:33 11:33

In my statement, there is some further information about the owners of the company, and copies of the annual report for the Hess Corporation are available at the meeting here for those that want to study them further. So with your agreement, Inspector, I'll continue now to giving some of the background to the project. 11:34 11:34

Inspector, gas reserves are rapidly being depleted in Ireland, in the United Kingdom, that's the North Sea primarily, and for that matter, throughout Europe. Because of this, LNG import terminals have been already or are being developed in many countries as shown here in this figure. 11:34

Security and diversity of supply is becoming a major

concern, especially for Ireland, as I'll demonstrate in this evidence, because Ireland is at the end of the existing gas pipeline supply chain. That is the supply chain that comes from the areas of the world where the major gas reserves are located. 11:35

The Shannon pipeline would provide an alternative source of natural gas supplies into Ireland, and I would like to make some general observations about the pipeline. Inspector, Ireland currently imports over 90 11:35 percent of its natural gas requirements through the United Kingdom. That is coming from Europe through the United Kingdom into Ireland on the grid system as shown earlier this morning.

11:35

A natural gas is a fuel of choice for electricity generation, with about 60 percent of our electricity needs being generated using natural gas as a fuel. As the U.K.'s natural gas reserves are in decline, gas from the U.K. will increasingly come from distant and 11:35 politically detached regions, including Russia.

Shannon LNG is playing its part to ensure Ireland does not become energy dependent on any region or county by proposing that the gas grid be extended to the site of 11:36 the LNG terminal, which can be supplied from various parts of the world.

This slide here shows the countries exporting and

importing LNG in 2007.

Shannon LNG notes Kerry County Council's recommendation to the Board to grant planning permission for the Shannon pipeline. Shannon LNG notes that Limerick County Council does not object to granting planning permission for the pipeline. 11:36

I will now turn and discuss the broader need for the project. 11:36

Natural gas demand in Ireland is forecast to grow by about 20 percent over the next five years, according to the gas capacity statement 2008 published by the CER. The Irish government, in its document, National Climate Change Strategy, 2007 to 2012, shows natural gas as the dominant fuel for power generation out to 2020. Natural gas is more environmentally friendly than alternative fuels for power generation, such as coil, oil and turf. The continued high level of natural gas demand will support the government in achieving both its emissions reduction targets and its 33 percent renewable electricity target by 2020, outlined in the National Climate Change Strategy. 11:36 11:37

Turn now to the supply shortfall of gas supplies into Europe that is anticipated, over the last decade, Ireland has increasingly relied on the U.K. to supply the bulk of its natural gas requirements. Now, we 11:37

import about 90 percent of our gas requirements through the United Kingdom. This strategy made sense at the time previously because the U.K. had a surplus of indigenous natural gas production up until 2003. But as you'll see in the next overhead or the next slide, 11:38
this is no longer the case. Existing indigenous gas production in Ireland and the U.K., and Ireland is included in this graph here, in essence what this graph is showing, Inspector, is this is the consumption in Ireland and in the United Kingdom. And you'll see that 11:38
the demand has been increasing through this period here, and you are out into the forecast years here.

But this shows the position of available gas from Ireland and the United Kingdom. You can see this is 11:38
dropping off rapidly. So there is a large wedge of gas here, a very high proportion of our requirements has to be imported from someplace outside the local region, and by the local region, I mean that includes Ireland and the U.K., the North Sea, that area. 11:38

The Commission for Energy Regulation forecasts that the Corrib field will come -- by the way, this graph here includes the Corrib field as well, but the impact of the -- overall, in the Corrib field in the context of 11:39
the demand and what Ireland and Britain require in the Corrib reserves would be smaller.

The CER, Commission for Energy Regulation, forecasted

the Corrib field will come on line in 2009, 2010, initially supplying up to 30 percent of Ireland's peak day demand. By 2012, 2013, however, in the face of normal production declines and rising demand, Corrib will supply only 20 percent of Irish peak day demand. 11:39

Figure 4, this one here, which was produced by the Petroleum Affairs Division of the Department of Energy, this is entitled Forecast Gas Demand -- Supply and Demand to 2020 for Ireland. It is extracted from the Sustainable Energy Ireland entitled Security of Supply 11:40 in Ireland 2007.

This chart demonstrates that while Corrib can provide welcome indigenous gas supplies for a number of years, it is not sufficient in the long-term. It is not a 11:40 sufficient long-term solution for Ireland's growing demand. There will be a significant shortfall in Ireland once production from the Corrib field starts.

The earlier graph showed Ireland and the United Kingdom 11:40 combined. This shows Ireland on its own. This is the Kinsale Head gas field production profile here, and you can see that it is in decline, and this shows Corrib coming online, and this shows Ireland's demand. So there is a large wedge of gas that -- this gas here was 11:40 supplied essentially through the pipelines, the interconnectors coming from the United Kingdom. And of course, this is a large wedge of gas out here -- or of demand out here, will need to be supplied, and the

contribution of Corrib is shown here, and the contribution in Kinsale was well, is declining in this area here.

The U.K. itself will be importing increasing quantities of natural gas in the future. The national grid, the grid operated in the U.K. high pressure pipeline system recently stated: 11:41

> Our latest view indicates that the U.K. may have an import requirement of around 51 percent by 2010, 2011 -- 11:41

In other words, the U.K. themselves are going to be a major importer of gas, and we are relying on a country to import our gas that doesn't have the gas itself. So the Shannon LNG proposal is an alternative to that. 11:41

With an ultimate expert capacity of 1 billion cubic feet a day of natural gas, the pipeline has a potential to supply up to 60 percent of Ireland's gas demand on a peak day basis in 2013 to 2014 if granted planning permission and other approvals. 11:42

The pipeline project will significantly increase Ireland's security of energy supply, meaning both the security of the gas supply and security of electricity generation. This is, of course, covered in the EIS, in some sections of the EIS. 11:42

Natural gas entering the pipeline from the energy terminal will be able to be sourced from a diverse

worldwide range of countries and suppliers, as I showed in the previous overhead. The proposed pipeline will ensure and enhance security of supply and assure a diversity of energy supply to compete with oil or coal in a sustainable manner. 11:42

The proposed pipeline will also alleviate concerns in the electricity market concerning an over-reliance on natural gas delivered through a single pipeline in Scotland. Natural gas entering the Shannon pipeline 11:42 from the LNG terminal will provide increased security and diversity of supply to Ireland, both from potential shortage or interruption, such as a failure in the U.K. to supply Ireland, or a longer term shortage of supplies due, for example, in an interruption of 11:43 Russian gas supplies to Europe as noted earlier.

I will now outline and cover the policy context within which the application is made, and show that it is -- the proposal is consistent with international European 11:43 and national energy policy developments.

The International Energy Agency first. That acts as energy and policy advisor to 27 member countries in their efforts to supply, to ensure reliable and 11:43 affordable and clean energy for their citizens. Ireland is a member of the IEA. The IEA, in their report on Ireland entitled Energy Policies of IEA Countries, Ireland 2007 Review, made the following

statement:

> A stable and secure supply of natural gas at competitive prices is of crucial importance for Ireland. The island has no operation or indigenous of natural gas after the projected depletion of the Kinsale gas field, which is already operating at end of life levels, to diversify gas supply, the opening of the current gas field is a priority and should be supported by the government. The construction of the LNG terminal has been proposed by a private operator and this could contribute to increase the security of supply and achieve diversification in supply sources. This could contribute to increase.

11:44

11:44

The report goes on to say that:

> The government of Ireland should create an investment friendly, transparent environment in the natural gas market, and consider, on an all Ireland basis, taking into account the projected demand increases, the potential of natural gas storage, and an LNG terminal for enhancing the country's security of supply.

11:44

The Shannon pipeline will facilitate the Shannon LNG terminal development, which supports the IEA objectives.

11:45

The EU Commission also had some words to say about it. The EU Commission published a green paper entitled European Strategy for Sustainable, Competitive and Secure Energy in March 2006. In the green paper there are proposals for an agreed list of priorities for the construction of new infrastructure necessary for the security of EU energy supplies, notably gas pipelines and liquified natural gas terminals.

11:45

The Irish government have also spoken of the subject. The Minister for Communications, Marine and Natural Resources published an energy white paper entitled Delivering a Sustainable Energy Future for Ireland in early 2007. Security of supply is identified as a key consideration, and the white paper states that security of energy supply is crucial for the economy and society. We need reliable access to oil and gas supplies, and the infrastructure in place to import, distribute and store gas and oil. Currently over 90 percent of Irish Energy Requirements are imported. Combined with are peripheral location and small market scale, this current reality leaves Ireland vulnerable to supply disruption and imported price volatility. Security of energy supply is a global issue, and the EU's growing reliance on energy imports increases Ireland's overall energy vulnerability. 11:45 11:45 11:46

The government's overriding policy objective is to ensure that energy is consistently available at competitive prices with a minimal risk of supply disruption. One of the government's strategic goals in the white paper is ensuring the physical security and reliability of gas supplies to Ireland because of the importance of gas in the Irish fuel mix. The white paper goes on to list the actions to be taken to ensure the security and reliability of gas supplies, including we will continue to actively encourage private sector interest in investing in gas storage facilities and 11:46 11:46

LNG, and review the potential role for government intervention in the event of market failure in light of the study's findings.

The Shannon pipeline will facilitate the terminal development, which support the government's strategic goals in the white paper. 11:47

The Commission for Energy Regulation also spoke on the subject. The CER is a regulator for electricity and natural gas in the natural gas sectors in Ireland. They are responsible for ensuring that the lights stay on, and that the gas continues to flow. The CER, in their report on Ireland's security of supply of electricity in July 2008, made the following comments in relation to natural gas exported from the proposed terminal. 11:47 11:47

The addition of an LNG terminal to Ireland's natural gas infrastructure would significantly enhance Ireland's security of supply with respect to gas. The development of an LNG terminal would further diversify gas supplies into Ireland. At present all of the imported gas is pipeline gas. And LNG terminal would be capable of importing gas supplies from all over the world. I provide this just as background to the project as a whole, Inspector. 11:47

I also believe that the proposed development of the

Shannon LNG pipeline is consistent with and supports other national and regional policy, such as the National Development Plan of 2007 to 2013; the National Spatial Strategy, 2002 to 2020; the Southwestern Regional Authority, Regional Planning Guidelines, 2004; the Midwest Regional Planning Guidelines, 2004; the Kerry County Development Plan, 2003 to 2009; the Limerick County Council plan, 2005 to 2011; Clare County Development Plan, 2005 to 2011; Tarbert Local Area Plan, 2006; Ballylongford Local Area Plan, 2007. 11:48

We know that Kerry County Council, on page 8 of its report to the Board, concluded that:

> Shannon LNG have obtained permission for the construction of a regasification facility and terminal at Ballylongford. It is considered by the Planning Authority that the proposed development of a gas pipeline connecting the AGI to the existing pipeline in Foynes does not contravene any section of the plan, and that the objectives of the plan support the provision of industrial development at this location, capitalising on its strategic coastal location. It is considered that the proposal is in accordance with the provisions of the development plan -- that is the Kerry County Development Plan -- and in accordance with the proper planning and sustainable development of the area.

11:48 11:49

I will now, Inspector, finally turn to some of the submissions and answer some of the submissions that were made in relation to the pipeline. 11:49

The criteria for route selection, and in particular the issues relevant to the possibility of linking to the

ESB generating stations at Tarbert and Moneypoint, I believe this was bought up by An Bord Pleanala itself. The Board requested Shannon LNG to address this issue in its letter to our consulting engineers, dated the 6th of November. I addressed the general criteria for route selection in my first statement, and my colleague Brendan Mangan addressed this question in more detail in his later statement. I now address the possibility of linking Tarbert and Moneypoint power stations to the pipeline. 11:50

The primary purpose of the pipeline is to extend the national gas network to the proposed Shannon LNG terminal at Ralappane. The Shannon pipeline will facilitate the export of natural gas from the terminal to the national grid. That is the primary purpose of the pipeline. 11:50

To date, Shannon -- but in relation to Moneypoint and Tarbert power stations, today Shannon LNG has not received any applications for a connection to the pipeline, including any application from the owners of either Tarbert or Moneypoint power stations. As a commercial entity, however, we will welcome the opportunity to connect power stations to the Shannon pipeline, if at any -- if at some time in the future such an application is made to us and approved by the CER, and in fact from day one, from the conceptual studies made for this development, it was always -- 11:50

that was always the consideration that was at the back of our minds.

While we have not carried out any studies of a possible connection to the Tarbert power station, if it does convert to gas, by the way, neither Tarbert or Moneypoint power stations -- Tarbert is currently fueled on fuel oil, and Moneypoint uses coal as the fuel. 11:51

But if Tarbert were to convert to gas, it is technically feasible to connect the power station using a spur pipeline from the Shannon pipeline. With regard to Moneypoint, we are not aware of any plans, or even speculation to convert it to natural gas, but we would welcome that as well, I should say. 11:51

In line with European and Irish legislation, Shannon LNG will offer third-party access to the potential users of the Shannon pipeline. The framework for third-party access and connections to the pipeline must be approved by the Commission for Energy Regulation, and I understand they are represented here today, the organisation appointed under statute for this purpose. 11:52

I would now like to comment on some other submissions made to the Board. One by Catriona Griffen. Why is the pipeline route not going next to the ESB power station at Tarbert? I feel I answered that already, 11:52

but I'll answer it again. Currently Tarbert power station is not fueled by natural gas. To date, Shannon LNG has not received any applications for a connection to the pipeline from the owners of Tarbert power station. As a commercial entity, however, we would welcome the opportunity to connect the power stations such as Tarbert to the Shannon pipeline. If at some time in the future such an application is made to us, and approved by the Commission for Energy Regulation. 11:52

11:53

Why we have not carried out any studies on a possible connection to Tarbert power station, I think I have covered that point. It is technically feasible to connect the power station using a spur pipeline from the Shannon pipeline. But having said all of the above, the proposed Shannon pipeline would not have been routed any differently, even if a connection to Tarbert power station was included in the current application. 11:53

11:53

The Tarbert Development Association had a submission. We would also like the issue of spurs or takeoff lines dealt with in the planning process. Who will be in a position to authorise these? Our response to that would be that the framework for third-party access and connections to the pipeline will be approved by the Commission for Energy Regulation, the organisation appointed under statute for this purpose. 11:53

Ballylongford Enterprise Association had a submission. Gas spurs should be put on the pipeline to allow for future connections through local towns and industries. I believe I answered this earlier this morning, but in response again, in the future we would hope that -- we would like to say that we would hope that Bord Gais Éireann and the Commission for Energy Regulation might assess the feasibility of distributing natural gas to towns in the region from the Shannon pipeline. But it would be premature at this stage to speculate on where any spurs might be located along the route the pipeline. 11:54 11:54

Limerick County Council made a submission. In their submission, they stated that sufficient funds should be available to bring the results of any archeological findings to publication. The Shannon LNG response to that is, we will ensure that sufficient funds are available to bring the results of any archeological findings to publication. 11:54 11:54

Limerick County Council also said in their submission that a special development contribution will be required to cover costs associated with repair of damaged public roads, I suspect. Further information is required to make a detailed calculation. Shannon LNG's response to that is, we will prepare a road condition survey in advance of construction, and we will consult with Limerick County Council in advance of 11:55

construction to agree the appropriate procedures associated with the repair of damage on public roads caused by, if any, caused by the pipeline construction.

Mr. Thomas O'Donovan made a submission. Mr. O'Donovan states in his submission that with the phasing out of coal and oil sources of energy, it is possible that the gas industry will monopolise the Irish market, having little or no computation with the hard pressed consumer, as usual, having no choice but to pay the price demanded. As I said earlier, I know of no, even speculation, that Moneypoint will be -- will move from coal to any other fuel. But our response to Mr. O'Donovan is that, as outlined in Section 4.12 of this statement, the Irish government, in its documentation National Climate Change Strategy 2007 to 2012, shows natural gas as the dominant fuel for power generation out to 2020. 11:55 11:55 11:56

Natural gas is more environmentally friendly than alternative fuels for power generation such as coal, oil and turf. The continued high level of natural gas demand will support the government in achieving both its emissions reduction targets, and its 33 percent renewable electricity target by 2020, outlined in the National Climate Change Strategy. Natural gas from the Shannon pipeline will have to compete for natural gas sales in the Irish market, thereby increasing competition in the natural gas market. The Shannon LNG 11:56 11:56

project is also consistent with government policy as pointed out in this statement.

Inspector, that completes my statement. Thank you.

11:57

MR. POWER CONCLUDED HIS REMARKS

INSPECTOR: Thank you very much. Your next submission.

MR. FITZSIMONS: Yes. The next statement will be delivered by Ria Lydon, covering the issue of cumulative impacts. Ms. Lydon. 11:57

MR. McELLIGOTT: Sorry, Inspector.

INSPECTOR: Yes, Mr. McElligott. 11:57

MR. McELLIGOTT: Can we ask questions of each individual speaker or?

INSPECTOR: We are going to have, as I set out in the oral proceedings, we will have cross-questioning at the very end. So the Applicant will make their full presentation, and the Local Authorities will make their presentation, the observers will, and then following that we will move on to cross-questioning. 11:57

MS. RIA LYDEN ADDRESSED THE ORAL HEARING AS FOLLOWS:

MS. LYDEN: My name is Ria Lyden. I am a Director of Arup

Consulting Engineers. I have a Bachelor of Engineering Degree in Civil Engineering, and a Master of Business Administration Degree. Both degrees are from University College Cork. I am a Chartered Engineer. I am a Fellow of the Institution of Engineers of Ireland, and a member of the Institution of Structural Engineers. I have worked as a civil and environmental engineer for 28 years.

Since 1992 I have prepared, or supervised the preparation of, numerous Environmental Impact Statements for a wide range of industrial, infrastructure, institutional, commercial and residential projects.

Arup Consulting Engineers is a multidisciplinary firm of consulting engineers based in Ireland. The scope of work of Arup Consulting Engineers on the Shannon LNG Project included preparation of the Environmental Impact Statement. My role in the Shannon Pipeline project was to supervise the preparation of the EIS.

My evidence will cover cumulative impacts. Cumulative impact is defined in Section 16.4 of the EIS. Cumulative impact is the addition of many smaller impacts to create one larger, more significant impact. The smaller impacts might be caused by the current project alone, or by other past, present or reasonably foreseeable future projects, and activities occurring

together with the current project.

Cumulative Impacts are addressed in Chapter 16, Section 16.6, of the EIS. As described in the EIS, the main impacts of the pipeline will arise during construction. Once construction is completed, the only significant impacts will be the restriction on the planting of trees or building on the 14 metre wayleave, very minor or occasional emissions of natural gas, improved security of the natural gas supply, and extension of the gas grid to County Kerry.

To determine traffic impacts in Chapter 7 of the pipeline EIS, Roads and Traffic, the traffic generated by the facility was combined with the baseline traffic generated by the existing users of the road network in the area, increased by an increment to take account of future traffic growth on the road network. Refer to Section 7.5.1 of the EIS.

It is expected that the construction of the proposed Shannon Pipeline will coincide with the final year of the four-year period of construction of the Shannon LNG Terminal. Specific cumulative traffic impacts may occur when the pipeline construction work is concentrated at the Tarbert end of the project. The pipeline Construction Phase Traffic Management Plan will be required to have regard for these potential cumulative impacts, to ensure that vehicle movements on

the local roads are suitably coordinated. The cumulative impacts determined are discussed below in the response to the Board's query.

The other planned project which may give rise to cumulative environmental impacts is the new power line connection to the Terminal. If construction of the power line occurs at the same time as the construction of the pipeline in the Tarbert area, there would be cumulative impacts as follows:

- construction traffic from both projects would increase traffic on the local road network, which would be a temporary moderate, negative impact
- construction employment and the supply of services and materials on both projects would have a temporary moderate, beneficial economic impact
- construction use of resources and generation of waste would have a temporary slight, negative environmental and positive economic impact
- construction activities on both projects would have a temporary slight, negative impact on landscape.

The proposed upgrade to the Tarbert to Ballylongford coast road will occur before the main construction phase of the terminal, so will be completed well in advance of the construction of the pipeline.

Consequently there will not be a cumulative impact.

Response to submissions. An Bord Pleanála specified that the cumulative impacts of the pipeline and the Shannon LNG terminal be addressed.
The potential for significant cumulative impacts arises during the construction phase of the pipeline which will coincide with the final year of construction of the Shannon LNG terminal.

The likely cumulative impacts are addressed in the table below.

So the table is in two parts; construction phase and operations phase. The left-hand column are the name, Environmental Media, Human Beings, Traffic, Fauna and Flora, et cetera. The next column refers to the terminal impacts, the middle column are the pipeline impacts, and the cumulative impact then is in the right-hand column.

So Human Beings, 650 jobs onsite at peak and offsite jobs in services and material providers.

Impact on shore angling. These were the impacts on Human Beings identified in the Terminal EIS.

In relation to the pipeline, 200 jobs onsite and offsite jobs in service and material providers.

So there would be a cumulative beneficial impact of jobs in the region.

Traffic. From the terminal traffic impact on local residents, and for the pipeline traffic impact on the local residents. There would be a cumulative traffic impact while the pipeline construction is underway west of Tarbert. But obviously, as the pipeline construction goes east, there will no longer be a cumulative impact, or the potential for cumulative impact.

Fauna and Flora. The terminal, temporary disturbance to fauna while construction underway, localised removal of vegetation.

Impact on a badger social group which will be relocated, and for the pipeline, temporary disturbance to fauna while construction underway, localised removal of vegetation, but no significant cumulative impact.

Soil. For the terminal, the pipeline, there are no significant impacts on soil, so no significant cumulative impact.

Water. Potential impact on the adjacent wells, which will be monitored and new supply provided if required. For the pipeline, Water abstraction for pipeline testing, but no significant cumulative impact,

because these activities will be quite some distance apart.

Air. Localised temporary impact on air quality from construction plant and vehicles exhausts, well within air quality standards. Pipeline, localised temporary impact from construction plant and vehicles. Emissions from pipeline construction will be insignificant. There will be no significant cumulative impacts.

Noise. Localised temporary impact of noise from construction plant and equipment, and pipeline. Localised temporary impact of noise from construction plant and equipment.

Emissions from pipeline construction will be insignificant. There will be slight cumulative impact, while the pipeline construction is underway west of Tarbert.

Climate. Greenhouse gas emissions from construction vehicles for both the terminal and the pipeline, but no significant cumulative impacts, because these emissions will not be significant.

Landscape. Short term impact from change in appearance of the site during construction due to site hoardings, cranes, construction barges in the Estuary, et cetera.

The terminal for the pipeline, temporary linear feature in landscape of working width stripped of topsoil and construction plant. Localised removal of trees and hedgerows at crossings. The cumulative pipeline impacts are insignificant compared to short-term impacts due to terminal construction, and no significant cumulative impact.

Material Assets. Use of fuel, water, steel and concrete, crushed stone, and generation of waste for the terminal construction.

Pipeline construction. Use of fuel, water, gravel, generation of waste. Pipeline construction impacts will be insignificant compared to the terminal, and no significant cumulative impact is expected.

I have Archaeological, Architectural and Cultural Heritage. Archaeological testing onsite and resolution of any features uncovered for the terminal site. For pipeline, archaeological testing, monitoring of excavation and resolution of any features uncovered, and no significant cumulative impact expected.

So now I am looking at the operational phase, Human Beings.

For the terminal, there will be 50 jobs onsite, and an estimated 50 jobs in the wider economy. There will be

increased competition in gas supply and increased security of supply. The Nearest residence is well outside land use planning zones as defined by the HSA. And I note that the Terminal AGI, and the pipeline at the AGI, and the pipeline across the Ralappane property were included in the Terminal QRA.

And then for the pipeline, increased competition in gas supply, increased security of gas supply. We don't expect a significant cumulative impact.

Traffic. Minimal increase in traffic from the terminal operation. No significant impact on traffic from the pipeline when it is operational, and no significant cumulative impact.

Fauna and flora. Slight overall impact on fauna and flora when then terminal is operational. No significant impact when the pipeline is operational, and no significant cumulative impact.

Soil. No significant impact for either the terminal or the pipeline in operation, and no significant cumulative impact.

Water. Low impact on shoreline habitat. Cold water emissions when the terminal is operational. We will have no -- we will have negligible impact on the Estuary. Operational phase, no significant impact on

water, and no significant cumulative impact.

Air. Process emissions from gas combustion will comply with the EPA limits and air quality standards when the terminal is operational, and no significant impact when the pipeline is operational, and no significant cumulative impact.

Noise. When the terminal is operational, plant noise emissions will meet the EPA limits. No significant impact from noise from the pipeline when it is operational, and no significant cumulative impact.

Climate. No significant impact, when either the terminal or the pipeline is operational, and no significant cumulative impact.

Landscape. Visual impact from tanks and other facilities from the terminal on nearby residences. The pipeline, once the working width and hedgerows are re-vegetated, no significant pipeline -- no sign of the pipeline except through forestry.

May I read that again, please?

Once the working width and hedgerows are re-vegetated, there will be no sign of the pipeline except through forestry. And there is no significant cumulative impact.

Material Assets. Use of potable water, natural gas, and power when the terminal is operational. On the operational phase of the pipeline will be an extension of gas grid to County Kerry, with no significant cumulative impacts.

Archaeological, Architectural and Cultural Heritage. No significant impacts in the operational phase from either the terminal or the pipeline, and no significant cumulative impacts.

Now, the next submission from Kilcolgan Residents Association. Route Corridor No. 2 would be less than 20 kilometers in length and would not qualify under the Planning and Development (Strategic Infrastructure) Act.

Response: All three routes considered were over 20 kilometers in length. We note that a gas pipeline less than 20 kilometers in length would not require planning permission or an EIS.

Conclusion: The overall cumulative impact of the proposed development will be to facilitate the distribution of an alternative source of natural gas for the island of Ireland, and an extension of the gas grid to Co Kerry. The pipeline will help to ensure security of gas supply for Ireland, will extend the gas

grid to North Kerry, and will increase economic activity in the North Kerry and West Limerick regions. Thanks.

MS. LYDEN CONCLUDED HER REMARKS

INSPECTOR: Thanks. Thank you very much. At this -- did you want to make an intervention? No? At this point I know that we have representatives from the CER and the HSA with us today who just arrived. And I was wondering if perhaps, Mr. Fitzsimons, you could call any people giving evidence who might have relevance in that respect next. 12:11

MR. McELLIGOTT: Our expert will be arriving shortly, but we would prefer if he could do that after lunch. 12:12

INSPECTOR: If the Applicant's submissions could be after lunch?

MR. McELLIGOTT: On the safety module aspect of it, yeah. 12:12

INSPECTOR: Okay. Well, if that is agreeable to you, Mr. Fitzsimons, we will take your next person.

MR. FITZSIMONS: Okay. The next witness is Mr. Mangan. You have already heard from Mr. Mangan in relation to the CAO, Inspector. There is just one issue that perhaps needs to be clarified in relation to that before Mr. Mangan 12:12

goes on to route selection. And you referred, Inspector, to an objection being maintained by Patrick O'Connor, and just to be absolutely sure, there are actually two Patrick O'Connors referred to in the Book of Reference, and I just want to be sure that I don't inadvertently misdirect the Board's attention. The first relates to CWL-27.

INSPECTOR: Can you just bear with me for just a second? Thank you.

MR. FITZSIMONS: The first is CWL-27, Inspector, and that land is situated in the townland of Ballinagoul, County Limerick, and the owner or reputed owner is listed in the Book of Reference as A, Michael and Kathleen O'Connor, and then B, Patrick O'Connor, Ballinagoul-Glin, County Limerick.

In respect of that particular plot, a letter was sent by Phillip J. Kilhane & Company, solicitors, of The Mall, Glin, County Limerick, to the Board, dated the 27th of November 2008, with reference to Mr. Kilhane's client, Patrick O'Connor, Ballinagoul, Glin, County Limerick. And that confirmed the withdrawal of the objection in respect of that plot of land. And you are already aware, Inspector, then of the Mr. Patrick O'Connor in relation to CWL-65, and then of course is the plot of land which is subject to the amendment application to the Book of Reference that was made

today to the Board.

INSPECTOR: Thank you. I'm getting questions with all of these O'Connors.

MR. FITZSIMONS: Mr. Mangan, please, to deal with the issue of rule selection. 12:14

MR. MANGAN ADDRESSED THE ORAL HEARING AS FOLLOWS:

12:14

MR. MANGAN: Inspector, I am now going to deal with route selection, the route selection; i.e., why this particular pipeline route was chosen. This is found in Section 2.3 of the EIS document.

The selection of the pipeline route followed normal pipeline industry practice. Firstly, three general route corridors were selected and then, based on a hierarchy of constraints and desktop studies, the preferred route corridor was chosen. The final route was then chosen within the preferred route corridor based on detailed surveys and consultations with landowners and third parties, as detailed in Chapter 1 of the EIS. All routes considered could be safely constructed and operated.

Initially, three route corridor options were identified. Each corridor links the site of the

proposed Shannon LNG terminal and the existing national gas network. Refer to Figure 2.1 *Route Corridor Options,* which illustrates the three corridors, which is overleaf from this document.

The three corridors were as follows: Route Corridor 1. This corridor represents the shortest feasible route on the south side of the Shannon Estuary between the proposed Shannon LNG Terminal and the existing national gas network. The corridor swings slightly southwards to avoid the towns of Tarbert and Glin. The connection to the existing network would be at a location on the existing pipeline between the Shannon Estuary and the existing Craggs AGI further to the east.

Route Corridor 2. Route Corridor 2 represents the shortest route between the LNG Terminal and the existing gas network, while also minimising the length of the Shannon Estuary crossing.

Route Corridor 3. This route, which also crosses the Shannon Estuary, represents the shortest route between the LNG Terminal and the existing gas network, while also passing close to Moneypoint Power Station.

An additional corridor. In addition to the above three corridors, a route corridor along the length of the Shannon Estuary was considered. However, such a corridor was ruled out at an early stage based on the

fact that the Shannon Estuary is a designated Special Area of Conservation. Parts of the Estuary are candidate Special Protection Areas, and/or Natural Heritage Areas. The engineering difficulties associated with constructing the pipeline along this route, and the significant cost of constructing a pipeline in the estuary.

Route Corridor Comparison. In order to determine the preferred route corridor, each corridor was reviewed under the following headings:

- Areas subject to environmental designations such as Special Areas of Conservation, candidate Special Areas of Conservation, Special Protection Areas or Natural Heritage Areas;
- Areas of other environmental or archaeological significance;
- Areas designated in county development plans as requiring special consideration;
- Areas with geology, geomorphology or topography, which would present difficulty for construction, and increase costs;
- Areas of potential mineral resource and/or areas of existing or future extraction;
- Densely populated areas;
- Areas of mature forestry;
- Crossings of the Shannon Estuary;
- Planned major developments;

- The overall length of the pipeline and
- Cost.

Route Corridor Selection. The more significant characteristics of the corridors are detailed in Table 2.1 below. The pipeline lengths are based on notional pipeline routes within each corridor.

As the possible end point for the pipeline within Route Corridor 1 extends widely from the Shannon Estuary to the existing Craggs AGI, Refer to Figure 2.1, the option of terminating at Craggs AGI was ruled out as it would involve a significantly longer pipeline.

So then the corridor is given there, listing the significant factors and features of the individual corridors.

Based on the findings of the review, Route Corridor 1, terminating near Foynes, was identified as the preferred corridor with an end point located at a new AGI on the existing national gas network to the west or southwest of Foynes.

Route Corridor 1 was selected based primarily on the following considerations:

- Route Corridors 2 and 3 include a crossing of the Shannon Estuary. The engineering and construction of this long and deep estuary

crossing with strong currents would be risky and expensive;

- Again, in respect of Corridors 2 and 3, the risk of disturbance to the ecologically important estuary with the designations of candidate Special Area of Conservation and, in part, Special Protection Area and Natural Heritage Area, would be better avoided, and;
- the significantly lower financial cost of the Route Corridor 1, with a termination point located to the west or southwest of Foynes.

Foynes AGI. The final step in determining the end point of the pipeline, and of Corridor 1, involved the selection of a suitable site for the new AGI, known as Foynes AGI, to the west/southwest of Foynes.

The primary requirements in relation to the siting of the Foynes AGI were that it should:

- be located on the existing Bord Gáis pipeline to the west/southwest of Foynes;
- be acceptable in respect of environmental, archaeological and engineering terms and;
- be accessible from a public road.

Based on these requirements, four possible sites were identified; the sites are shown on Figure 2.2, *Foynes*

AGI - Site Options, and are described below.

Site A is the most northerly site; it is adjacent to a wooded area and would be accessed from the minor road to the west; the latter road leads north for 200 metres to the N69, Limerick/Tarbert Road.
The site is on relatively high ground, and consequently, would be visible from the minor road to the west and the houses to the north, which front onto the N69. The nearest house is approximately 90 metres from the site.

The overall pipeline length in respect of Site A would be approximately 400 metres longer than for Site C. Site C gives the shortest overall pipeline length.

Site B. Site B is adjacent to the site of an existing water reservoir; wooded areas lie to the north and east of the site. Access to the site would also be from the adjacent minor road to the southwest. This road leads north for 700 metres to the N69.

The topography of the site relative to the surrounding land is visually beneficial, as the site is not visible from the public road and is also largely obscured from view from the houses along the public road; neither can the site be seen from the houses to the north which front onto the N69. The nearest house would be approximately 120 metres from the site.

The pipeline to this site would also be 400 metres longer than the pipeline to site C, that should be there, actually.

Site C. Site C is located approximately 150 metres to the east of the public roadway and is surrounded by open pastureland. Again, the access would be from the public roadway to the west and the distance to the N69 is approximately 1,500 metres.

The site is elevated in relation to the surrounding terrain and hence occupies a prominent position in the landscape. The site is visible from the public roadway and from approximately five houses along the public road. The nearest house is approximately 280 metres from the site.

The archaeological feature of Knockpatrick Church and nearby Holy Well occupies a very prominent hilltop location approximately 700 metres to the south of the site.

Site C gives the shortest overall length of pipeline.

Site D. Site D is adjacent to, and is accessed from, a minor public roadway which leads to the N69, approximately 500 metres to the east. A second minor roadway, running north-south passes within 80 metres of

the east of the site.

This site is also somewhat prominent. It is visible from the four houses along the north-south road. It is within 100 metres of the nearest house. There is a significant slope northwards across the site.
This site is further to the east than Site C, and the pipeline would be approximately one kilometre longer.

The very hilly topography, together with poor access, precludes the location of a site between Sites C and D.

Site Selection. Site D is visually prominent, is topographically unsuitable and would lead to a significantly longer pipeline. The Development of an AGI at Site C would have a visual impact on the landscape, of which Knockpatrick Church is a prominent and historic feature. An AGI here would also present some visual impact from a number of existing houses. Otherwise, Site C is satisfactory. The overall pipeline route to site C would also be the shortest.

Site A is visually prominent from, and close to, the houses to the north; it is also prominent from the public roadway.

Development of an AGI at Site B would present virtually no visual impact from either the public road or any of the houses located along it. While one house is within

120 metres of the site it is envisaged that the impact of the development on the occupants will be very low. Site B is considered to be a suitable site. Based on its low visual impact and other general suitability, Site C was chosen as the preferred site.

Route Refinement. The final stage in the routing process involved threading the actual pipeline route itself through the preferred route corridor. The preferred corridor, Route Corridor 1, which was then reduced to a standard width of 1 kilometre, is shown in Figure 2.3 *One Kilometre Wide Corridor,* which was actually included at the back of this section.

As outlined above, the route corridor starts at the proposed Shannon LNG Terminal. Development at Tarbert, and particularly along the N69 Tarbert/Listowel road, constrained the corridor southwards to a point approximately one kilometre south of the town. Again, at Glin, existing development along the roads leading south from the town pushed the corridor approximately one kilometre south of the town, while the corridor terminated at the site of the proposed Foynes AGI to the west of Foynes.

Detailed Routing. The pipeline route was selected within the preferred one kilometre corridor, taking account of the constraints referred to in Section 2.3.2 above and with particular reference to the following:

• Existing development;
• Planned development, development for which planning permission has been applied;
• Mature trees;
• Mature fencelines/hedgerows;
• Areas of rock outcrops/shallow rock;
• Boggy or wet areas;
• Areas of severe side-slope;
• Archaeological features;
• Ecological features;
• Wells;
• Landowner requirements --

INSPECTOR: Apologies. Sorry to interrupt you. We seem to have a problem with the stenographer's equipment. Perhaps you can just pause for a second.

BRIEF INTERRUPTION IN THE PROCEEDINGS.

INSPECTOR: I think we will break now for lunch and resume again at a quarter to 2. Thank you very much.

AFTER LUNCH THE HEARING CONTINUED AS FOLLOWS:

13:46

INSPECTOR: Hello everyone. I think we are going to resume proceedings now. Just to let everyone know that we have representatives from Limerick County Council with

us who are just sitting there and will be part of the proceedings. So if we can begin where we left off, which was Mr Mangan's statement because we had technical difficulties. Mr Mangan, can I draw you back to section 2.16.1 of your submission and we will maybe go again from there.

MR MANGAN: Sure, Inspector, okay.

MR MANGAN CONTINUED TO ADDRESS THE ORAL HEARING AS FOLLOWS: 13:47

MR MANGAN: Detailed routing.

The pipeline was selected within the preferred 1 km corridor, taking account of the constraints referred to in Section 2.3.2 above and with particular reference to the following: 13:47

Existing development;
Planned development (development for which planning permission has been applied);
Mature trees;
Mature fence lines/hedgerows; 13:47
Areas of rock outcrops/shallow rock;
Boggy or wet areas;
Areas of severe side-slope;
Archaeological features;
Ecological features;
Wells;
Landowner requirements;
Road and river crossings; and
Constructability issues.

Detailed archaeology, ecological and engineering surveys were carried out and parallel consultations, as described in Chapter 1, aided in refining the pipeline route.

The final route, on a strip-map by strip-map basis, is described in Section 3.2.

That ends the routing section. I am also going to give evidence about construction in peat. This is in response to the following query posed by An Bord Pleanála.

Note 3. How and where any excavated peat or other materials will be stored, disposed or recovered on temporary or permanent basis, and the volume and nature of such material.

A relatively thin layer of peat - 1 to 1.5 metres in depth - overlays the mineral soil over sections of the route. Peat of this scale is routinely encountered in the course of pipeline construction in Ireland. The standard construction methodology is described in Chapter 4 of the EIS. Construction of the pipeline through areas of peat will require a different, though routine, approach which is described as follows. See also Figure 2A - *Construction in Peat* which is included overleaf:

Remove the top layer of peaty topsoil - depth of

approximately 0.2 metres - and store to one side.
Remove the layer of peat with long-boom wide-tracked excavators, and store to one side; the maximum depth of the stored peat is of the order of 1 metre.
Import stone fill to form a temporary road approximately 5 metres wide by 0.6 metres deep; the road will then be used by all construction traffic.
Lay the individual steel pipes along side of the road and weld the pipes into a long string.
Excavate the pipe trench - to a depth of 2.5 metres - adjacent to the road and store the excavated material to one side; the lower 1.0 metre approximately of the trench will be in the underlying mineral soil or boulder clay.
Import sand or pea-gravel to form bedding layer to the pipe.
Lay the pipe in the conventional manner using side-boom dozers.
Complete backfilling of the pipe.
Reinstate the spread width; remove stone road and replace the peat. Re-spread the topsoil over the width of the peat [sic].

The estimated length of the peat sections along the pipeline route comes to 5.7 km; accordingly, taking a width of 8.5 metres and a depth of 1.3 metres, the volume of peat, which will be stored temporarily adjacent to the pipeline trench, comes to 62,985 cubic metres.

Significantly deeper depths of peat - up to 5/6 metres - were successfully dealt with on the Bord Gáis Éireann Mayo-Galway Pipeline which was constructed in 2006 through the boglands of north Mayo; approximately 50 km of gas pipeline was laid through peat, some sections of which were designated Special Areas of Conservation. I worked on the construction of this pipeline and so have direct experience of the methodology employed, which was similar to that proposed here. I am confident that the proposed methodology outlined above for the Shannon Pipeline is thoroughly robust, would work well and should give absolutely no cause for concern.

That is the end of my evidence.

MR MANGAN CONCLUDED

INSPECTOR: Thank you very much. 13:47

MR FITZSIMONS: Inspector, the next statement of evidence will be given by Mr Bowdion in relation to design, operations, maintenance and health and safety. 13:51

MR LEON BOWDOIN THEN ADDRESSED THE ORAL HEARING AS FOLLOWS:

MR BOWDOIN: Good afternoon, Inspector.

My name is Leon A Bowdoin Jnr. I will my statement of evidence with a brief of my of qualifications and experience.

I hold a Bachelor of Science Degree in Mechanical Engineering from Northeastern University in Boston Massachusetts in the USA in 1972 and a Masters degree in Business Administration from Bryant University in Smithfield, Rhode Island, USA in 1988. I am a member of the American Society of Mechanical Engineers, the Instrument Society of America, National Association of Corrosion Engineers International, and the National Fire Protection Association where I am a full voting member of the Technical Committee on Liquefied Natural Gas, the standards writing committee responsible for developing the internationally recognised standard NFPA 59A, “Standard for the Production, Storage and Handling of Liquefied Natural Gas (LNG)”.

I am Vice President of Operations for Weavers Cove Energy, a subsidiary of Hess LNG. My main areas of expertise are in the design, construction, operation, maintenance, fire protection, safety and security of LNG facilities and natural gas transmission pipelines. Over the past 35 years, I have been involved in the design, operation, and permitting of a number of pipeline facility projects and in the compilation of a number of Environmental Impact Statements and applications for licensing of natural gas pipeline

facilities in the United States and Canada as well as this current application in Ireland.

I have over 35 years of experience in the LNG and natural gas industry in engineering, operations and management. Before joining the Hess LNG team five years ago, I was employed by Duke Energy Corporation, a US energy corporation, and its affiliates, in various engineering, operations and management positions for over 30 years, having responsible positions in natural gas pipeline facility design, construction, operations, and maintenance, including holding positions as the LNG Plant Manager for the company's LNG facility in Providence, Rhode Island in the 1980s, and as Director of Pipeline Operations for Algonquin Gas Transmission Company in the 1990s.

I am the Engineering Vice President of Shannon LNG. The company was registered in 2003 to promote the development of an LNG terminal in Ireland and thereby enhance and diversify the natural gas supply to the island of Ireland.

My brief of evidence will discuss the development of the Shannon Pipeline project in the following areas: Design; Operation and Maintenance; Health and Safety.

With respect design, general background and criteria. Shannon pipeline will be designed in accordance with

the Irish Standard IS 328 2003 Code of Practice for the Gas Transmission Pipelines and Pipeline Installations. The Bord Gáis transmission network constructed to date in Ireland is reported by Bord Gáis to be in compliance with this design standard, which sets down the requirements for the design, construction and operation of steel pipelines transporting gas. This standard specifies the minimum safety factors for the pipeline, the minimum permissible distance of the pipeline from occupied buildings and other important design, operations and maintenance requirements.

The pipeline will be composed of high strength carbon steel pipe with an external corrosion coating and a cathodic protection system. The pipe will be 750 mm (nominal) in diameter, with a wall thicknesses either of 12.5mm or 19.1mm. The heavier wall thickness will be used in particular areas as required by the design code, IS 328 and I would refer to Section 3.3 of volume 2 of the EIS.

Regular pipe wall grade will be L450MB and have a wall thickness of 12.5mm. Heavy wall pipe will also have a grade of L450MB but a wall thickness of 19.1 mm.

The total length of the proposed pipeline will be approximately 26 km. The pipeline will be buried underground for its entire length, to a minimum depth of cover of 1.2m. The depth of cover will be increased

to a minimum of 1.6m where the pipeline will require additional protection, such as at road and river crossings. The design pressure of the pipeline is 98 bar. This design pressure is adequate to allow the transportation of the full expected volume of gas to the BGE network at Foynes at the pressure required, considering any future pressure increases on the BGE system.

My colleague, Ger Breen, will further discuss the Shannon Pipeline design and its compliance with the IS 328 code and consistency with BGE designed facilities.

Above Ground Installations or AGIs

At either end of the Shannon Pipeline an Above Ground Installation will be constructed. At the origin the AGI will be located at the proposed LNG import terminal. It will consist of facilities for the odourisation of the gas and pig launching/receiving facilities for the pipeline. And Refer to section 3.7 of volume 2 of the EIS.

At the terminus at Foynes the AGI will include facilities for the measurement of the volume (and energy) of gas transported as well as other data points and pig launching and receiving facilities. Data from the AGI will be transmitted automatically back to the control centre where it will be monitored on a 24-hour basis. The Foynes AGI will be part of a complex that

will also contain BGE facilities. BGE's facilities will be designed by BGE and include all the functions that BGE requires to accept the gas volumes into their system. Again I would refer you to section 3.7 of volume 2 of the EIS.

Pipeline Sizing Capacity

The diameter of the pipeline (750 mm nominal diameter) has been selected to allow the flow, to allow the delivery of up to 1,180,025 standard cubic metres per hour (or 28.3 million cubic metres/day). This is the maximum expected volume of the gas that will be delivered to BGE at Foynes.

The Shannon pipeline will be capable of flowing gas in both directions. This preserves the opportunity for future use of the pipeline for deliveries from the BGE system to points along the Shannon Pipeline, such as the Tarbert Generating Station, or to potential future gas distribution systems in north Kerry.

Design Locations, Design Factor and Proximity Requirements

The IS 328 code provides for the classification of pipeline locations as R (Rural), S (intermediate) and T (town centres) based on population density. All of the Shannon Pipeline will be located in "R" locations.

The code specifies the minimum distance that a pipeline

must be from an occupied building without using a reduced design factor, that is. Heavy wall pipe. The Shannon Pipeline will be constructed with heavy wall pipe in all areas in the vicinity of existing occupied buildings and in areas near roads where future housing is likely to be developed.

Corrosion Prevention

Corrosion prevention will be achieved using the principles set out in IS 328. The principal method of corrosion prevention of underground natural gas pipelines incorporates the use of a high-performance coating system and installation of a cathodic protection system. The coating system specified for the pipe is a mill-applied three-part polyethylene system. The field joints, where the pipe sections are welded together, will be coated in the field with a system that is compatible with the mill-applied coating. An internal coating system (a 2 pack epoxy system) is also being provided to minimise potential for internal corrosion.

To protect the piping against any potential defects in the external coating system, a cathodic protection system will be employed. A preliminary CP design has been completed and will include an impressed current cathodic protection system. The design is robust and will provide cathodic protection in accordance with the requirements set out in IS 328. And I would refer you

to Sections 3.3.4, 3.4, and 3.5.2 of volume 2 of the EIS.

The operation of the cathodic protection system will be monitored to ensure proper operation and effectiveness over the length of the pipeline. Again 3.3.4 of volume 2 of the EIS discusses that point.

Road and Watercourse Crossings

The Code specifies the design of the pipeline at points where it crosses roads and watercourses. There are special requirements for additional depth of cover, wall thickness, weight coating of the pipe to prevent flooding [sic], and additional protection as required.

The Shannon Pipeline crosses twenty roads and three named rivers. In each case, the design complies with all the crossing requirements of IS 328. Drawings of these crossings are found in the Shannon pipeline Planning Application.

Operations and Maintenance

Organisation

Operations, maintenance and support staff will be recruited locally to the extent possible prior to or during construction. Staff will be given extensive training which will include inhouse training or experience on a similar operating pipeline. The maintenance and operation personnel will be trained in

the properties of natural gas, proper operation of all equipment, environmental stewardship, workplace safety and incident response. I would refer you to section 3.6 of volume 2 of the EIS.

After the start of operations, the personnel employed for the operation and maintenance of the pipeline will be provided ongoing safety, operating and maintenance training. Refer to section 3.6.3 of volume 2 of the EIS.

Procedures

The Shannon Pipeline and AGI will be operated and maintained to meet or exceed all applicable European Union and Irish regulations. A comprehensive set of operations, maintenance, environmental, safety, and emergency response manuals will be prepared, maintained and updated to reflect best industry practice and applicable legislation. All operations and maintenance personnel will be trained in accordance with the procedures in these manuals. And again refer to Section 3.4 and 3.6 of volume 2 of the EIS.

Pipeline Integrity

High pressure natural gas pipelines are major infrastructure assets and the integrity of the pipeline in all stages of the pipeline’s life cycle will be managed by Shannon LNG in a safe, efficient and cost effective manner. The stages involved in the pipeline lifecycle are design/routing, construction testing and

operations and maintenance.

The Shannon Pipeline is being designed and will be constructed, tested, operated and maintained in accordance with the requirements of Irish Standard IS 328 – Code of Practice for Gas Transmission Pipelines and Installations which is issued by the National Standards Authority of Ireland. Refer to Section 3.3 of volume 2 of the EIS. IS 328 is the standard which has been used and is being used by Bord Gáis Eireann in the design and construction of pipelines included in its high pressure gas transmission system.

The standard sets out engineering operations and maintenance requirements for the safe design, construction, operation and maintenance of pipelines. Its requirements are in line with current best international practice relating to integrity management of pipelines and it states that a pipeline is to be regarded as safe if all reasonable steps are taken to protect members of the public and the personnel of the pipeline constructor and operator from possible hazards. These include:
Pipeline Operation, Inspection Maintenance and Surveillance;
Liaison with Owner/Occupiers/Tenants and Local Authorities; surveillance (both aerial and ground surveys);
Marker Post Maintenance;

Public Awareness Programme;
Permit to Work, Operational Procedures and Monitoring of Third Party Activities;
Corrosion Pipe to Soil Potentials and Transformer Rectifier Output Checks;
Close Interval Potential Surveys;
In-line Inspection;
Monitoring for Ground Movement.

Emergency Procedures and Emergency Response

In accordance with the requirements of IS 328, Shannon Pipeline will prepare an emergency plan detailing the measures and actions to be taken in the event of an incident. This plan will include details of the emergency response to investigate reports of potential damage to the pipeline and instructions to take appropriate corrective and mitigative measures in response to an incident including notification to local officials.

Health and Safety

Shannon Pipeline acknowledges and accepts its moral and legal responsibilities for ensuring the health, safety and welfare of its employees, contractors, visitors and members of the public who may be affected by its activities; it is committed to compliance to all applicable Irish health, safety and environmental laws and regulations. Refer to Section 1.14 of volume 2 of the EIS.

The main sources of legislation dealing with health and safety in construction work are the Safety Health and Welfare at Work Act 2005 and the Safety Health and Welfare at Work (Construction) Regulations 2006, and the Safety Health and Welfare at Work (General Application) Regulations 2007. The Health and Safety Authority (HSA) is the governmental agency responsible for implementation of health and safety regulations in Ireland.

Shannon pipeline will implement a Health and Safety management system which includes the setting of objectives and targets, measuring progress, and reporting results. It will provide appropriate health, safety and environmental training to its employees and contractors to enable them to meet the required standards of performance. Audits will be employed to ensure that its controls are effective. Additional information on the HSE policies which SLNG will comply with can be found in Section 1.14 of volume 2 of the EIS.

Pipeline Safety

Pipelines are recognised internationally as the safest and reliable means of onshore cross country transportation of large quantities of hazardous products. The pipeline is designed in accordance with IS 328. All Bord Gáis gas transmission pipelines

constructed to date are reported to be in compliance with this design standard. The proposed pipeline has been routed to avoid centres of population. The proposed route also minimises the number of major crossings of roads and rivers and avoids areas liable to landslip, subsidence and other instability, as far as possible. The materials used and the thickness of the pipeline walls will be selected to ensure compliance and achieve pipeline safety.

Pipeline Risk Assessment

Shannon LNG commissioned risk and safety consultant ERM to carry out a Quantitative Risk Assessment (QRA) on the proposed pipeline. The CER is the agency tasked with overseeing the safety of gas pipelines in Ireland and a QRA was submitted to the CER for their review and use in evaluating the project. Refer to Section 15.5.8 of volume 2 of the EIS.

As a result of the strict conformance to the IS 328 Standard, and the application of prudent design, routing and material selection, the QRA shows that risks to individuals along the pipeline are within the levels that are broadly acceptable as insignificant.

Submissions and Responses

Inspector, before concluding I would now like to deal with a number of queries contained in the submissions made to the Bord in relation to design, operation,

maintenance, and health and safety of the pipeline.

The following submission was made by the Tarbert Development Association:

The EIS states that Shannon pipeline will "construct, inspect, test, maintain and operate the pipeline". Does this mean that the gas can only flow in one direction, i.e. from the LNG terminal to the national grid?

Response

As I stated previously in the design discussion above, the Shannon pipeline has been designed to accommodate bi-directional flow. Technically, natural gas from BGE could be supplied to any potential customers on the Shannon Pipeline.

The following submission was made by the Tarbert Development Association:

The EIS does state that the pipeline will be operated and maintained to the standards required by Irish and European regulations and that a comprehensive set of manuals in relation to operations, maintenance, environmental, safety and emergency response will be prepared and updated to reflect best practices. We suggest that a set of these manuals would be made available to the communities along the route of the pipeline so that people could monitor the situation and be reassured that best practice was adhered to all time

by the operator.

Response

Shannon Pipeline will prepare and maintain a comprehensive set of operations, maintenance and emergency manuals which it will make available to the various governmental regulatory authorities having applicable oversight jurisdiction including appropriate emergency response authorities in Co Kerry and Co Limerick. This has been addressed in the EIS. (Refer to Section 3.4 of volume 2 of the EIS).

The following submission was made by Kerry County Council:

The development shall be carried out in accordance with plans and particulars including the EIS lodged with An Bord Pleanala on 14th August, 2008 and incorporate all mitigation measures as listed therein except for where altered by condition below.

Response:

Agreed, Shannon Pipeline will comply with the EIS and any conditions imposed by the Bord.

The following questions relate to the same subject matter, which is potential dangers and risks, except for a reference to emergency procedures which I have already addressed above, so I will address all the following comments collectively with a single answer.

The first submission was made by Caitriona Griffin:

I note that there is no mention of accidents, emergency procedures or possible dangers associated with the pipeline. See below for details of accidents involving LNG pipelines, this is merely a sample.

The following submissions was made by Philip Culhane on behalf of a number of landowners:

The catastrophic damage that could be caused by virtue of the high pressure in the pipeline giving rise to the risk of explosions especially given its proximity to residential housing.

The risks to our clients' property in the event of an explosion or leakage whereby a serious accident could occur.

The potential damage to livestock, planting and farm machinery.

The danger posed to their own public safety.

The overall environmental, safety and developmental issues which arise.

The following submission was made by Kilcolgan Residents Association:

This LNG project poses an unprecedented risk to public

health and safety.

The Response to all of these questions are the same. The Shannon Pipeline is being designed and will be constructed, operated and maintained in accordance with Irish regulation IS 328, which is the same standard to which the Bord Gáis pipelines have been safely and successfully constructed to in Ireland for a number of years.

Due to the application of the standards required by the code to the design, construction and operation of the pipeline (as I have set out above) (Refer to Section 3.3 of volume 2 of the EIS) and due to the application of prudent design, routing and material selection means that the resulting risk of an accident is extremely low.

Furthermore, Shannon Pipeline has commissioned a QRA of the pipeline project and submitted this to the CER, the body responsible for pipeline safety in Ireland, for their consideration. The QRA which has been prepared shows that risks to individuals along the pipeline are within the levels that are broadly acceptable.

The following two submissions were made by Kilcolgan Residents Association:

Risks from a pipeline were not included in the original assessment of the LNG terminal.

Response: The risks arising from the presence of the pipeline were included in the LNG terminal QRA.

The second: *Electrostatic risk increases with moving gas.*

Response: For natural gas flowing within a pipeline such as the Shannon pipeline, there is no increased electrostatic risk potential to persons in proximity of the buried pipeline.

Conclusion

Thank you, Inspector. This concludes my testimony. As I and others have testified, the Shannon Pipeline has been designed and will be operated and maintained in accordance with IS 328 and applicable Irish and European Union regulations and authority and has been shown to present risk levels that are broadly acceptable. In closing, I believe that, no significant adverse effects will result from the design, operation, and maintenance of the Shannon pipeline, or to health and safety.

Thank you.

14:18

MR BOWDOIN THEN CONCLUDED

INSPECTOR: Thank you very much. Is there anyone else that you

would like to?

MR FITZSIMONS: There is one further paper from Ger Breen. My understanding is, Inspector, you wish to allow others to make submissions in relation to the health and safety issue. 14:18

INSPECTOR: What I would like to do is if you have finished with anyone from your team that might be relevant and I would put it in terms of being relevant to either the CER or the HSA, then I would like to call upon the HSA and the CER to make a statement, if they wish to, and they have kindly offered to answer any questions with the observers might first like to put to them and yourself following that. What I will say is that this is an oral hearing into the planning application, so we want to be very careful not to stray outside our remit in that respect. So I would like to ask everyone to bear that in mind. So with that I think we will call Mr Breen. 14:18 14:18 14:19

MR FITZSIMONS: Mr Ger Breen.

MR GER BREEN THEN ADDRESSED THE ORAL HEARING AS FOLLOWS:

MR BREEN: Thank you, Inspector. First of all I would like to deal with my qualifications and experience. 14:19

My name is Ger Breen. I hold a degree in civil

engineering from University College Cork as well as a Master of Engineering Science Degree, also from UCC. I am a Chartered Engineer and a Fellow of the Institution of Engineers of Ireland. I am also registered as a Professional Engineer in Alberta in Canada.

I am an Associate Director of Arup Consulting Engineers, having joined Arup in March this year. I have 30 years of engineering experience. Specifically my experience includes approximately 23 years in the design, construction and operation of gas pipelines and associated facilities.

My initial involvement in gas transmission was as an Operations Engineer in the engineering division of Nova Corporation in Calgary, which was a major Canadian gas transmission company.

I joined Bord Gáis in 1983 as a Design Engineer, responsible for the design of gas transmission pipelines and associated facilities. From 1985 to 1989 I was the Project Manager responsible for the construction of Ireland’s first compressor station in Midleton in County Cork. I then served as Operations Manager responsible for all construction and maintenance work for the Bord Gáis utilities in Cork, Limerick, Clonmel and Waterford.

From 1991 to 2004 I was Head of Transmission in Bord Gáis and I was responsible for the general management of the Transmission business. I reported to the CEO and was a member of the Executive Management Team.

During this time I directed many major gas transmission projects which more than doubled the size of the Irish gas network. For these projects I was responsible for the project development strategy ... (interference on speaker)

INSPECTOR: Sorry, I think it is probably some cross ...

MR BREEN: Okay.

During this time I directed many major -- For these projects I was responsible for the project development strategy and for overall management of design, procurement, construction and commissioning. Projects for which I was responsible for included:

A 320 km 750mm diameter transmission pipeline from Dublin to Galway to Limerick.

A 195 km 750mm diameter high pressure subsea pipeline connecting South West Scotland, the Isle of Man and Ireland. This project also included major shore stations in each country.

A 35 km 900mm diameter transmission pipeline in South West Scotland

Several transmission pipelines in the Dublin area, which help to take gas in a ring-main around and north

of the city, and also connect the network to the city centre area.

I was also responsible for major compressor stations in Beattock and Brighouse Bay in Scotland. These stations use gas turbines and other sophisticated equipment to pressurise and essentially pump gas in the high-pressure network.

During my time as Head of Transmission within Bord Gáis I was also responsible for the - 24 hours a day, seven days a week - safe operation and maintenance of the Bord Gáis transmission system.

When I was in Bord Gáis I also served on a number of technical committees relating to gas transmission, including the following:

I was an active member of the sub-committee, which was established under the auspices of the National Standards Authority of Ireland, which developed IS 328. This Standard, which I will discuss in more detail later, acts essentially as the 'technical foundation' not just for the Shannon Pipeline, but also for all transmission pipelines in Ireland.

I was a member of the transmission sub-committee of the International Gas Union for approximately ten years. The IGU is a worldwide body which facilitates the exchange of information between gas companies and organisations so as to promote the technical and economic progress of the gas industry.

I also represented Ireland for five years as a Technical Expert at European Union meetings regarding the inter-operability of gas transmission networks in the EU. The Committee on which I served was established to advise the European Commission on measures to improve inter-operability and transit of gas between member states of the EU.

Now, Inspector, I would like to deal with the Project Background and Description and dealing specifically with the Shannon Pipeline, which is the subject matter of this hearing. I would point out that I was not involved in the original design activities on the Shannon Pipeline. Since I joined Arup earlier this year I have been appointed, however, to review the pipeline design and proposed construction approach so as to ensure consistency with current best practise relating to gas transmission construction in Ireland.

In the interests of brevity I do not propose to repeat in detail any material already included in the EIS. Where I do rely on points set out in the EIS I will reference them accordingly.

Firstly, I wish to make the point that the Shannon Pipeline that is being proposed is similar to all other gas transmission pipelines which have been built in Ireland. From a technical point of view there will be no significant difference between the Shannon Pipeline

and the other transmission pipelines which have been built, and all of which operate safely, all over Ireland. The only differences which will apply with the Shannon pipeline from previous pipelines built in Ireland are firstly it is being built by Shannon LNG and not by Bord Gáis Éireann. When it comes into operation the Shannon Pipeline will be managed and controlled from the future Shannon LNG plant which will be located nearby, rather than from the Bord Gáis grid control centre in Cork.

The approach which is proposed for the routing, design, construction and operation for the Shannon Pipeline is entirely consistent with the approach which has been used numerous times for other transmission pipelines in Ireland by Bord Gáis. Specifically the Shannon Pipeline will be designed, constructed, tested, commissioned and operated in accordance with exactly the same Code of Practice - being Irish Standard 328 which is applicable on the remainder of the Irish gas transmission network. The commissioning, maintenance and operation of the pipeline will be subject to oversight by the Commission for Energy Regulation (in accordance with the CER's detailed requirements) which again is consistent with the position applicable to the remainder of the Irish gas transmission network.

Now I would like to deal with the pipeline Parameters. Section 3.3.1 of volume 2 of the EIS details the

pipeline parameters. The pipeline will be 750 mm in diameter. It will be composed of high strength carbon steel with appropriate corrosion protection in the form of protection coating and a cathodic protection system. The pipeline will have a pipe wall thickness of 12.5mm. Heavy wall pipe - 19.1 mm thickness - will be used where appropriate at road and river crossings, and near any residences and the like as required by IS 328. The pipeline will be about 26 kilometres long and will be buried underground to a minimum depth of cover of 1.2 metres. This burial depth will permit normal agricultural practices afterwards.

At either end of the pipeline there will be an Above Ground Installation which is abbreviated in the gas industry to AGI. These are described in detail in Section 3.7 of volume 2 of the EIS with diagrammatic representations in Figures 3.15 and 3.16 of volume 3 of the EIS. On the eastern end the AGI will be the interfaced with the Bord Gáis network, on the western end the AGI will connect the pipeline to Shannon LNG's terminal. The AGIs will contain equipment to meter and odourise the gas, along with valves and pigging equipment.

Now, Inspector, I would like to deal with Irish Standard 328. Before outlining the background to IS 328 I would first like to explain the background to gas standards generally in Ireland.

On a historical note, before the 1970s, the gas industry in Ireland was based on a Towns Gas (composed of manufactured gas) Industry. This industry was in decline in the 1970s. The modern gas industry in Ireland started in 1978 when gas from the Kinsale Head Field was delivered ashore in County Cork, and since then the current gas network throughout the country was constructed.

At the outset the technical Standards and Codes of Practice that were used they were generally based on standards used in the UK.

In 1981 the Gas Technical Standards Committee was established under the auspices of the National Standards Authority of Ireland (NSAI) to advise on the Irish Standards and Codes of Practice which were necessary for the products and processes to be used in the gas industry in Ireland, with particular regard to safety. The Gas Technical Standards Committee includes representatives from the following bodies:
Gas Supply Companies; The Health And Safety Authority; Fire Authorities; Government Departments such as the Department of the Environment and the Department of Communications, Marine and Natural Resources; Third Level Educational Institutions; the NSAI itself; Consultants; Manufacturers; and Gas Installers.

Since 1981 a series of Standards have been published by the National Standards Authority establishing the criteria for the safe construction and operation of gas facilities in Ireland. The Gas Technical Standards Committee, and any sub-committees as might be relevant, continues to meet, and regularly publish any necessary revisions to the Standards arising from new knowledge or new technology which might affect the Standards. The Irish Gas Standards are also designed to be fully compatible and to be read in conjunction with appropriate European Standards.

I wish to stress that the National Standards Authority of Ireland is independent of the gas industry and therefore any standards published by the NSAI are effectively independent documents.

Now I would like now to explain the background to Irish Standard 328, which is entitled the 'Code of Practise for Gas Transmission Pipelines and Pipeline Installations'. Sections 3 and 4 of volume 2 of the EIS confirms that this Standard will be applicable for the design, construction, testing and operation of the Shannon Pipeline.

About 1987 NSAI published the first edition of Irish Standard 328 which sets out the necessary technical requirements relating to the design, construction and operation of gas transmission pipelines and facilities.

(As I said earlier I was a member of the sub-committee which prepared this first edition of the Standard). It will be noted from the Foreword to the Code that the, and I quote:

"*The Code of Practice defines minimum and adequate standards and procedures to be used for steel pipelines for the transmission of gas at maximum operating pressure over 16 bar'*.

Since it was published IS 328 has provided the technical basis for the design, construction and operation for gas transmission pipelines in Ireland, all of which operate satisfactorily and safely.

IS 328 is a very comprehensive document. It essentially establishes the 'technical rule-book' which is to be followed by pipeline operators in building and operating gas pipelines.

The Commission for Energy Regulation in its Decision Paper entitled Safety Case Guidelines (CER/07/226 dated 17th December 2007) published a list of appropriate Technical Specifications. The CER state in their document, and I quote:

"The following list of relevant technical specifications as proposed by the National Standards Authority for Ireland (NSAI) is considered suitable and relevant to the activities falling within the scope of this document".

IS 328 is included within this list. If Shannon LNG were not to comply with the IS328 Standard in any way it is most unlikely that the Commission for Energy Regulation would permit the construction or operation of the Shannon Pipeline.

Now, Inspector, I would like to move on to the construction process. From an overview point of view, pipeline construction is a sequential process, and comprises a number of distinct operations. The process is similar to a moving assembly line with each element of the process beginning at one end of the pipeline and continuing until it reaches the opposite end. Some processes may be completed before other processes even start. The pipeline construction site is often referred to as the 'Spread' or the 'Pipeline Spread'. Construction will generally be between the months of March and November. Ecological and preparatory work will be carried out prior to this having regard to factors such as seasonal ecological constraints. This is described more fully in the EIS at Section 4.2 of volume 2.

Section 4.3 of volume 2 of the EIS describes the Site Preparation phase of the project. In summary, ahead of construction, the pipeline route and AGI sites will be surveyed and pegged-out. This will establish the precise pipeline alignment, particularly in relation to

field boundaries, mature trees and environmentally sensitive sites. The construction will be within a fenced strip of land, known as 'the working width'. In general, this will be approximately 30 metres wide which may be increased at road crossings and similar locations, for health and safety and constructability reasons.

A temporary fence will be erected along the pipeline 'spread'. The type of fencing will be agreed with the landowners, and special arrangements as required, such as for horse fencing for instance, will be implemented following consultation. Access points will be provided to allow landowners access across the pipeline and to maintain public rights of way and farm tracks. This is described more fully in section 4.4.2 of volume 2 of the EIS and illustrated in a photograph in Figure 4.2 of volume 3 of the EIS which is reproduced below.

The topsoil strip occurs after the fencing. The topsoil will be stripped and stored separately to one side, within the working width, in a low bund, typically eight metres wide and up to three metres in height. This is described more fully in Section 4.4.3 of volume 2 of the EIS and illustrated in a photograph in Figure 4.2 of volume 3 of the EIS, which is reproduced.

In advance of pipeline construction pre-coated pipe for

use on the project will be manufactured to a stringent specification and shipped to Ireland, most likely to Limerick or Foynes Port. The pipe will be stored in a pipe depot, which will be located close to the 'pipeline spread', possibly within the Shannon LNG terminal site, or possibly at Foynes Port. This is described more fully in Section 4.4.5 and Section 6.4.3 of Volume 2 of the EIS. A typical pipe storage depot is illustrated in a photograph in Figure 4.3 of volume 3 of the EIS which is reproduced below.

In relation to the photographs showing the pipes, which are reproduced in volume 3 of the EIS, the photographs show pipes which a nominal diameter of 650 mm diameter, which is slightly smaller than the 750mm diameter pipes planned for use on the Shannon Pipeline.

The pipe will be transported to the 'pipeline spread' using flat-bed articulated trucks, which is illustrated in the following photograph from Figure 4.3 of volume 3 of the EIS.

The pipes will be delivered to their final location along the working width to be stored on wooden skids parallel to the trench line. This process is known as 'pipe stringing'. Pipes laid out along a 'pipeline spread' are illustrated in Figure 4.4 of volume 3 of the EIS which is reproduced.

Changes in vertical and horizontal direction along the pipeline alignment will be achieved by bending the pipes through the use of a pipe-bending machine. For large changes in direction factory-manufactured bends are available and will be installed. This is illustrated in Figure 4.4 of volume 3 of the EIS which is reproduced.

A more complete description of the pipe delivery, stringing and bending processes is given in Section 4.4.5 of volume 2 of the EIS.

Following stringing, the pipeline sections will be welded together on the side of the trench. The welds will be non-destructively tested and approved before the coating is applied on site to the weld area. All aspects of the pipeline are subject to a detailed inspection, testing and quality regime. Only qualified and approved personnel will undertake welding, testing and coating.

The following photograph, reproduced from Figure 4.5 of volume 3 of the EIS, shows the welding process in place on a pipeline. The welding is taking place underneath each of the mobile canopies which are shown on the photograph.

Section 4.4.6 of the EIS describes the welding process. Section 4.4.7 of volume 2 of the EIS describes the

trench excavation process. The depth will be variable, but will allow a minimum reinstatement cover of 1.2 metres over the top of the pipeline in agricultural land and 1.6 metres below the bed of streams and rivers and at road crossings. The material excavated from the pipe trench will be stored on the opposite side of the working width from the topsoil to prevent mixing of subsoil and topsoil. This is also illustrated in Figure 4.5 of volume 3 of the EIS which is reproduced.

As described in Section 4.4.8 of volume 2 of the EIS the welded pipe will be carefully lowered into the trench and bedded with a sand surround or suitable excavated material. This is illustrated in Figure 4.6 of volume 3 of the EIS which is reproduced.

The pipe trench will be backfilled with the material taken from the trench in the reverse order in which it was excavated where possible. Pipeline marker tape will be placed above the pipe. The backfilled material will be consolidated and any surplus material from trench excavation will normally be spread within the working width. Land drains will be reinstalled at this stage. This is described more fully in Section 4.4.9 of volume 2 of the EIS.

The typical trenching methods will be modified for road, river, drainage ditch, service and utility crossings. The adopted methods of construction will be

subject to the agreement with local authorities and the Shannon Regional Fisheries Board (in respect of river and stream crossings).

In the interests of brevity I do not propose to describe the construction methods. These are detailed in Section 4.4.10 of volume 2 of the EIS in respect of rivers and streams. Section 4.9 of the EIS deals with surface and groundwater issues. Mitigation measures for aquatic habitats are described in Section 10.7 of volume 2 of the EIS. And Section 7.5.3 of volume 2 of the EIS describes the proposed methodology for road crossings.

Pipeline Testing

Following backfilling the pipeline will be tested as discussed in Section 4.4.12 of volume 2 of the EIS. Specifically it should be noted that IS 328 defines the rigorous testing regime which has to be followed for pipelines and this will apply to the Shannon Pipeline.

Hydrostatic test water may be extracted from adjacent water supplies or might be delivered by road tankers. The discharge of hydrostatic test water will be subject to agreement with the relevant local authority. The impact of the abstraction of test water is assessed in Section 13.5.1 of volume 2 of the EIS.

Following backfilling, the reinstatement of the working

width will commence. The working width will be regraded to reflect the original profile. Suitable surplus subsoil will be placed on a field by field basis, and stones and debris will be removed prior to topsoil replacement. After replacement, the topsoil will be stone picked and cultivated. The working width fencing will be removed to suit the landowner's requirements.

All materials related to the construction work, including imported fill, temporary culverts, and geotextile membrane will be removed on completion of the work. This is described in greater detail at Section 4.4.11 of volume 2 of the EIS.

Particular attention will be paid to the careful reinstatement of field boundaries in order to reduce the visual impact of the pipeline. Fences will be reinstated using materials that match the existing fence as appropriate and wall and earth bank field boundaries will be reinstated to match the existing boundaries.

Any hedgerow sections which are required to be removed will be replanted using a suitable mix of native species. The specific mitigation measures which will be followed for hedgerows is set out in greater detail at Section 10 of volume 2 of the EIS.

The following three photographs, reproduced from Figure 4.6 and 4.7 of volume 3 of the EIS, illustrate the reinstatement of a typical Irish 'pipeline spread'.

Finally, Inspector, before concluding, I wish to deal with a number of queries and observations submitted to An Bord Pleanála in relation to the pipeline and associated works.

There are a number of submissions relating to road crossings and road usage generally which I will take together. There is a submission from Tarbert Development Association and I quote:
"The pipeline construction will require some 20 road crossings. The proper reinstatement of these roads is vital and a condition of planning should include a maintenance period of at least 2 years during which the contractor is responsible for repairing any defects that might occur".

There is also a submission from the National Roads Authority:
"*The pipeline route traverses the existing N69 south of Tarbert at Doonard Upper, Co Kerry. While it is noted that the EIS submitted in support of the application does not appear to detail the construction technique at the crossing of the N69, the Authority has no objection in principle to the proposal subject to the safety and standards of the national route being maintained*

through appropriate best practice construction methods".

There is a Kerry County Council submission:
"*All road crossings shall be carried out under licence from the relevant Roads Authority. These licenses which will entail the provision of Traffic Management Plans shall be obtained prior to the commencement of development. The works will be supervised by staff of Kerry County Council at the developer's expense." Reason: In the interests of road safety.*

Limerick County Council's submission:
"Trenchless construction should be kept to a minimum and avoided in any areas of potential archaeology".

Another Limerick County Council Submission:
"Recommend that prior to any development commencing on this project that the applicant/developer be requested to consult with the Transportation Department of Limerick County Council in relation to matters listed: (iii) Prepare a detailed pavement condition survey incorporating report on any structures (e.g. bridges, culverts) along various routes affected by the proposed works."

Another Limerick County Council submission:
"*Applicant/Developer will be responsible for compliance with all procedures relating to road usage i.e.*

abnormal load permits, Road Opening Licence and compliance with planning and traffic safety requirements in respect of opening entrances from temporary car parks".

I would like to respond to those points. First of all, Section 7 of volume 2 of the EIS assesses the impact of the project on the local road network.

Section 7.5.3 of volume 2 of the EIS describes the methodology to be utilised for road crossings and commits Shannon LNG to reach agreement with the relevant Local Authority in respect of the details for each road crossing. This section of the EIS describes the techniques to achieve the road crossings involved. These include:

1. Closure of one lane of the roadway at a time (and then the other) and use of temporary traffic lights or stop-go signs. This will enable the pipeline to be laid under one half of the road at a time while traffic is maintained on the other half.

2. Temporary diversion of roadway onto adjoining lands. In this case a temporary roadway will be put in place in the field immediately adjacent to the road, traffic will be temporarily diverted onto the temporary roadway and the pipeline then laid under the road, which will then immediately be reinstated so as to accommodate traffic.

3. The use of trenchless technology. A boring

technique can be used to install the pipe from pits on either side of the road. Please note that the issue regarding archaeology in the Submission above is noted and if this technique is being employed any archaeological issues will be fully addressed prior to commencing construction.

4. Temporary closure of a local road which will only be carried out with the permission of the relevant roads authority.

The technique to be employed on each road crossing will be assessed on a crossing specific basis and the details agreed with the relevant road authority.

Many of the road crossings are relatively short and nearly all of the crossings can be completed within one or two days at most, so that local impacts will be minimised. It should be noted that many gas pipeline road crossings have been successfully completed by pipeline contractors all over Ireland in agreement with the road authorities concerned in each case, and it is unlikely that there will be any particular difficulties encountered in the case of the Shannon Pipeline.

Three submissions were made regarding the protection of water mains and drainage systems which are either crossed or which are located immediately adjacent to the proposed pipeline. The submissions are as follows.

Limerick County Council Submission: *Recommend that*

prior to any development commencing on this project that the applicant/developer be requested to consult with the Transportation Department of Limerick County Council in relation to matters listed:
(ii) Prepare a detailed plan identifying all drainage systems along the route and report which should include how it is proposed to replace and maintain all these systems both during and after the construction period.

A second Limerick County Council Submission: *The proposed pipeline crosses an existing 100mm diameter group water supply watermain at Ballycullane, Glin. An existing 75mm diameter group water supply watermain passes through the proposed AGI at Foynes. Details in relation to the protection of these watermains to be agreed with the relevant group water supply scheme secretaries prior to commencement of development.*

And there is a Kerry County Council Submission: *The developer shall liaise with the Water Services section of Kerry County Council in relation to the construction of the pipelines adjacent to public Water Mains and to ensure that appropriate measures are put in place to prevent interruption to the water supply.*
Reason: In the interest of protecting public infrastructure and public health.

In response: It is standard construction practice to go under or over or in parallel to drainage and water

systems and generally the construction of gas transmission pipelines close to or across drainage and water systems on other pipeline projects in Ireland has not had any material impact on such systems. The EIS in Section 13.5.1 of volume 2 comments that the proposed development will not have a significant impact on services and utilities. Section 4.4.10 of volume 2 of the EIS describes the approach to be adopted for drainage ditch, service and utility crossings; and states that the adopted methods of construction will depend on the requirements of the appropriate authorities. In addition Section 4.3 of volume 2 of the EIS discusses the approach for field drainage and the maintenance of water supplies for livestock.

There were two submissions regarding the reinstatement and monitoring works to be undertaken later.
There is Caitriona Griffin's Submission: *On page 5 of the EIS Shannon LNG claims that 'some reinstatement and monitoring works will be undertaken later'. What reinstatement works do they mean and how much 'later' do they have in mind?*

There is a Limerick County Council Submission: *All openings in hedgerows should be reinstated following construction.*

In Response: The first submission refers to the Non-Technical Summary of the EIS being volume 1 at page

5. The reinstatement process that Shannon LNG will follow is set out in detail in Section 4.4.11 of the EIS. Reinstatement is a weather-dependent process requiring reasonably dry and suitably warm weather to complete top-soiling and re-seeding. While much of the reinstatement should be completed in the same year as the construction takes place, depending on the weather it may not be possible to complete all reinstatement until the following year. In this case the work is usually completed as early as practical the following year.

Section 10 of the EIS specifies the Mitigation Measures applicable to the pipeline. There is reference for instance in Section 10.10.1 of volume 2 of the EIS to *an aftercare programme for scrub reinstatement which shall include replacement of any dead stock for a minimum of two years after planting.* The same section of the EIS also refers to an *aftercare programme for hedgerow reinstatement ... for a minimum period of two years after planting*. In relation for instance to badgers Section 10.10 of the EIS commits that *Post construction monitoring will be carried out to ensure that mitigating measures are operating effectively.* Of necessity such mitigating measures will be undertaken after the construction period, and this is what is referenced in the Non-Technical Summary of the EIS quoted above.

Further to the submission regarding the reinstatement of openings in hedgerows, Section 4.4.1 of volume 2 of the EIS commits Shannon LNG to full and proper reinstatement of all hedgerows – *Wall and earth bank field boundaries will be reinstated to match the existing boundaries. Hedgerow sections that are removed will be replanted using a suitable mix of native species.* As stated above the specific mitigation measures for hedgerows are described in further detail in Section 10 of the EIS.

There was a submission relating to Temporary Parking Areas from Limerick County Council: *The level of detail included in the report is limited in terms of where the applicant proposes to develop temporary parking areas and construction site.*

In Response: Section 4.3 of volume 2 of the EIS describes the establishment of contractor's compounds including temporary areas. One or more construction compounds will be established close to the pipeline route. The particular locations will be at the discretion of the construction contractor. The compounds will include provision for services, cabins, offices, sanitary facilities, lockers, hard standings, stores, fitting shops, fabrication areas and parking space for vehicles. Smaller mobile facilities may also be established along the route, providing canteen and sanitary facilities. Section 4.11 of volume 2 of the

EIS assesses the impact of waste generated by these compounds. The waste that is generated will be disposed of in accordance with best practise. The contractor will clear away the compounds, on completion, and fully reinstate the site.

There was also a submission regarding Codes of Practice from Kilcolgan Residents' Association: *The project does not conform to well-established codes of practise.*

Response: As stated above, Sections 3 and 4 of volume 2 of the EIS confirms that the IS 328 Standard entitled Code of Practice for Gas Transmission Pipelines and Pipeline Installations will be applicable for the design, construction, testing and operation of the proposed Shannon Pipeline. IS 328 is a very comprehensive document and establishes the 'technical rule-book' which is to be followed by pipeline operators in building and operating gas pipelines. Since it was published IS 328 has provided the technical basis for the design, construction and operation for gas transmission pipelines in Ireland, all of which operate satisfactorily and safely.

There was a submission regarding the necessary safety precautions to ensure the safety of workers and the people living near the pipeline from Ballylongford Enterprise Association Ltd: *We need to be reassured that all necessary safety precautions would be put in*

place to ensure the safety of the workers and the people living near the pipeline.

In Response: Construction Safety is addressed in detail in Section 4.10 of the EIS. As stated in the EIS, Shannon LNG will comply fully with all relevant Safety, Health and Welfare Legislation. As an overall comment, it is Shannon LNG's intention to apply best practice standards to all construction works in order to ensure that all safety requirements are met during pipeline construction. Construction of a gas pipeline utilises well-proven techniques and methodology and it is not anticipated that there will be any safety issues of any kind arising during construction or afterwards.

And finally, Inspector, in conclusion, from my experience of working with natural gas pipelines in Ireland over the past 25 years I would like to stress again that the design of the Shannon Pipeline is simply that of a typical natural gas pipeline to be built in a typical Irish rural environment. It is fully compliant with the relevant Irish Standard IS 328. The construction proposals set out in the EIS are consistent with the technologies and techniques which have been successfully utilised all over Ireland by Bord Gáis for many years in the construction of the Irish Transmission network.

Thank you, Inspector.

MR BREEN CONCLUDED

INSPECTOR: Thank you, Mr Breen. That concludes your team members in relation to the CER and HSA. 14:52

MR FITZSIMONS: That's correct, Inspector. It only remains for me to confirm that an application was made to the Commission for Energy Regulation dated 5th September 2008 pursuant to the provisions of Section 39(a) of the Gas Act 1976 as amended and that is for a statutory consent which is within the statutory competence for the Commission of Energy Regulation to construct the pipeline for the transmission of natural gas. And, as the Bord is aware, a QRA has now been submitted to the CER in the context of that Section 39(a) application which, of course, shall be determined by the CER pursuant to its own statutory remit in due course. Thank you, Inspector. 14:52 14:52 14:53

INSPECTOR: Thank you. Could I now ask the representatives of the CER and the HSA perhaps to join us. Thank you very much. We have Mr Cagney from the CER. And I am sorry, I don't have your? 14:53

MR CONNEELY: Conneely.

INSPECTOR: Conneely.

MR CAGNEY THEN ADDRESSED THE ORAL HEARING AS FOLLOWS:

MR CAGNEY: Thank you very much, Inspector. Good afternoon, ladies and gentlemen. I am Denis Cagney, Director of Gas with the Commission for Energy Regulation and has been mentioned several times today, the -- 14:53

INSPECTOR: Sorry, just I don't think the stenographer can pick you up. Can you just pull the mic closer to your mouth.

MR CAGNEY: Okay. Can you hear me okay now? Okay, sorry about that.

I am Denis Cagney Director of Gas with the Commission for Energy Regulation. As has been mentioned several times today, the Shannon pipeline is subject to two separate statutory consent or planning regimes; the strategic infrastructure, which is the remit of An Bord Pleanala, and the consent to construct and licencing arrangements which is within the remit of the CER. Now it might be felt by some people that may be this is an unnecessary duplication, however we are statutory creatures so we just have to each discharge our respective statutory remits. 14:54 14:54

As has been mentioned, the Commission has received,

under Section 39 of the 1976 Act as amended, a request from Shannon LNG to construct the pipeline. This was received on 5th September. It is being reviewed. That review is quite well under way. That review, I should emphasise, involves taking advice from our technical consultants particularly in regard to the safety aspect of the pipeline and environmental consultants, and also taking account of submissions received. 14:55

We have received one such submission from Kilcolgan Residents' Association which has been reviewed. The most recent development in our review is the receipt of the Quantitative Risk Assessment which we just received last week and a copy which has been posted on the Shannon LNG website and a copy has been forwarded or is being forwarded to Kilcolgan Residents' Association. 14:55 14:55

Going forward we will be focusing very much in the next of part of our review on the detailed technical aspects of the pipeline with a particular emphasis on the safety criteria. I would think that, in the normal course, we would be anticipating a final decision by the CER about February or March of next year. That is the current plans. 14:55

14:56

The criteria for deciding whether to give consent to construct or not or what conditions to apply are set out in Statute. They are set out in SI 264 of 2002. I won't go through the six or seven criteria here,

suffice to say that the emphasis is very much on the overall safety and integrity of the gas system and of its inter-operability with other systems.

Since those criteria were set out, the CER's responsibility in the areas of gas safety have been considerably strengthened under the Energy Miscellaneous Provisions Act of 2006 and we have developed a safety framework, which has been referred to by one or two speakers, and it goes out without saying that Shannon LNG will have to comply fully with this framework, they have their own safety case, et cetera, et cetera. 14:56 14:57

Now there was mention this morning, I think, by one speaker as regards this question of a public hearing and there has been a suggestion that the CER may not have a public hearing on consent given that there is already a public hearing being conducted here under the planning legislation. Let me be the first withdraw any suggestion to that effect. I mean the question of whether there should be a public hearing under the gas specific legislation as regards the construction will be determined objectivity in its own right. After all, to be fair to the objectors, we cannot say that we are not here today to discuss the substantive issues from the CER's perspective and then to say we are not going to say we have had a public hearing because we have had it already. So by all means I am not giving a 14:57 14:57 14:57

guarantee that there will be a public hearing, but in the normal course if in doubt we would err on the side of having a public hearing. I can give a categoric assurance in that regard.

That is really off all I have to say. I hope that enlightens people as regards the process. If I can be of any further assistance I will be happy to do so, short of anticipating, for obvious reasons, the substantive issues that we will come to in our CER decision. Thank you, Inspector. 14:58 14:58

MR CAGNEY CONCLUDED HIS ADDRESS

INSPECTOR: Thank you very much, Mr Cagney. Perhaps, Mr Conneely, could you outline the HSA's remit in respect of the proposed development? That is the pipeline and the AGIs. 14:58

MR CONNEELY THEN ADDRESSED THE ORAL HEARING AS FOLLOWS:

MR CONNEELY: Good afternoon. Patrick Conneely, senior inspector, Health and Safety Authority. 14:58

What I thought I might was maybe to read out the communication that we sent to the Bord on October 6th, which I think sets out our position clearly.

It says: *Re: The Shannon LNG pipeline application. I am writing to you in response to your letter regarding the above.*

14:59

"Firstly the Authority state that the CER is the responsible body for the safety of pipelines of this nature. Pipelines are specifically excluded from the scope of the major hazard regulations, except for those within the establishment. On site pipeline and associated AGI were considered in the previous advice given to the Bord concerning the provision of an establishment in June 2008.

14:59

"The types of development within the risk zones were presented at the oral hearing and are included in the table".

And then included in the letter is a table which lists out three zones in terms of decreasing risk.

14:59

So zone 1, which is the riskiest zone, if you like, the advice is: *Advise against residential, office, retail, permit occasionally occupied developments, for example pump houses, transformer stations. Consult with the Health and Safety Authority re industrial development.*

14:59

In the next zone then, which is zone 2, the advice is: *Permit work place development, permit residential densities from 28 90 persons per hectare with the*

density increasing as the risk decreases across the zone in developed areas and from 22 to 70 persons per hectare in less developed areas. Permit modest retail and ancillary local services. Advise against shopping centres, large scale retail outlets, undue concentration of restaurant, pub facilities. 15:00

And the third zone, the advice for that is: *No restrictions except for sensitive developments which would be subject to consultation if inside the consultation range and should not be greater than* $0.3.10^{-6}$ *per year. Sensitive developments include crèches, schools, hospitals and nursing homes. Location of major public assembly will be subject to individual assessment*. 15:00

The letter then goes on to say that: *The view of the Authority is that the installation of underground pipelines is a suitable development in the vicinity of this establishment. The risk zones as identified in the submitted QRA are also included below.* 15:01
And included then is a map showing the risk contours around the Shannon LNG establishment.

It finishes then by saying: *If you have any queries on the above, please contact the undersigned*. 15:01

So I think that sets out reasonably concisely what the position of the Health and Safety Authority is in

relation to this particular development.

MR CONNEELY CONCLUDED

INSPECTOR: Thank you very much indeed. Now, I understand that the observers have a number of questions for the CER and the HSA. Mr McElligott, would you like to proceed? I would ask you again just to bear in mind the remit of this hearing here today and the remit of the CER and the HSA when posing the questions. 15:01 15:01

MR CONNEELY WAS THEN QUESTIONED BY MR McELLIGOTT AS FOLLOWS:

15:01

1 Q. **MR McELLIGOTT**: I have just one very basic question for the HSA. It is that risk contours surrounding the terminal for the energy terminal application now there are, there is an application for an above ground installation, but the risk contours are based still on the terminal tanks even though the above ground installation is still a Seveso II site? 15:02

A. The original advice to the Bord was based on the QRA submitted and the submitted QRA included the AGI and the pipeline even though it wasn't part of the original planning application. So the risk contours are based on the existence of the pipeline and the above ground AGI. 15:02

2 Q. Now it is a new planning application for an above ground installation, so shouldn't there surely be a new risk assessment based purely on the planning application for an above ground installation? If it is supposed to be considered a separate project, then you must consider the above ground installation as a separate project; no?

A. Well, I would say it is a planning matter rather than a technical matter. The technical advice is based on everything that was in the establishment, including the AGI and the pipeline. And I think the -- specifically the AGI is dealt with in the QRA. There is a graphic in there which shows the risk around the AGI, which is minimal, in fact very low. Therefore, it was factored into our technical advice. 15:03

3 Q. The second point was I think it has to be very clearly stated by the HSA that the remit of your advice to An Bord Pleanala only went as far as the shore line. Is that correct?

A. Well I don't, I am talking about this particular application now. Is that relevant? I don't want to revisit previous cases. 15:04

4 Q. Okay, understood. But if you are saying that the above ground installation was dealt with in the previous QRA, then I am entitled to ask the basis of your advice given on that QRA. So the question I am asking is that it was very clear before, or very unclear to some people, where the HSA's remit stopped and I am asking just a very simple question. The HSA's remit, does 15:04

that not just stop at the shore line?

A. Under the regulations, we give advice on request to the planning authority in relation to the risks that are posed by an establishment. The establishment is defined in the directive, in the regulations as being the area where the dangerous substances are stored. So in giving our previous advice we would have identified what constituted an establishment, which would have been, would have run to the jetty and included ships that were alongside the jetty and unloading. So beyond that it wouldn't have included vessels moving out in the estuary, for example, which I know came up previously, so that was quite clear that would not have been included. 15:04 15:05

5 Q. Okay. So I understood correctly so that the HSA gave no advice to An Bord Pleanala concerning the transport of ships or movement of ships up the estuary, into the estuary and up the estuary as far as the jetty; there was no advice given by the HSA on that specific issue; is that correct? 15:05 15:05

A. That's correct, except, I suppose, at the jetty on the approach, the immediate approach to the jetty, we would have, our advice would have covered that.

6 Q. But there was none?

A. None beyond that. 15:05

7 Q. Okay. Now the second thing is your advice did not cover, your advice did not cover damage or accidents caused deliberately; that is either by sabotage or by terrorism, is that correct, as a credible scenario?

A. Are we again referring to offshore activities here?

8 Q. No, just on the site.

INSPECTOR: Sorry, Mr McElligott, just to be clear; are we referring to terrorists or any other activities in relation to the AGI and the connection of the pipeline to the terminal or are more generally, because we really need to keep this to the specifics. 15:06

MR McELLIGOTT: Yes, it is in relation to the HSA's advice. 15:06

9 Q. Whatever advice the HSA gives to An Bord Pleanala; does that expressly exclude damage or accidents caused on purpose?

A. Yes, I will just qualify that slightly, that is a major accidents directive and major accident regulations and, therefore, we don't deal with deliberate intent but with accidents, industrial accidents. 15:06

10 Q. Okay. Because I just want to make it very clear that notwithstanding what Mr Conneely submitted as advice to An Bord Pleanala, it has to be, it was -- we felt that at the time of the oral hearing when the HSA gave its document saying to An Bord Pleanala, saying it did not advice against, An Bord Pleanala sent that advice to all the observers. Now An Bord Pleanala did not send the submissions of other parties to the other observers, just the HSA one and we felt that An Bord Pleanala gave a decision almost saying that since the HSA see no problems with safety or risk, then it is a safe project. What we are trying to say is that 15:07 15:07

there are certain issues that are falling through the cracks in different statutory bodies. The HSA's remit is as far as the shore line. There is nobody dealing with the moving danger zone that is an LNG ship coming into the busy shipping lanes of the Shannon estuary. 15:08
That was the point. Thank you.

MR McELLIGOTT CONCLUDED

INSPECTOR: Any further questions then or for Mr Cagney? 15:08

MR NORTH: Can I ask a couple of questions to the CER?

INSPECTOR: Sorry, can you identify yourself, and perhaps you are a witness or are you speaking on behalf of? 15:08

MR NORTH: I am speaking on behalf of Mr McElligott.

INSPECTOR: Sorry, your mic is not on or is not close enough to your mouth.

MR NORTH: It is on now, is it?

INSPECTOR: Yes.

MR NORTH: My name is Peter North, I am a consulting engineer.

INSPECTOR: Now, Mr North, usually what would happen is that the questions would go through Mr McElligott. I am going to allow a little bit of flexibility in this, but just to be aware that it is within my remit to ask 15:08

Mr McElligott to pose the questions. Okay, fire ahead.

MR CONNEELY WAS THEN QUESTIONED BY MR NORTH AS FOLLOWS:

11 Q. **MR NORTH:** A question for the HSA, your zone 1 where you wouldn't recommend houses, what about existing houses, do you do anything with those? You don't remove houses. 15:09

A. The advice is future based, I suppose, if you like, but if there were houses in existence and the proposal was for a new establishment, what we do is we would estimate the risks around the establishment and see then if housing was, if the existing house was compatible with that, we would fit it into that three zone system of advice. 15:09 15:09

12 Q. And would this go to down to finding out whether, for example, the occupiers were old and infirm and therefore could not run?

A. Well I suppose every case is specific, but in general the way the risk is calculated it is based in terms of what the Health and Safety Authority do. It is location based, so we would get a risk at a location. We assume somebody is there and the risk is calculated on that basis. 15:10 15:10

13 Q. Okay.

MR NORTH CONCLUDED.

MR CAGNEY WAS QUESTIONED BY MR NORTH AS FOLLOWS:

14 Q. **MR NORTH**: For the CER, do you actually have in the CER a technical competence to review QRAs? You talked about consultants? 15:10

INSPECTOR: Sorry, Mr north, I really do consider that question is outside of the remit of the An Bord Pleanala hearing. It is really up to the CER what they do at their own, in their own respect in relation to the Section 39 application. So perhaps if we could have the next question. 15:10

MR NORTH: Okay, I will leave that for the CER then. 15:11

MR NORTH CONCLUDED

INSPECTOR: Do any of the other observers wish to, have any questions for the CER or the HSA? No. Mr Fitzsimons, do you have any questions? 15:11

MR FITZSIMONS: No questions to either the Health and Safety Authority or the Commission for Energy Regulation. Thank you. 15:11

INSPECTOR: Do you have any summations or responses that you would wish to make?

MR CAGNEY: No. My role today is

explain our process and to ensure that some of those questions that you have asked, there will be a forum for those to be answered but I wouldn't attempt to answer them here today.

INSPECTOR: Okay. Thank you both very much for your time. It is greatly appreciated. Yes, Mr McElligott. 15:11

MR McELLIGOTT: I would just like to make the comment is that if you are going to give planning permission, you give planning permission for the initial terminal and that planning permission was not subject to any conditions that you would, that the developer had to obtain other licences. Now at the moment there is an infringement proceedings in the EU Commission against the lack of interaction between the different decision making bodies in Ireland for planning applications and I really do think that not to be able to question the CER, this is one forum where the CER and the An Bord Pleanala can interact. And so for An Bord Pleanala to say that this is completely separate to CER planning, CER application, that means you are not allowing an interaction which is already the subject of EU proceedings. The European Commission has recommended to take Ireland to the European Court of Justice on this point alone on lack of the interactions and I think this is an example of where the different statutory bodies will not deal with the issues together and things will fall through the cracks. Like, for 15:11 15:12 15:12

instance, the lack of an assessment of a moving danger zone which is an LNG tanker and all this information is environmental information which is under the EIA Directive that should be available at the earliest possible stage. And what we are really saying is that 15:13
the EPA or the An Bord Pleanala should be given the decision last, all this environmental information should be the first proceedings that should go ahead and that An Bord Pleanala should be last planning decision. So at least we are saying if you are going 15:13
to give planning permission, you must make it conditional on obtaining all other permits and if there is a problem at a further stage that will invalidate the planning application.

15:13

And the other problem is with the EPA, the "i" PP C licencing stage, there is no member of the EPA here to answer similar questions and I think the EU infringement proceedings deal specifically with the EPA and An Bord Pleanala. So if there is a problem with 15:14
the operation of the facility, for example, the pumping of 105 million gallons of chemically modified sea water into the Shannon every day cooled, if the EPA say there is a problem with pumping this water into the Shannon, then it must invalidate the original planning 15:14
application because whatever modifications they would need to make will require a major modification of the original planning application.

So that is why we are saying that really it should be the EPA and the CER, we should be able to go through their applications in tandem. Thank you.

INSPECTOR: Thank you very much.

MR FITZSIMONS: Inspector, I wonder could I address that particular point that is being made? 15:14

First of all, can I ask the Bord to recall that many of these issues were ventilated in the pleadings in the Judicial Review proceedings that were brought to challenge the Bord's decision made on 31st March 2008 to grant permission for the terminal. So those issues simply cannot be raised at this stage. Those proceedings were abandoned in October of this year before the High Court and those issues simply cannot be raised, in my respectful submission. 15:15 15:15

In any event, the example that Mr McElligott gives is clearly of no application to the determination before the Bord in this instance. He refers to vessels moving on the Shannon estuary. That has nothing, as a matter of fact, to do with the 26 km pipeline application that is currently being considered by An Bord Pleanala. He makes a point then in relation to various regulatory bodies having differing competences in relation to aspects of this project. There is nothing new about that. That has been with us since mid 1990s and has been raised on a number of cases, both in the High 15:15 15:15

Court and Supreme Court, and while the Commission of the European Communities may well have taken a decision to institute proceedings, in my respectful submission, those proceedings do not relate to the facts of this case because there are a number of statutory consents that are required. Each statutory consent will be applied for in due course. And unless and until the compendium of consents is in place, there obviously cannot be a full implementation of the project. 15:16

So there is no question of a breach of the Environmental Impact Assessment Directive because that requires the decision maker to have the necessary information before it as part of its decision making process, and that has obviously been complied with in this respect because a separate pipeline EIS has been considered and submitted to the Bord for its consideration as part of that ongoing process. 15:16

So I simply say that the submissions made by Mr McElligott do not have any relevance in fact or in law to this application which is being considered by the Bord pursuant to its jurisdiction. Thank you. 15:16

INSPECTOR: Okay, thank you, Mr Fitzsimons. 15:16

Mr McElligott, just one chance to reply.

MR McELLIGOTT: Shannon LNG got permission for an LNG terminal in PA.002. They did not get permission for a pipeline.

Now we are saying that this is an example of project splitting. If it is an integral part of the one project, it should be applied for as the one project. They are now applying for a pipeline which means gas can come out of the LNG storage tank. Now that gas can come out, that means gas can come in. The gas is going to come in on ships so this is a relevant point to actually discuss the movement of ships into the facility. It is almost similar to the Corrib problem where they got planning permission for a terminal and then they are applying for planning permission for a pipeline and now they realise there are problems with the location of the terminal in Mayo. It is a similar problem here. They have planning permission for a terminal, they do not permission for anything else and they said that this is a permitted facility. It is not a permitted facility. It is a facility that has got permission at one level only of the consent process. That is the first point. 15:17 15:17 15:18 15:18

INSPECTOR: Thank you. I think we will probably be returning to this issue in your own submission, so we will perhaps move on now with the next member of your team, Mr Fitzsimons. 15:18

MR FITZSIMONS: Thank you, Inspector. In that context if I could ask Mr John Redding to deliver his statement of evidence on geology, soils, hydrology and hydrogeology. 15:18

Mr Redding, thank you.

MR REDDING THEN ADDRESSED THE ORAL HEARING AS FOLLOWS:

MR REDDING: Inspector, ladies and gentlemen.

My name is John Redding and I hold a Bachelor of Science Honours Degree in Geology (1968) from University College London and a post-graduate Doctor of Philosophy degree in Marine Geology (1972) from University College London. I am a Member of the Institute of Professional Geologists.

I am an independent geological consultant working for Arup Consulting Engineers. My main areas of expertise are in applied engineering geology, hydrogeology and marine geology. I have previously been involved in the compilation of a number of Environmental Impact Statements for a wide range of developments including: The Mayo-Galway Gas Pipeline; Ballygiblin Site Development Co Cork; Indaver Ringaskiddy Co Cork; Shannon LNG Site Development in Co Kerry.

Was formerly employed by Ove Arup and Partners in their London office, having joined that company in 1972. At the time of my leaving Ove Arup & Partners to become independent I was Principal Geologist, responsible for ground investigation and site evaluation for a wide range of large industrial, public sector and commercial engineering projects. In the

latter capacity, and subsequently, I have been closely involved with similar engineering projects in Ireland since 1982. The sorts of project that I have been involved with in Ireland include: The N3 (Navan-Kells), N7/N8 (Portlaoise-Roscrea-Thurles) and N11 (Gorey Bypass) road schemes; as well as the Cork-Dublin, Limerick, Waterford and North East phase 1 and 2 high-pressure natural gas pipelines. I have also been involved with the Novartis and Pfizer pharmaceutical plants.

I am also Managing Director, and part owner, of a small UK company that specialises in seabed leveling and trenching using a patented ducted-propeller jetting system.

The purpose of my evidence today is to provide an overview of the Shannon Pipeline project from the standpoint of Geology, Soils, Hydrology and Hydrogeology. These form the subject matter of Chapters 11 and 12 of the EIS and I propose to deal with them together here. My principal points of evidence will cover:

The impact of the pipeline generally on geology, soils, hydrology and hydrogeology and related issues such as habitats, landscape features, economic minerals, and aquifers. The potential for impact on construction and operation of the pipeline and, in particular, traffickability for construction plant, trench

stability, reinstatement and pipeline stability. I will also deal with Geohazards which are principally slope stability, and specific issues associated with potential for impact on surface and groundwater quality and quantity associated with nearby sources of abstraction.

In addition, I will refer to the following specific topics, as requested by An Bord Pleanála: The impact of the proposed development on hydrology, hydrogeology and ground stability, particularly in areas of peat land, together with proposed mitigation measures and consequent residual impact. Also, the potential impact of hydrology and ground stability on the operation of the development.

I would like to move on to deal with my involvement in EIS part of the Project.

As part of the Arup Consulting Engineers design team, I have been involved from the earliest stages of the project, having participated in the preliminary route corridor appraisal studies and the subsequent route selection/refinement and route investigation stages. In addition, I have participated in the environmental baseline studies for the purpose of environmental impact assessment and have been directly responsible for preparing Chapters 11 and 12 of the EIS, which deal with Soils and Geology, and Hydrology and Hydrogeology,

respectively. During preparation of the EIS I liaised closely with other members of the EIS team including, in particular, Daniel Garvey, Brendan Mangan and Carl Dixon.

I will come on now to deal with assessment methodology. I conducted the following phases of assessment as part of the EIS scope of work. I carried out a number of reconnaissance and vantage-point surveys of the preliminary route corridors, followed by selected walk-over surveys of the current pipeline route; with more detailed on-site examinations of the principal road and river crossings. I carried out the examination of the river crossings in conjunction with Carl Dixon, whose Statement of Evidence covers faunal and habitat issue at these crossings. I also carried out a review of baseline information, including published and manuscript maps and other publications obtained at the Geological Survey Ireland (GSI) office in Dublin; also a stereoscopic examination and interpretation of project-specific aerial photographs as well as earlier archive aerial photography; evaluation of data pertaining to slope stability and other geo-science related risks. I also carried out interpretation of available stream flow, rainfall, infiltration and evapotranspiration data relevant to an understanding of the surface and groundwater flow across the pipeline route. Also an assessment of the impacts associated with the construction and

operational phases of the pipeline. Lastly, recommendations of the mitigation measures necessary to avoid, reduce or remedy the adverse environmental effects identified.

For this purpose I have used techniques of survey, assessment and interpretation developed and applied over some 30 years as a practicing professional geologist. In terms of scope and sufficiency of this work I have been guided by the guidelines for EIS preparation given by the Environmental Protection Agency (EPA 2002), and also by the guidelines prepared by the Institute of Geologists of Ireland (IGI 2002).

I will move on now to the main findings. Regarding the main findings, I will give a brief summary of the key points of the geology, soils, hydrology and hydrogeology insofar as they influence the pipeline. A more detailed description of these aspects is given in Chapters 11 and 12 of the EIS.

I will deal first with the Geology. The pipeline route crosses rolling hill country underlain by bedrock comprising sandstones and shales (discussed more fully in Section 11.3.4 of the EIS), and superficial deposits comprising mainly glacial boulder clay, with lesser amounts of glacial sands and gravels (discussed more fully in Section 11.3.2). Bedrock tends to occur at a depth such that it will not be encountered during

pipeline construction, so the principle geological medium in which the pipeline will be installed will be glacial boulder clay. Neither the topography nor the underlying geology pose particular constraints for pipeline routing or construction, although the route has purposely been selected with the aim of keeping the length of crossing of shallow rock (and therefore the need for blasting) to a minimum, and avoiding areas where sands and gravels occur in conjunction with high water table. In the latter areas, which are mainly confined to the western half of the route, there is a potential for local side-slope instability of the trench and rapid ingress of water. These are not an issue for the pipeline provided such areas are identified in advance, as I will describe later. My colleague Colin Doyle will discuss mitigation measures for noise and vibration associated with blasting in rock in his brief of evidence.

Post-glacial deposits, which are discussed in Section 11.3.3 of the EIS, include alluvium, associated with many of the stream and river valleys, and peat. Alluvium is generally restricted to floodplain areas, where it forms relatively narrow tracts within the floors of the valleys. Within the valley of the White River the alluvium forms a series of terraces composed of sand and gravel that mark stages in the progressive down-cutting of the river. As discussed in Section 11.5.4 of the EIS, alluvial areas can pose a difficulty

for pipeline construction including poor traffickability for construction plant, trench side instability and rapid water ingress. However, these are significantly lessened during the summer when the ground is generally drier and more stable, and groundwater levels are towards the bottom of the trench. In addition, particular forms of construction can be adopted to overcome these problems so that they do not become an impact. River and stream crossings have been selected to purposely avoid large expanses of alluvial wet ground.

Peat also occurs intermittently along river and stream channels associated with the upper part of the alluvium. In these situations it generally occurs in localised hollows or abandoned channels where ponds or small lakes developed that subsequently became in-filled by growth of vegetation. Larger, but still patchy, expanses of blanket bog peat occur along the eastern half of the pipeline route, mainly to the east of the Glencorbly River, where the peat has formed on gently sloping hillsides and in poorly drained elevated areas. Here the peat is generally quite thin (less than 1-1.5m) and often is in the nature of a peaty topsoil. None of the peat areas are sufficiently well developed or intact to have warranted a habitat designation. As discussed in Section 11.5.5 of the EIS, peat can pose a difficulty for construction of pipelines particularly if the pipeline has to be

installed within the peat profile. In this instance, however, because of the thinness of the peat the pipeline will be installed in the stable underlying mineral soil. My colleague Brendan Mangan has already discussed pipeline construction in peat in his Statement of Evidence.

Slope instability is not an issue in any of the peat areas crossed by the pipeline because of the shallowness of the ground slope in these areas.

As noted in Sections 11.3.5 and 11.3.6 of the EIS there are no recognisable economic mineral deposits along the pipeline route, and no landfill or contaminated land issues.

Regarding the soils, three main pedological soil types can be recognised along the pipeline route and these are fully described in Section 11.4 of the EIS. There are no environmental issues associated with these soil types along the pipeline route.

Regarding hydrology and hydrogeology, as noted in Section 12.3 of the EIS, the rocks, which underlie this northern part of Counties Kerry and Limerick, are relatively impermeable, which means that they do not permit significant amounts of groundwater movement, nor do they represent significant aquifers.

Much of the surface water that falls as rainfall within the area is rapidly conveyed to the Shannon in surface drainage channels or in more permeable shallow glacial deposits. This water movement occurs primarily during the winter when rainfall exceeds the rate of evapo-transpiration. During the late spring and summer growing season, evapo-transpiration generally approximates or exceeds mean rainfall and so many of the smaller water courses dry up or have very low flows during this period. Pipeline construction will take place during the summer, to purposely take advantage of the depressed groundwater levels and low-flow conditions in streams and rivers.

Three named river are crossed by the pipeline. Descriptions of these river crossings are provided in Section 12.4.2 of the EIS. Progressing eastwards, these are: The Glencorbly River, the White River and the Glashanagark River. In addition, 11 stream crossings have been identified.

By far the largest of the rivers is the White River. It is the only water course crossed by the pipeline for which long term flow measurements are available. Detailed measurements for the period June 2000 to January 2008, provided in Section 12.4.1 of the EIS, indicate the potential for very large seasonal variations in flow and the rapid (i.e. flashy) response of the river to rainfall, which is mainly due to the

nature of the catchment. It is thought that the Glencorbly is a similar flashy river, but because of the smaller size of its catchment the overall flows are lower. The Glashanagark is a considerably smaller river, comparable in size to some of the larger streams crossed by the pipeline.

Because of their propensity for large flood flows, the crossing points on the two larger rivers (i.e. the White and the Glencorbly) have been chosen with extreme care, primarily to ensure stability of the river bed and banks. At both locations bedrock is present in the river bed and this will ensure that the pipeline is installed in a stable substrate. Construction will take place during the summer under low-flow conditions, which will greatly facilitate the construction process, but, nevertheless, particular care will be taken over backfilling of the trench and reinstatement of the banks to ensure that there is no subsequent erosion or washing-out of the backfill.

As noted in Section 12.4.3, there are no significant areas of permanent standing surface water along or adjacent to the pipeline route and no areas have been identified as having a significant risk of flooding. However, it is evident that there are areas along the pipeline route where the flatness of the ground and the nature of the surface vegetation and underlying soils suggest the possibility of occasional flooding.

Although such flooding, being a winter occurrence, is unlikely to impact on pipeline construction, nevertheless it will be taken into account during design by specifying sections of concrete weight-coated pipe to prevent the possibility of pipeline floatation.

Based on periodic measurements carried out by the Environmental Protection Agency in the Tarbert Stream and Glencorbly River (and given in Section 12.4.1 of the EIS), it is thought that rivers and streams crossed by the pipeline generally fall in the slightly to moderately polluted category. The most likely sources of pollution are organic matter, from dairy and cattle farming, and phosphates and nitrates from fertilizers. During construction every effort will be made to avoid any further derogation of existing water quality, by fluming or otherwise channeling the watercourses (to completely isolate them from trenching operations) and by the installation of silt traps downstream.

Operational gas pipelines do not constitute a pollution risk for surface or groundwater, nor do they pose a threat to groundwater from the point of view of quantity or availability of supply. The pipeline has generally been routed away from individual supply features, such as wells and boreholes, and there is no question of any of these features being lost. This avoidance comes about naturally as a result of the pipeline being routed away from dwellings. Excavation

of the pipeline trench will, however, involve interaction with the groundwater wherever and whenever water tables are high (typically in low-lying areas), and this may necessitate pumping-out to remove water from the trench, and possibly advance dewatering to ensure trench excavatability and stability. Such measures, being temporary, do not have a lasting environmental impact.

Regarding the potential impacts, although potential for geological, hydrological and hydrogeological impacts do exist, as already outlined, within the area traversed by the proposed pipeline route, these have been reduced to an insignificant level by adopting the following measures.

I will now move on to deal with the impact avoidance and mitigation measures. As part of the route selection process, potential impacts have been identified and delineated and the pipeline purposely routed to avoid or reduce the length of crossing of those impacts, as discussed in Section 11.6.1 of the EIS.

As noted in Section 11.6.2 of the EIS, the following specific measures to mitigate geological impacts are proposed:

Bog mats will be used in areas of poor traffickability and continuous shoring, to support the trench during

excavation and while the trench is open, will be used in those situations where trench-side instability is anticipated.

Only inherently stable materials will be used for backfilling the trench and, if needs be, selected imported backfill materials will be used to prevent subsequent movement or wash-out at river crossings.

A ground investigation along the pipeline route will assist in identifying any areas susceptible to local trench side-slope instability. This will enable preconstruction dewatering (such as the use of well-pointing) to be installed to stabilise the ground prior to excavation of the trench.

Ground investigation will also provide information on the variation in thickness, geotechnical properties and hydrogeology of peat along the route, as well as the geotechnical properties and groundwater levels within the underlying mineral soil. This information will be used to make a final assessment of local ground stability in peat areas and determine the necessity for special construction measures.

At the Tullyglass-Kinard location where blasting in rock may be required, measures outlined in Chapter 8 of the EIS for mitigation of noise and vibration from blasting will be implemented.

The following activities are also planned. As noted in Section 12.7 of the EIS, they are aimed, specifically, at avoiding the occurrence of adverse hydrological and

hydrogeolgical impacts:
Firstly, carrying out ground investigation along the route (by means of boreholes, trial pits and probing), including the installation of standpipes and piezometers for monitoring of groundwater levels.
Secondly, preparing a detailed survey and description of river crossings;
Thirdly, preparing an inventory of water supply source features and historic yields;
Fourthly, designating difficult areas and river crossings as Special Locations for construction, to ensure that appropriate construction methodologies are employed;
Fifthly, preparing method statements to provide the basis for construction procedures on site.

I will now deal with the response on submissions.

Firstly the submission from Caitriona Griffin who states: *Many people (myself and my family included) have our own water supply by means of a well on our property. I am concerned that our water supplies will be affected.*
My Response: The construction and operation of gas pipelines does not normally affect individual or group groundwater supply abstractions such as wells, boreholes and springs, because the pipeline is installed at shallow depth compared to the groundwater level, and because there is no interference with the

source of recharge to the abstraction (which is generally by infiltration of rain water into the ground over a large area). In the event that permission is granted an inventory of extant wells, boreholes and springs will be prepared in order to ensure that:
A) The construction of the pipeline will not result in physical damage to any water supply abstraction or associated pipe work; and.
B) To enable appropriate precautions to be taken during construction in proximity to any sources to ensure against the risk of pollution.

Now the submission from Thomas O'Donovan, the first submission: *As the final route of the proposed huge gas pipeline would be through large areas of boggy ground local people are worried that more bog slides are a probability adversely affecting their drinking water again with dead zones in rivers another possibility.*

My Response: The aggregate length of peat crossing, along the whole 26km pipeline route, is 5.7km; of which the longest individual crossing length is just over 1km. As noted in Section 11.5.5 of the EIS, the peat is generally thin (i.e. less than 1-1.5m), occurs on slopes of less than 5 degrees and has largely been reclaimed for agriculture or forestry. Taken together, this means that the peat areas within the route corridor and along the route itself are intrinsically

stable and not susceptible to bog slides, so there is no associated risk to drinking water or to river water quality.

The second submission from Thomas O'Donovan: *Present and future rainfall is another factor that could lead to more unforeseen ecological disasters.*

My Response: The pipeline will not alter the topography, and following reinstatement the land will effectively be returned to its present condition. There will be no alteration to surface drainage channels (such as ditches, stream and rivers) other than to ensure increased stability of the channels at the point of crossing. Therefore any 'unforeseen ecological disasters' induced by rainfall will be entirely natural and not related to the pipeline.

Kilcolgan Residents Association makes the following observation: *The EIS submitted by Shannon LNG on the pipeline states: 'The soils in the region of the proposed route comprise stony clays with a high proportion of limestone rock fragments. On elevated land to the south of the pipeline there are large expanses of peat, and some of these boggy areas also extend northwards across the propose route. These smaller areas of peat have been largely cut away or drained. There are also areas of alluvium in flood plain areas along the larger streams and rivers.*

Alluvium can be variable in composition, ranging from soft clays to silts and gravels. The proposed pipeline will not have a significant impact on soils and geology.'

They further observe:
Given the recent bog slides in County Kerry we -- i.e. Kilcolgan Residents' Association -- *require independent assessments on the effects on soils from experts not employed by the Gas company.*

My Response: My Statement of Evidence and Chapter 11 of the EIS specifically address issues to do with ground stability, noting that the soils occurring along the pipeline route are intrinsically stable. Concerning the peat areas crossed by the pipeline, these are also inherently stable because of the thinness of the peat and the fact that it occurs on flat or gently sloping ground. The construction methods used to install the pipeline through the peat areas, as discussed by my colleague Brendan Mangan in his Statement of Evidence, will likewise not result in any instability.

The second submission from Kilcolgan Residents Association: *The development will pose a risk to a primary drinking-water supply in Kilcolgan area.*

My response is essentially covered by the response to

the submissions from Caitriona Griffin and from Thomas O'Donovan.

In conclusion, Inspector, I am of the view that the potential (ie. Negative) impacts of the proposed pipeline in terms of geology, soils, hydrology and hydrogeology will be insignificant in the short term (i.e. during construction), and imperceptible in the longer term (i.e. during operation).

Thank you.

MR REDDING CONCLUDED

INSPECTOR: Thank you very much indeed. At this point I would like to welcome the representatives from Limerick County Council. Perhaps you could come and regain your rightful seat there beside your Kerry colleagues. I would just like to take your name for the record. 15:44

MR O'GORMAN: Ciaran O'Gorman, senior executive engineer.

INSPECTOR: Sorry, you need to pull the mic. 15:45

MS O'KEEFFE: Grainne O'Keeffe, executive planner.

INSPECTOR: Thank you very much. What I propose now is that we

have a very short comfort break for ten minutes. So it is quarter to four, we will meet back here at five to four.

THE HEARING ADJOURNED BRIEFLY 15:45

THE HEARING RESUMED AS FOLLOWS:

INSPECTOR: Hello everyone. We will resume.

16:02

So, Mr Fitzsimons, if you would like to call your next witness.

MR FITZSIMONS: My next witness is Daniel Garvey dealing with the issues of landscape and visual and air quality and climate. Mr Garvey. 16:02

MR DANIEL GARVEY THEN ADDRESSED THE ORAL HEARING AS FOLLOWS:

MR GARVEY: My name is Dan Garvey and I hold a diploma in construction studies from Cork Institute of Technology, an honours degree in geography and public policy studies from University College Cork, and a postgraduate diploma and an MSc in environmental protection from the Institute of Technology, Sligo. I am a chartered member of the Institution of Environmental Sciences, and a fellow of the Royal

Geographical Society.

I am a senior environmental scientist with Arup Consulting Engineers and am based in the Cork office. I have been with Arup for nine years, carrying out environmental assessments and compiling Environmental Impact Statements (EISs). To explain what this involves I look at planned projects, and systematically evaluate if they are likely to have significant effects on the environment. This process is then documented in an EIS. I have been directly responsible for the preparation of 25 EISs for industrial, infrastructural, residential, commercial, institutional and energy projects. On the Mayo to Galway gas pipeline project, I was involved with the preparation of the EIS, the review of construction method statements, and visiting the site to check if mitigation measures were being implemented.

My role on the Shannon Pipeline project was to coordinate the preparation of the EIS, and I was responsible for the landscape, visual, air quality and climate impact assessment outlined in Chapter 6 and Chapter 9 of the EIS.

Landscape and Visual Introduction.

The impact of the proposed Shannon Pipeline and Above Ground Installations (AGIs) on the appearance and character of the pipeline route was assessed. Where appropriate, mitigation measures are described, to

minimise adverse impacts arising from the proposed development. This is outlined in Chapter 6 of the EIS.

Methodology.

The landscape and visual assessment is described in Chapter 6 of the EIS, and included the following:

Landscape impacts, including:

Direct impacts on specific landscape elements within and adjacent to the site;

Effects on the overall pattern of landscape elements which give rise to the landscape character of the site and its surroundings;

Impacts on any special interests in and around the site.

Visual impacts, including:

Direct impacts of the proposed development on views in the landscape;

Overall impact on visual amenity.

The assessment has been undertaken in accordance with the advisory guidelines set out in Guidelines for Landscape and Visual Impact Assessment, published by the Landscape Institute and IEMA, Second Edition 2002. The assessment was carried out between October 2007 and March 2008, and information was gathered from the following sources:

Consultations with the design team regarding the development proposals;

Site visits and fieldwork to confirm data derived from

available mapping, and to identify and assess potential impacts.

In conjunction with the landscape survey and assessment of the study area, a visual survey was undertaken to assess the potential visual impact of the proposed development. If the landscape is to absorb the development successfully, the development must be integrated in a way that protects, and where possible enhances the visual impact -- the visual appearance of the landscape.

In order to determine the critical viewpoints of the proposed development, whether in the immediate locality or further afield, the principal and minor roads within the study area were travelled. Particular attention was paid to the existing residential properties and open spaces.

In accordance with best practice, the visual survey was undertaken during winter months on a number of occasions in January 2008, when a marked reduction in screening from deciduous vegetation would cause the greatest impact to be realised.

Pipeline Impacts.

For most of the proposed route, the Shannon Pipeline will affect the landscape only during construction and for a short period afterwards. The working width of

the pipeline, which will be approximately 30 metres, will be visible through the landscape during construction, when sections of field boundaries and topsoil will be removed.

The most significant landscape features that will be affected by the proposed pipeline are the mature hedgerows and associated hedgerow trees, and stone faced earth bankfield boundaries. Such linear features cannot be avoided, and the breaches will visually emphasise the route of the pipeline within the landscape, during the construction phase and for a period of time afterwards.

The permanent wayleave, a 14 metre strip centred over the pipeline, will remain clear of trees, and will have a long-term impact on the forested portions of the route, but will be similar to a forest road, or fire break, for a total linear extent of approximately two kilometres over the route.

The pipeline construction contractor will construct a temporary compound close to the pipeline route. There will also be a requirement for a pipeline storage depot. The final size and location of the compound and depot will be determined by the construction programme and chosen methods of working. The compound will be an active site for up to 12 months, and will comprise material storage areas, office, canteen and welfare

buildings and parking areas. It will be securely fenced.

Usually, construction contractors favour existing hard-standing areas and yards. It is likely that either an area within the Shannon LNG Terminal site, or a zone within the Foynes Port storage area would be suitable for the construction compound and/or the pipeline storage.

On completion of the construction activities, the construction compound will be cleared of all materials, buildings, and debris. Fencing will be removed and any temporary services, pipe work and hard-standing cleared, and the construction compound and pipeline storage site will be fully reinstated.

Impact On Landscape Character.

The pipeline construction activities will have a moderate short-term adverse impact on the landscape character in the vicinity of the route, as described in Section 6.5 of the EIS. Over time, as the restored land blends with the existing vegetation, the impact will reduce to negligible adverse. Both of the AGI sites will be located unobtrusively in the landscape. The Shannon LNG Terminal AGI will become part of the industrial character of the Terminal structures, and will have a negligible long-term adverse impact, and the Foynes AGI will have a slight long-term localised

adverse impact on the local landscape character.

Visual Impact Assessment

The construction of the pipeline will be visible from locations on local roads close to the route. In particular, views of the Shannon Estuary from the scenic route southwest of Glin, County Limerick, will be affected in the vicinity of Ballycullane Upper, where the construction activities will be a new foreground element in scenic views from this location, as described in Section 6.6 of the EIS. This will be a moderate short-term localised adverse visual impact. As with the predicted impacts on the landscape character, the maturing vegetation in the reinstatement will reduce these impacts until they are negligible in the long-term. The AGIs will not affect any designated views or prospects, and will usually not be occupied at night, and will have a slight long-term adverse visual impact.

Cumulative Impacts.

The pipeline construction is likely to coincide with the activity on the Shannon LNG Terminal site. No significant cumulative impacts are envisaged at the construction phase, as documented in Section 6.7 of the EIS. In operation the cumulative impact of the Shannon LNG Terminal AGI will be negligible, as the AGI will become part of the established industrial character of the site.

Mitigation Measures.

Over the past 25e years pipeline reinstatement techniques have developed and improved so that high standards can now be achieved. The greatest opportunity to minimise the visual impact of the Shannon Pipeline is presented during the route-planning phase, as described in Section 6.8 of the EIS. Most of the proposed pipeline crosses agricultural land, which is typically the easiest to reinstate, provided that land drainage is replaced, topsoil is carefully handled, and fields re-seeded. The visual impact within fields will only be significant during the construction period.

As described in Section 6.8 of the EIS, where possible hedgerows, and in particular hedgerow trees, have been avoided, and gaps or weak points within the hedgerow selected as the crossing point.

Within woodlands and plantations, the proposed pipeline route avoids mature trees and selects natural gaps in vegetation where possible. Where possible, the working width for the pipeline construction will be reduced to avoid individual mature trees and their roots. Tree and vegetation removal will be kept to a minimum, as described in Section 6.8 of the EIS.

There are very few stone walls, but where the proposed

pipeline is to cross a drystone wall, or stone faced earth bank field boundaries, the walls will be dismantled and replaced after the pipeline has been laid. Care will be taken to rebuild walls using the techniques, style and stone type to match the existing walls in the area. Similar care will be taken to reinstate sod and stone banks and field boundaries, as described in Section 6.8 of the EIS.

The Foynes AGI site has been located with consideration to existing site features such as topography, hedgerow field boundaries and trees, to provide screening. The Shannon LNG Terminal AGI site is located close to a wooded area, and the AGI will be visually contiguous with the proposed Terminal development, as described in Section 6.8 of the EIS.

Residual landscape and visual Impact.

The residual impacts of the Shannon Pipeline is described in Section 6.9 of the EIS, and will be moderate short-term impacts during the construction phase, and negligible to slight long-term impacts arising from the AGIs as permanent new features in the landscape.

Air Quality Introduction.

As described in Section 9 of the EIS, the proposed development has the potential to affect air quality by: generating airborne particulate matter (dust) during

construction activities;
emissions of combustion exhaust gases arising from vehicles and plant associated with construction;
emissions of combustion exhaust gases from gas-fired heaters at Foynes AGI.

Existing Environment.
The route of the proposed pipeline is located to the south of the Shannon Estuary. The area through which the pipeline passes is rural and relatively sparsely populated.

Characteristics of the Proposed Development.
The Shannon Pipeline will connect the proposed Shannon LNG Terminal to the national gas grid. Construction details of the proposed pipeline have been described by Mr Breen. The pipeline will be buried underground for its entire length, with the only above-ground elements being two AGIs. The AGIs will be located on the Shannon LNG Terminal site at Ralappane, and near Foynes, at the tie-in location with the national gas network.

Predicted Air Quality Impacts.
Construction activities are likely to generate some dust and exhaust emissions in the vicinity of the pipeline works, as described in Section 9.2.8.1 of the EIS. Dust emissions during the construction phase are likely to result from the following activities: Site

earthworks; handling of construction materials; wind-blow from temporary stockpiles; and construction traffic movements.

There is a potential short-term localised dust nuisance arising from these activities. No significant or longer term impacts are predicted. Exhaust emissions will arise from vehicles accessing the site, in addition to plant and equipment operating on the site. The vehicular movements and plant operations will be short-term, dispersed along the pipeline route, and will progress along the route as the works progress. Because of the relatively low level of emissions and the short duration of exposure, no significant impacts are predicted on air quality, as described in Section 9.2.8.1 of the EIS.

The pipeline will operate as an almost completely closed system, which means that any gas that enters the pipe is not allowed to escape. As described in Section 9.2.8.2 of the EIS, in normal operation there could be extremely small releases of gas to the atmosphere from regulator control systems at the Foynes AGI. During routine maintenance and pigging, extremely small volumes of natural gas may be released to the atmosphere. Natural gas at ambient temperatures is lighter than air, so it will quickly dissipate.

An Bord Gáis Foynes AGI may incorporate heaters, which

would emit combustion exhaust gases. As described in section 9.2.8 of the EIS, it is predicted that these emissions will not have any significant impact on ambient air quality. Details of the pipeline design, and operational safety and maintenance are discussed in Chapter 3 Site and Project Description, of the EIS.

In the unlikely event of a major release of natural gas from the pipeline, the concentration would be high in the immediate vicinity of the leak. The gas would be dispersed into the atmosphere by diffusion and wind action, and would not have a significant impact on the environment. Natural gas is largely methane, which is a greenhouse gas, so any release of natural gas from the pipeline would contribute to the total concentration of greenhouse gases in the atmosphere. However, in the context of the existing amounts of greenhouse gases in the atmosphere, such a release would be insignificant, and the impact of such a gas release on the climate would be negligible.

Odorant, as a safety measure, will be injected into the gas at the Shannon LNG Terminal AGI. Any release of natural gas to the atmosphere from the pipeline could also have a local odour impact for the period of release. No significant impacts on air quality are predicted arising from the operation of the proposed Shannon Pipeline.

Air Quality Mitigation Measures.

Measures to reduce construction-phase impacts on ambient air quality are outlined in Section 9.2.9 of the EIS. These will include the preparation and implementation of a dust minimisation plan, in accordance with the BRE/DTI document 'Control of Dust from Construction and Demolition Activities' (2003). Vehicle speeds will be limited within the construction site.

During very dry periods when dust generation is likely construction areas will be sprayed with water.

Exhaust emissions from vehicles operating within the site, including trucks, excavators, diesel generators or other plant equipment, will be controlled by the contractor through regular servicing of machinery.

Where activities that may be a significant local source of fine particulate emissions are taking place, measures such as screening will be used to control emissions and prevent a nuisance in the locality.

No mitigation measures are required for the operational phase, as impacts are expected to be negligible.

Cumulative Impacts.

As described in Section 9.2.10 of the EIS, no significant air quality cumulative impacts are predicted arising from the construction or the operation of the Shannon Pipeline.

Residual Impacts.

There will be minor emissions to the atmosphere during the construction phase and negligible emissions during normal operation. Implementing the proposed mitigation measures will be sufficient to ensure that any off site impacts are negligible. Therefore, it is not envisaged that the Shannon Pipeline will have any significant adverse impacts on ambient air quality.

Climate.

The impact of the Shannon Pipeline on climate was considered for both the macro0climate and micro-climate, as outlined in Section 9.3 of the EIS. The climate of a large geographical area (global) is defined as macro-climate. The climate in the immediate local area of a proposed development is known as the micro-climate.

Predicted Impacts on Climate.

Construction vehicles and generators, for example, will give rise to CO2 emissions, that is Carbon Dioxide emissions. However, due to the scale of the proposed development, and the short duration of the construction phase activities, the quantities will not be significant in terms of Ireland’s commitment under the Kyoto Protocol.

In the operation of the pipeline, there will be negligible emissions of greenhouse gases arising from

the pipeline. CO2 is emitted as a result of the combustion of fossil fuels. Natural gas is the cleanest of all the fossil fuels. In facilitating the use of natural gas in Ireland, the proposed development will support the move from less efficient fossil fuels, such as oil and coal. Table 9.5 in the EIS compares the generation of carbon dioxide per unit of energy input, for the three main fossil fuels. Based on the values outlined, a significant CO2 benefit will be achieved by the use of natural gas relative to oil or coal for electricity production and space heating. The nature and scale of the development is such that no impact, as a result of the proposed development, on any of these climate issues is envisaged.

Cumulative Impacts.

As outlined in Section 9.3.6, no significant cumulative climate impacts are predicted arising from the construction or operation of the Shannon Pipeline.

Climate Mitigation Measures.

The contract documents will require the construction contractor to ensure that construction vehicles and plant will be properly maintained and serviced, to optimise the efficiency of the combustion processes. This will help to minimise the generation of carbon dioxide.

Climate Residual Impact.

There will be a beneficial residual impact on climate as a result of the proposed development, due to the facilitating of gas as a combustion fuel in Ireland, over coal and oil.

Submissions and Responses.
Finally, I would like to address the submissions that relate to landscape and air quality issues.

Mr Thomas O'Donovan's submission. This is a submission extract and I quote: *It is also apparent, regrettably, that the burning of fossil fuels of which liquid natural gas is one, when expanded and vented and burned, contains, as it does, various poisonous elements. Honest climatologists have predicted, and continue to make us wary of such huge developments with dire consequences for humanity and fragile local and wider environment.*

In Response: As described in Section 9.3.5 of the EIS; natural gas is the cleanest of the fossil fuels. In facilitating the use of natural gas in Ireland, the proposed development will support the move from less efficient fossil fuels, such as oil and coal. No significant adverse impacts are predicted for humanity or the local and wider environment.

A second extract from Mr O'Donovan's submission: *Though it is invisible, gas is still a pollutant and*

serious health risk to people and our natural pristine wild life environment.

In Response: As described in Section 9.2.8 of the EIS; the pipeline will operate as an almost completely closed system. In normal operation there could be extremely small releases of gas to the atmosphere from regulator control systems at Foynes AGI. During routine maintenance and pigging, extremely small volumes of natural gas may be released to the atmosphere. Natural gas at ambient temperature is lighter than air, so it will quickly dissipate. No significant adverse impacts were predicted for people or the natural environment.

Kilcolgan Residents Association and Safety Before LNG submission, a submission extract and I quote: *Ralappane House is now to be surrounded by a pipeline as well as an LNG terminal. It was not known at the time of the planning application for the terminal that the proposed pipeline route would pass in front of Ralappane House. This will destroy Ralappane House, a building now under consideration as a protected structure by Kerry County Council.*

In Response: Ralappane House is located approximately 100 metres to the south of the edge of the pipeline corridor as shown in Figure 3.1 of the EIS, Pipeline Strip map 1. The potential short-term impacts of

constructing the pipeline have been described in Mr Breen's evidence. Once the pipeline route within the corridor has been reinstated, there will be no longer-term impacts on Ralappane House arising from the operation of the pipeline.

A second extract from that submission: *This LNG project is encouraging more dependence on imported fossil fuels, contrary to Ireland's obligations under the Kyoto Protocol and the fight against global warming and climate change.*

In Response: I refer to Mr Power's evidence which has addressed the national strategic benefits of the Shannon Pipeline project. Further, as described in Section 9.3.8 of the EIS, there will be a beneficial residual impact on climate as a result of the proposed development, due to the facilitating of gas as a combustion fuel in Ireland, over coal and oil.

Finally Ms Caitriona Griffin's submission, the submission extract is as follows: *Noise, traffic, dust, will all accompany the laying of the pipeline, these will undoubtedly have an effect on animals and humans.*
She also states: *We will again have to endure noise, dust, traffic and blasting.*

In Response: In relation to dust, Section 9.2.9 of the

EIS outlines the dust minimisation techniques that will be implemented as required. These will help to ensure that any short-term and localised nuisance for animals and humans is minimised.

In conclusion, the construction of the proposed pipeline will have slight to moderate short-term impacts on the landscape, and there may be short-term and localised dust nuisance during construction. Shannon LNG has committed to implement the construction phase mitigation measures outlined in the EIS. Once construction is completed, there will be negligible to slight long-term impacts on the landscape arising from the AGIs as permanent new features on the landscape. No other adverse long-term impacts on landscape, visual, air quality and climate are envisaged.

MR GARVEY CONCLUDED.

INSPECTOR: Thank you very much. 16:24

MR FITZSIMONS: Thank you, Mr Garvey. The next statement of evidence delivered by Tony Lynch in relation to traffic and that is being circulated now, Inspector.

INSPECTOR: Sorry, just before Mr Lynch begins, can I just say that 16:25

the Applicant has kindly provided us with a copy of IS 328. So I am going to leave a copy of that -- so I am going to leave it on the desk with the public files so

anyone can have a look at it at any time.

MR McELLIGOTT: Is there a soft copy?

INSPECTOR: This is all I have. They are under no obligation to submit it, you understand. Now we will continue, thank you. 16:25

MR FITZSIMONS: Thank you, Inspector. Mr Lynch.

MR TONY LYNCH THEN ADDRESSED THE ORAL HEARING AS FOLLOWS:

MR LYNCH: Hello. My name is Tony Lynch. I am a Chartered Civil Engineer and an Associate Director with Arup Consulting Engineers. I work as a project leader in the transportation division of Arup. I have over ten years experience in the production of traffic impact assessments for various types of developments including major industrial and infrastructural projects. I have a Masters Degree in Transportation from University College Cork and I am a member of Engineers Ireland and a member of The Institution of Highways and Transportation in the UK.

I was responsible for the preparation of the Roads and Traffic Section which was included in Section 7 of the Environmental Impact Assessment which accompanied the planning application.

Project Overview

The pipeline is approximately 26 kilometres in length and extends from the Shannon LNG Terminal AGI to the Foynes AGI. The route of the proposed pipeline will cross one National Secondary Route, two regional roads and 17 country roads and access to the pipeline for construction vehicles will be via the above road crossings.

The traffic impact assessment, which was included in Section 7 of the Environmental Impact Assessment was prepared following a review of the available access routes serving the pipeline and discussions with the design team on the construction process.

Methodology

The traffic assessment that I undertook in preparing chapter 7 of the EIS was based on identifying the total number of trips generated by the proposed construction works, identifying the breakdown on these vehicles using each of the 20 proposed road crossings and establishing the duration of peak activity at each of these road crossings. Refer to Section 7.4 and 7.5 of the EIS for a more detailed explanation of this process.

The construction of the pipeline will generate HGV and car/LGV trips, that is light good vehicles trips. The

volume of HGV trips was calculated by estimating the quantity of construction material needed to build the pipeline (i.e. Linepipe and Fittings, Sand surround, et cetera). Again that is detailed in the EIS Section 7.4. In addition, staffing numbers were established to service the construction of the pipeline. That is detailed in Section 7.4.9.

The pipeline will be constructed on a sequential basis and not all of the traffic generated by the construction process will enter and leave through a single construction point. The pipeline will be accessed from the local road network where the pipeline crosses the public road (i.e. road crossings). This construction process will ensure that the duration of impact at one road crossing or section of road way will be for a limited time only.

It is estimated that the pipeline construction will generate approximately 100 HGV peak trips per day and 500 car movements per day. The peak traffic movements were assigned to each of the various road crossings and in general most of the road crossings will receive construction material for between 3 to 9 days, with HGV traffic at 100 trips per day and car/LGV traffic at approximately 130 trips per day. Again detailed in the EIS Section 7.5.1.

Impact Assessment

Following the completion of the pipeline no traffic will be generated by the pipeline except for the occasional maintenance vehicles at the AGI stations and for pipeline inspections. Therefore, all the traffic generated by the pipeline will be during the construction phase only and will be temporary in nature.

The pipeline construction will be served by a total of 20 road crossings and each crossing will be active for a short duration only (between 3 to 9 days depending on the length of he pipeline served from the proposed crossing). Therefore, any increase in traffic associated with the construction of the pipeline at each of the road crossings will be short in duration. A construction traffic management plan which will be produced in order to appropriately mitigate these impacts.

Construction Traffic Management Plan

A construction phase Traffic Management Plan will be prepared by the construction contractors, in consultation with the local authorities. The objective of this document is to minimise the impact of the construction works on the movement of traffic in and around the subject site. The Traffic Management Plan will address the following issues:

Construction Traffic:

Establish a list of roadways where restrictions to

construction traffic will be necessary;
Establish a signage strategy to direct construction traffic to and from the construction access points.

Site Access:
Establish suitable and safe access points to the construction site at each road crossing;
Establish local authority approval for each access gained onto the public road.

Road Crossings:
Develop a detailed plan establishing a timetable for the construction of all road crossings along the pipeline;
Duration of lane closures identified and temporary road diversion layouts agreed;
A safety plan will be required for each road crossing, whether it is open cut and trenchless;
Establish a temporary road signage strategy.

Construction Compounds:
Location for construction compound or compounds along the length of the project;
Parking facilities for staff and visitors at the compound and at the various access points to the construction site;
Service requirements for the site compounds.

Finally the Carriageway Reinstatement: Agree

specification for temporary and permanent reinstatement.

So in conclusion, the construction of the proposed pipeline may lead to minor delays for residents for a short periods of time, however, the impact will be not be significant in nature. There will be no long term traffic impact generated by the development onto the local road network.

My next section then deals with the submissions and my response to those.

The first is from Tarbert Development Association and the submission extract reads: *The TDA note that the construction of the Shannon Pipeline is likely to be carried out at the same time as construction of the Shannon LNG Terminal, this could create traffic flow problems in Tarbert if a comprehensive Traffic Management Plan, as promised by Kerry County Council, is not in place before any construction of the Terminal or Pipeline begins.*

The response is: The construction of the Shannon pipeline will generate little additional traffic through Tarbert compared to the construction of the Shannon LNG Terminal. There is a commitment in place with Kerry County Council that a detailed Traffic Management Plan will be prepared to support the

construction of the Shannon LNG Terminal and this traffic management plan will also facilitate the additional traffic generated by the Pipeline construction works if they are constructed in tandem. A construction traffic management plan will be prepared for the pipeline works and this traffic management plan will coordinate with the traffic management plan for the Terminal where applicable.

The next submission was from Kerry [sic] County Council, the submission extract read: *The Proposed development is likely to have a very significant impact on road safety, traffic management and road condition/ maintenance both during the course of construction and the period therefore.*

The second element of the submission is: *Recommend that prior to any development commencing on this project that the applicant/developer be requested to consult with the Transportation Department of Limerick County Council in relation to matters listed:*
(i) Prepare a proper detailed traffic management plan identifying all construction site, temporary parking areas and delivery routes for various types of material.
So the Response: The traffic generated through the construction of the Shannon pipeline is temporary in nature and will not have any impact on road safety, traffic management and road maintenance after its

completion. During the construction phase of the development the pipeline will generate additional traffic at each of the various road crossings for a short period of time and it is recognised that the traffic management plans will need to be agreed with the local authority to ensure the safe and convenient operation of the local road network. The traffic management plan will address the following:
Construction Traffic (Delivery Routes);
Site Access;
Road Crossings;
Construction Compounds (including temporary parking areas); and
Carriageway Reinstatement

Due to the nature of the development and the implementation of the construction traffic management plan, it is envisaged that the development will have limited impact on traffic movements in the area.

The final submission was from Caitriona Griffin, and the submission extract is: *As with the Shannon LNG terminal, the effects on human beings have largely been ignored. We will again have to endure noise, dust, traffic and blasting.*

So the response is similar to that responded to Limerick County Council. The traffic generated through the construction of the Shannon pipeline is temporary

in nature and will not have any impact on traffic after its completion. During the construction phase of the development the pipeline will generate additional traffic at each of the various road crossings for a short period of time and it is recognised that traffic management plans will need to be agreed with the local authority to ensure the safe and convenient operation of the local road network.

So my overall conclusion, there will be no long term traffic impact generated by the pipeline onto the local road network. The concerns raised regarding traffic impact during the construction phase of the pipeline can be dealt with adequately through the preparation of a construction phase traffic management plan which will be subject to agreement with both Kerry and Limerick County Council.

Thank you.

16:35

MR LYNCH THEN CONCLUDED

INSPECTOR: Thank you very much.

MR FITZSIMONS: Thank you, Mr Lynch. The next statement of evidence 16:35 is from Carl Dixon in relation to terrestrial and fresh water ecology. Mr Dixon.

MR CARL DIXON THEN ADDRESSED THE ORAL HEARING AS

FOLLOWS:

MR DIXON: My name is Carl Dixon and I hold an Honours Science Degree in Ecology from University College Cork.

I am a partner in DixonBrosnan Environmental Consultants which was established in 2001.

My main areas of expertise are in terrestrial, mammal and freshwater ecology. I have been involved in the compilation of a number of Environmental Impact Statements for a wide range of developments. Examples include the Gas Pipeline to the West, the Tralee Western Ring Road, Ballincollig Town Centre and I also carried out the ecological assessment for the Shannon LNG terminal.

My principal points of evidence will cover terrestrial and aquatic ecology and I was responsible for the overall preparation of Chapter 10 of the EIS entitled Terrestrial and Freshwater Ecology. During the preparation of the EIS the consultants preparing the other relevant chapters of the EIS were consulted.

Methodology.

Field surveys were carried out from December 2007 to May 2008 to identify, map and evaluate habitats. Habitats within the site were classified using standard

methods. The process included consultation with the National Parks and Wildlife Service and Shannon Regional Fisheries Board.

Main Findings.

Habitats.

There are no designated conservation areas within the study area. Some habitats were recorded along the route, which were considered of moderate to high value at a local level. These include rich fen and flush, eroding upland river and oak-birch-holly woodland.

Mammals.

Badger feeding activity and latrines were noted in numerous locations and four setts were located.

A brown long-eared bat roost was recorded within a small derelict building adjacent to the pipeline route. Surveys indicated that the hedgerow which leads south from the lodge is used extensively by feeding bats (brown long-eared and pipistrelle) and thus both the lodge and the hedgerow are considered important bat habitat.

No evidence of otters was found in the study area. The protected Irish mammal species Irish hare and red squirrel were recorded.

Birds.

Three species listed by BirdWatch Ireland as Birds of Conservation Concern in Ireland were recorded at the study site, namely hen harrier, whitethroat and stonechat. No kingfisher nesting sites were recorded at the river crossings.

Reptiles and amphibians.

No reptile or amphibian species were recorded within the study area.

Freshwater Ecology.

Sixteen rivers and streams along the proposed pipeline route were surveyed using kick sampling and electro-fishing methods, including the White and Glencorbly Rivers. Results indicated some impairment in water quality at most of the watercourses surveyed. Fish species recorded included eel, stickleback, brook lamprey and brown trout. The absence of fish in the Glencorbly River during the survey was not expected and may be indicative of a recent pollution event.

Invertebrates.

A survey for marsh fritillary butterfly was carried out in an area of fen in summer/autumn 2008 and this was essentially an extension of initial surveys we had done in May. Although no adult marsh fritillary were observed during surveys in May 2008 as a precautionary measure repeat surveys were carried out in August and September 2008 when the larval webs are conspicuous.

Although this habitat is considered potentially suitable for this species it was not recorded during the surveys.

Impacts and Mitigation Measures.

The value of habitats and species and potential impacts are summarised in Section 10.9 and mitigation measures are specified in section 10.10 of the EIS Volume 2.

Habitats.

The works will result in the removal of a mixture of common habitats. There will also be impacts on very small areas of fen and woodland habitats which are considered of higher value. Two larger salmonid rivers will be crossed, as will a number of smaller watercourses which support coarse fish species. Given that most of the habitats will be recreated or replanted, the long-term impact will be minor to moderate negative at a local level.

The proposed pipeline has been routed to avoid sensitive habitats wherever possible. The Contractors will provide detailed method statements for work in ecologically sensitive areas.

The planned route of the proposed pipeline has been chosen to avoid substantial areas of woodland, isolated large trees and quality hedgerows. It is intended that vegetation be removed outside of the breeding season

where possible. In particular, removal during the peak-breeding season will be avoided where possible.

Minimal widths of hedgerows will be removed, consistent with safe working practices. In the event that some trees need to be removed or trimmed, this will be carried out with minimal disturbance to adjacent trees.

Mammals

Provided certain mitigation measures are implemented, disruption to feeding badgers will be limited and temporary. During construction the passage of badgers to either side of the corridor will be facilitated. It is unlikely that the localised construction work would seriously disrupt the activities of otters. The long term impact is likely to be negligible.

Brown long-eared bat are known to occupy a disused dwelling close to the route and certain mitigation measures will be required. These mitigation measures are specified in section 10.10.2 of volume 2 of the EIS. Overall the impact on bats is likely to be short-term and minor.

Badgers must be excluded from the identified setts prior to the commencement of works in proximity to setts. Where site works take place in the vicinity of a badger sett, NRA guidelines will be adhered to.

A preconstruction survey for otters will be conducted no more than ten to twelve months in advance of construction, in line with the mitigation measures outlined in the NRA guidelines.

If mature or over mature trees are to be removed, this will be done in accordance with NRA guidelines to minimise impacts on bats.

Birds.

The proposed development is likely to cause short-term disturbance to birds during the construction phase mainly as a result of hedgerow removal. As hedgerows will be reinstated impacts are likely to be temporary and negligible.

As best practice, the removal of hedgerows and scrub during construction will be carried out between September and February where possible. Hedges will be replaced following completion of works.

A kingfisher breeding survey will be carried out prior to construction to ensure that kingfisher nests are not disturbed during the construction phase of the proposed development.

Stream Ecology.

The main potential impacts resulting from the construction of the proposed pipeline relate to

increased levels of suspended solids in surface water run off. Other potential impacts include direct damage of habitats, obstacles to the movement of fish and pollution from accidental spillages. However, provided suitable mitigation measures are implemented, the impacts are not expected to be significant.

A detailed method statement will be produced and watercourse crossing methods agreed with Shannon Regional Fisheries Board to minimise the production and escapement of suspended solids to the watercourses. This statement will address all relevant environmental issues and pollution control methods.

Disturbance of bankside vegetation and instream sediments will be kept to a minimum. Banks and streambeds will be reinstated so that they resemble the pre-construction habitats. Equipment will be cleaned and disinfected if transferred between EPA hydrometric areas.

Invertebrates.

Although marsh fritillary were not recorded within the area of fen, this species could potentially utilise this habitat in the future. Thus the area to be removed should be kept to a minimum and should be resurveyed prior to the commencement of works.

Conclusion.

The works will result in the removal of a mixture of grassland and boundary habitats most of which are common. However, there will also be impacts on small areas of fen and woodland habitat. Two larger salmonid rivers will be crossed as will a number of smaller watercourses which support coarse fish species. Given that most of the habitats will be recreated or replanted, the long-term impact is unlikely to be significant. Provided certain mitigation measures as detailed in section 10.10 of the EIS are effectively implemented, only short-term disturbance of fauna including aquatic fauna is expected to occur during the construction phase. Overall, the impact of the development is expected to be localised and short-term.

In response to the submissions.
The Department of Environment, Heritage and Local Government noted that the works are not expected to impact on designated sites in the area. They also noted that the breeding and resting places of the otter and all bat species are strictly protected under the European Communities (Natural Habitats) Regulations 1997-2006. It is also an offence under the Wildlife Acts 1976-200 to intentionally interfere with or destroy the breeding place or resting place of the badger. They also noted that both otters and bats move their breeding sites from year to year. Therefore, the Department of Environment, Heritage and Local Government has specified the following condition:

A resurvey for breeding sites and resting places of the otter and bat species will be carried out prior to construction commencing and appropriate mitigation undertaken at watercourse crossings (for otter in accordance with NRA guidelines for the treatment of otters), and at suitable buildings and groups of suitable trees (for bats along the disturbed area of the route in accordance with NRA best practice guidelines for the conservation of bats). Appropriate mitigation for the loss of a badger sett will be undertaken in accordance with the Wildlife Acts and NRA Guidelines for the treatment of badgers.

Response: It is confirmed that Shannon LNG will comply with this condition. Repeat surveys will be carried out for otters, bats and badgers prior to the commencement of construction in accordance with the relevant NRA guidelines and in compliance with this proposed condition. As detailed in the mitigation measures relating to bats included in section 10.10.2 of the EIS, a bat specialist will ensure that all relevant guidelines will be complied with.

The following submission was made by Caitriona Griffin: *Shannon LNG have mentioned that the hedgerows will be removed and reinstated once work is completed. What happens to the animals and birds that reside in the hedgerows in the interim?*

A similar submission was made by Philip J. Culhane & Co. on behalf of seven individual landowners: *The damage that would be caused to hedgerows and trees.*

Response: The route has been designed to minimise the number of trees and quality hedgerows to be affected. The amount of hedgerow to be moved represents a relatively small proportion of this habitat within the area. Minimal widths of hedgerows will be removed, consistent with safe working practices. Most of the species which use these hedges are common and are relatively mobile. It is therefore expected that, although there will be short-term displacement of these species, they will generally persist in the wider landscape. They will then be able to re-colonise the replaced hedgerows as they develop. For badgers, which breed in hedgerows, specific mitigation measures will be employed in accordance with NRA guidelines to ensure that impacts on this species are minimised. Mitigation measures in relation to hedgerows are set out in section 10.10 of the EIS volume 2.

The following submission was made again by Caitriona Griffin: *The pipeline will cross 3 rivers, Glencorboly River, White River and Glashanagark River. I am concerned for the animal life in these areas and for the possibility of contamination of the aforementioned waterways.*

Response: As detailed in section 10.7 of the EIS surveys indicate that some of the rivers crossed by the pipeline support salmonid populations. The Shannon Regional Fisheries Board have considerable experience with this type of river crossing and will specify the methodology to be employed at each crossing in order to minimise impacts on water quality and fish populations. Provided these standard methods are implemented, no significant impact on aquatic ecology is expected to occur.

The following submission was made by Caitriona Griffin: *Noise, traffic, dust will all accompany the laying of the pipeline these will undoubtedly have an effect on animals and humans.*

Response: The development of the pipeline will result in localised disturbance of common species such as birds and mammals. This may result in some species being displaced into the surrounding countryside, however the loss of habitat will not be permanent and thus the overall impact will not be significant. Impacts relating to humans are not relevant to my section of the EIS and will be dealt with by other experts.

The following submission was made by Kilcolgan Residents Association: *It will cause damage to several environmentally sensitive areas.*

Response: As noted in section 10.3.2 of the EIS the development of the gas pipeline will not impact on any designated areas and generally will impact on habitats such as grassland and hedgerows which are common in the landscape. These habitats will be replaced. There will some impacts on habitats such as fen and woodland which are of higher value, however the area of these habitats to be removed will be kept to a minimum. As noted in section 10.10 of the EIS, contractors will be required to produce method statements where sensitive areas are affected. Standard methodologies as specified by the Shannon Regional Fisheries Board will be utilised at river crossing points to minimise ecological impacts. Overall, although there will be some loss of habitat, the impact will generally be short-term as habitats are recreated.

Thanks.

16:47

MR DIXON THEN CONCLUDED.

INSPECTOR: Thank you.

MR FITZSIMONS: Inspector, there is one document referred to at 16:47 Section 3.6 of Mr Dixon's statement of evidence and that is a supplementary survey report for marsh fritillary dated November 2008, I think Ms Carr will hand in a copy of that for you, again for placement on

the table of documents and also for the consideration of the Bord itself.

INSPECTOR: Thank you.

MR FITZSIMONS: While that is being attended to, the next statement of evidence will be delivered by Rose Cleary in relation to archaeology issues. Ms Cleary. 16:48

MS ROSE CLEARY THEN ADDRESSED THE ORAL HEARING AS FOLLOWS:

MS CLEARY: My name is Rose Cleary and I have BA degree in Archaeology and Medieval History and a Master of Arts in Archaeology from UCC. I am a member of the Institute of Archaeologists of Ireland and a Fellow of the Society of Antiquaries (London).

I am the senior Archaeologist in the Department of Archaeology at UCC. I have 32 years experience in archaeology and have conducted over 100 archaeological field projects including excavation and survey. I have published several articles in scholarly journals and edited and contributed to a number of books on archaeological topics. I act on a consultancy basis as the Project Archaeologist for gas pipeline construction for Bord Gáis Eireann. I have been involved in gas pipelines since the construction of the Cork-Dublin gas pipeline in 1981/82. I acted as Project Archaeologist

for BGE on the following pipelines: Pipeline to the West; Mayo Pipeline; Galway spur line; Feeder lines for Mayo and Galway towns; Cashel and Cahir; Athy, Monasteravin and Portarlington; the Whitegate Pipeline; the Lehanamore-Ballynora pipeline; and the Newlands Cross, Dublin, Pipeline. The Project Archaeologist's role is defined by the Code of Practice issued by BGE and the Department of Environment, Heritage and Local Government. My role on the Shannon LNG project is Project Archaeologist on behalf of Shannon LNG.

I was responsible for the overall preparation of the section 14 of the EIS, Archaeological, Architectural and Cultural Heritage, and for guiding the route selection of the pipeline. The route selection team was advised at all stages of any potential archaeological sites and route selection was done in close consultation with the archaeological team.

The Methodology

The archaeological section of the EIS was compiled using the following information: Ordnance Survey maps; the Archaeological Survey of Ireland Sites and Monuments Record, and Record of Monuments and Places (RMP) for County Limerick and County Kerry; National Museum records; topographic files of the Heritage Service; available archaeological and historical literature; stereoscopic aerial survey photographs; a DVD flight record over the proposed pipeline. These

are listed in Section 14.2, of the EIS. All potential sites and surface anomalies suggestive of archaeological site were subsequently examined in the field during the course of field inspection of the pipeline route. Files housed in the Archaeological Survey of Ireland in the Limerick Section Office were consulted in order to determine if new sites were recorded between the issue of the RMP maps in 1997 and now.

Field-walking was carried out over the length of the pipeline route by a team of three archaeologists. An underwater survey was also undertaken.

The aim of the archaeology survey was to guide the route selection process and avoid known and potential archaeological sites. The practice is guided by the Heritage Service guidelines which recommend preservation *in situ*.

Predicted Impact of the Proposed Development on the Archaeological Landscape

Direct Impacts

The pipeline has been rerouted to avoid a newly discovered standing stone in Leahys townland in County Limerick. The proposed development crosses the zone of constraint of one known archaeological monument in Tieraclea Upper, listed in the RMP as Kerry 003-024. It crosses the perimeter of a second monument at

Cockhill (RMP KE 003-018) and is close to but outside a further eight sites listed in the Sites and Monuments Record. These are detailed in Table 14.2, Section 14.9 of the EIS. The site at Tieraclea Upper is 25m from the pipeline. It is a possible ringfort. The possible enclosure surrounding the church at Carhoona is about 40m from the proposed pipeline. The church itself is 80m from the pipeline. The HolyWell, which is in Cockhill townland is located downslope and about 80m from the pipeline. All other sites are about 100m from the proposed pipeline.

Indirect Impacts

Any major infrastructural project that involves ground disturbance may uncover previously unknown archaeological sites that have no surface expression. If archaeological sites are discovered, these may vary from small-scale isolated sites to more extensive archaeological remains. If the proposed gas line traverses a previously unknown archaeological site, detected during the construction works, in consultation with the Heritage Service, it may be resolved through excavation. This is standard procedure on gas pipeline construction and guided by the Code of Practice, which is listed in Appendix 14, section 14 2.9 of the EIS.

Off-site Secondary or Cumulative Impacts

This is set out in section 14.9.3 of the EIS and there are no foreseen off-site, secondary or cumulative

impacts on the archaeological, architectural or cultural heritage arising from this project.

Mitigation Measures

The construction contractor will follow the recommendations of the Code of Practice agreed between Bord Gáis and the Department of the Environment, Heritage and Local Government, for the construction of gas pipelines.

Three areas examined during the field inspection will require archaeological test excavation in advance of construction. These are listed in Section 14.10 of the EIS. If archaeological material is uncovered, further excavation in consultation with the Heritage and Policy Unit, Department of Environment Heritage and Local Government, may be required.

A geophysical survey was undertaken in the area where the pipeline corridor runs through the zone of constraint of a ringfort in Tieraclea Upper townland, County Kerry. The geophysical survey has been completed and is negative on archaeological deposits.

During construction a suitably qualified archaeologist shall monitor all topsoil stripping. Where feasible, all the topsoil should be removed to sterile levels, which is below the level which archaeological deposits occur. The archaeologist will require a licence for

this work and The Heritage and Policy Unit, Department of the Environment will issue this licence. The interval of four to six weeks between topsoil stripping and trench excavation for the pipeline is usually adequate for the resolution of newly discovered sites. If a complex site is uncovered, the trench area of the proposed pipe can be archaeologically resolved to allow construction to proceed. The remaining elements of the site should be protected while the trenching operations are undertaken. Further archaeological excavation and site resolution can take place after trenching.

The monitoring archaeologist shall be empowered to halt the development if buried archaeological features or finds are uncovered.

There will be no visual impact on the archaeological landscape from the pipeline installation as the land will be reinstated on completion of the project.

Conclusions and Residual Impacts

The archaeological assessment was based on a desk top study of the available resources as documented in the EIS, in section 14.2 including cartographic, literature, aerial survey and field walking.
A preliminary assessment of the archaeological landscape was submitted to Shannon LNG to guide route selection. This was followed by subsequent consultation between the route selection team and the

archaeologists. Every proposed re-route was examined to guide route selection. The selected route was chosen to have minimal impact on the known archaeological sites.

There were a number of submissions and observations submitted to An Bord Pleanála in relation to archaeology and I will deal with these now.

The first submission was made in relation to on site monitoring of Archaeology, pre-development testing and the results of any finds was made by the Department of Environment Heritage and Local Government.

If the proposed pipeline is approved, applications will be made to carryout predevelopment archaeological test excavation at Cockhill, Carhoona and Knockabooley. The archaeological excavation will establish if the surface anomalies are of archaeological origin. If the sites prove to be of archaeological significance, the Heritage Service will be consulted and the sites will be excavated or preserved in situ.

Another question was on geophysical inspection and a geophysical survey has been undertaken at Tieraclea Upper. The results do not indicate sub-surface anomalies of archaeological origin.

As regards monitoring, prior to the development, the

archaeologist will apply for a licence for archaeological monitoring. This process will notify the Department of Heritage and Local Government of the commencement of the project, four weeks in advance of commencement of the work. All topsoil stripping undertaken during pipeline construction is archaeologically monitored by a suitably qualified archaeologist. The interval between topsoil stripping and trenching allows for archaeological site resolution. This is guided by the Code of Practice and reports on the finds will be submitted to the relevant authorities in accordance with the Code of Practice.

A Submission in regard to underwater archaeology was made by the Department of Environment Heritage and Local Government requiring pre-development survey of river crossings and archaeological monitoring.

And the response is: An underwater archaeological survey including metal detection survey has been submitted as part of the EIS. It is in Section 14.6 of the EIS. No archaeological remains were recorded at the river crossings. All river crossings will be archaeologically monitored during the construction phase.

The Tarbert Development Association made the following submission. They proposed that any newly discovered archaeological sites would be promptly notified to

Local Historical and Heritage Societies.

The response is that information on all newly discovered archaeological sites can be conveyed to local historical and heritage societies. This may be done through liaising with local heritage societies, exhibitions in local venues and lectures to local groups.

A submission was made about on site monitoring of Archaeology by Kerry County Council and the response is: All topsoil stripping undertaken during the pipeline construction is archaeologically monitored. The interval between topsoil stripping and trenching allows for archaeological site resolution. This is guided by the Code of Practice.

In conclusion, the route selection was guided by national policy of avoidance of archaeological remains and preservation in situ. The archaeologists worked closely with the route selection team to avoid any archaeological sites. If previously unknown archaeological sites are uncovered during construction, these will be preserved by record in consultation with the Heritage Service. All archaeological work is guided by the Code of Practice for gas pipelines and by national policy on archaeology. There are no areas of archaeological concern on this project.

Thank you, Inspector.

MS CLEARY CONCLUDED

INSPECTOR: Thank you very much, Ms Cleary. 17:00

MR FITZSIMONS: Inspector, there is a geophysical survey referred to Section 4.1.3 of Ms Cleary's statement of evidence and Ms Carr will hand in two copies; one for the Bord and one for placement on the public table in respect of that geophysical survey. But as Ms Cleary has identified, those surveys were negative in relation to archaeological deposits. 17:00

INSPECTOR: Thank you very much. 17:00

MR FITZSIMONS: Inspector, it has gone five o'clock. I have, as things stand, at least two more witnesses. We are in your hands. We are in a position to proceed this evening. 17:00

INSPECTOR: I think given that you have two, I think we will leave it until tomorrow morning and we will break now for the evening.

MR FITZSIMONS: Very good. Thank you. 17:00

INSPECTOR: Thank you everyone. Sorry just to say we will start again proceedings at 9.30, I propose, in the morning and we will have the room open from nine o'clock with

the public file on display so that anyone can have half an hour just to familiarise themselves with any new material. Thank you.

THE HEARING ADJOURNED TO TUESDAY, 2ND DECEMBER AT 9.30 AM 17:01

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