

ORAL HEARING

PROPOSED LIQUEFIED NATURAL GAS (LNG) REGASIFICATION  
TERMINAL LOCATED ON THE SOUTHERN SHORE  
OF THE SHANNON ESTUARY IN THE TOWNLANDS  
OF RALAPPANE AND KILCOLGAN LOWER, CO. KERRY

HEARD BEFORE THE INSPECTOR,

MR. ANDREW BOYLE

ON MONDAY, 28TH JANUARY, 2008

AT THE BRANDON HOTEL, TRALEE, CO. KERRY - DAY 6

I hereby certify the  
following to be a true  
and accurate  
transcript  
of recordings of the  
evidence in the  
above-named action.

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6

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MR. JARLATH FITZSIMONS BL

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MS. GRIFFIN  
MR. NOEL LYNCH  
MS. JOAN MURPHY  
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MS. EILEEN O'CONNOR  
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MR. RAYMOND O'MAHONY  
MR. TIM MAHONY  
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MR. MICHAEL FINUCANE  
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MR. DES BRANIGAN

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1 THE HEARING RESUMED AS FOLLOWS ON MONDAY, 28TH JANUARY  
2 2008

3  
4 **INSPECTOR:** Good morning everybody. If  
5 you could take your seats 10:04  
6 please, it's just after 10 o'clock. Good morning  
7 again. This is day 6 of the Shannon LNG oral hearing.  
8 This morning I had intended to take the ecology module,  
9 but before I do so I have a request from Kathy Sinnott  
10 who is only able to be here this morning and she wishes 10:05  
11 to make a statement so I am going to call on Kathy  
12 Sinnott to go first.

13  
14 MS. KATHY SINNOTT ADDRESSED THE ORAL HEARING AS FOLLOWS

15 10:05  
16 **MS. SINNOTT:** Thank you very much for  
17 your understanding in this  
18 because I have a flight to make in Dublin this  
19 afternoon. Inspector, Ladies and Gentlemen, thank you  
20 for giving me this opportunity. As vice president of 10:05  
21 the European Parliament's Petitions Committee I have  
22 been following the matter of LNG closely. Further to  
23 my written submission to An Bord Pleanála, I was  
24 honoured to hold a petition submitted by the Kilcolgan  
25 Residents Group to the European Parliament. It is now 10:06  
26 in the process and will be heard in a couple of months  
27 time. The petition on the LNG terminal in the Shannon  
28 Estuary submitted by my constituents was not the first  
29 petition which brought the objections of local

1 communities against LNG projects before the European  
2 Parliament. On 20 December last I and my colleagues in  
3 the Parliament Petitions Committee discussed the  
4 petition submitted by a group of local residents from  
5 Wales in relation to the construction of an LNG 10:06  
6 terminal in the Clydu Estuary. The Petitions Committee  
7 declared the Welsh LNG petition admissible and has  
8 asked the European Commission to do a thorough  
9 investigation of LNG terminal being constructed in an  
10 estuary of this type after the Commission 10:06  
11 representative expressed concerns about environmental  
12 compliance in the project and said that further  
13 investigations by the Commission would have to take  
14 place. This decision or the statement by the  
15 Commission was based on concerns around danger, around 10:07  
16 the effect on industry in the area and shipping and  
17 also the effect on the natural environment.

18  
19 The decision by the European Commission to investigate  
20 the LNG project resulted -- sorry, I have said this. 10:07  
21 Also it resulted because of non-compliance with the  
22 Environmental Impact Assessment Directive, the impact  
23 on industry, the surrounding habitat, the impact and  
24 especially the impact of high methane gas on the  
25 climate. The Welsh petition raised issues relevant to 10:07  
26 the LNG terminal proposed at the Shannon Estuary at  
27 Kilcolgan, North Kerry. In fact both petitions are  
28 quite similar. LNG is both dirty and dangerous.  
29 I hope that the Commission recognises this. In fact,

1 the Commission does recognise this because they rate it  
2 as Seveso II which is the rating for the most dangerous  
3 types of projects in Europe. In the proposed Lisbon  
4 Treaty Europe will have full competence in energy.  
5 They will be responsible for supplying energy from 10:08  
6 Donegal to Bulgaria, maybe even to Croatia, maybe even  
7 to Turkey, certainly from the Canary Islands to  
8 Lithuania. I have spoken to a senior enforcement  
9 officer within the Commission and I asked him what  
10 would happen when Europe is faced with a dirty and a 10:08  
11 dangerous technology in energy and he said it is  
12 obvious; they will put it on the edge away from the  
13 cities. Now, we are the edge and he didn't mean  
14 Portugal where the edge is covered in tourist  
15 development, he meant the edge meaning Ireland. 10:09  
16 I think it's very important for us to understand this  
17 and say no from the beginning that it's not acceptable  
18 for Ireland to become the depot for everything that is  
19 dirty and dangerous for Europe.

20  
21 Just a couple more points. LNG is not an alternative  
22 fuel. We are at a point where Ireland must and is  
23 committed to reducing its impact on the environment,  
24 yet LNG to a large extent is methane and methane is  
25 30 times more damaging to the ozone layer than carbon 10:09  
26 which we hear so much about. It is also a fossil fuel  
27 which means it is limited so we fool ourselves when we  
28 think we are replacing oil with gas. Both of them are  
29 in limited supply and both of them can easily be used

1 up. We also fool ourselves when we think in terms of  
2 jobs. North Kerry needs jobs. In fact with the  
3 developments around Shannon Airport the whole estuary  
4 is badly in need of very creative vigorous job  
5 creation; however, this is a Seveso II site which is a 10: 10  
6 recognition that it is dangerous, but it also will be  
7 the obstacle to further industry coming into the area.  
8 The fact that the ships need an exclusion zone will  
9 have an effect on shipping, the fact that it's Seveso  
10 II will have an effect on every planning application in 10: 10  
11 the Shannon Estuary from now on.

12  
13 Thirdly, and this was one thing where the enforcement  
14 officer in the Commission that I spoke to was very  
15 positive about, is that an LNG terminal in the Shannon 10: 10  
16 Estuary will break the law in terms of the habitats.  
17 In order to change the temperature of the effectively  
18 frozen gas, millions of litres of water will be lifted  
19 from the estuary to go around the tanks. Now, that  
20 water will return to the estuary chlorinated and at a 10: 11  
21 different temperature. It will have churned up all the  
22 feed for the dolphins and whatever other ecosystem is  
23 there in the estuary and there is no question that it  
24 will destroy the ecosystem of the estuary and if it  
25 doesn't kill the dolphins and other animals they will 10: 11  
26 have to leave. That is something he assured me would  
27 be very definitely against the law and that should a  
28 case be taken and inevitably a case will be taken that  
29 we would win.

1 Thank you very much. I would like to say a lot more,  
2 I haven't been here, many of my very competent friends  
3 here have actually made the points so I won't go over  
4 things any further, but just thank you for allowing me  
5 to go first. I apologise but I have to leave, if 10:11  
6 anyone wants to ask me a question I am happy, but  
7 I have got to high tail it.

8  
9 END OF SUBMISSION OF MS. SINNOTT

10 10:11  
11 **INSPECTOR:** Thank you, Ms. Sinnott. Do  
12 the Applicants have any  
13 questions?

14 **MR. O'NEILL:** Good morning, Sir. No, we  
15 don't at the moment. 10:12

16 Insofar as issues are raised by Ms. Sinnott that have  
17 not already been dealt with they will be dealt with,  
18 particularly the assertions in relation to the  
19 ecosystem of the estuary and indeed the breach of the  
20 Habitats Directive which we say does not arise. 10:12

21 **INSPECTOR:** Okay.

22 **MS. SINNOTT:** Can I answer that? That  
23 simply is not factual. If  
24 you look at the research done in the Gulf of Mexico  
25 where a similar system of bringing down the temperature 10:12  
26 is proposed for LNG terminals, in some of the states  
27 there the research is that they could lose up to half  
28 of their shellfish industry because of the change in  
29 water temperature, the chemicalising of the water and



1 the physical churning up of the waters. Now, the Gulf  
2 of Mexico is quite a large body of water. The Shannon  
3 Estuary is very narrow, in fact in places it is  
4 narrower than the exclusion zone for the ships so there  
5 is no question that the effect on the estuary and the 10: 13  
6 habitats there will be cataclysmic.

7 **INSPECTOR:** Thank you. Mr. McElligott.

8 **MR. McELLI GOTT:** I would just like to ask  
9 Ms. Sinnott one question  
10 considering she is the only elected representative here 10: 13  
11 that has spoken. Ms. Sinnott, do you think that an LNG  
12 terminal on the Shannon Estuary is in the national  
13 interest?

14 **MS. SINNOTT:** No, I don't think it is.  
15 Ireland is committed to 10: 13  
16 alternative fuels, to building up natural sustainable  
17 fuel systems and energy systems. This is a regressive  
18 step in terms of Ireland's energy supply, but the fact  
19 is that this energy supply really isn't very much about  
20 Ireland, it is about locating something dangerous as 10: 14  
21 far from larger population centres as far as possible,  
22 sending it under ground to big cities outside of  
23 Ireland. It will be of benefit to a company, but not  
24 to the country. As I say in my submission if we allow  
25 this to go ahead then Ireland will be seen as a place, 10: 14  
26 a soft tip for anything dirty and dangerous. The words  
27 that the Commission enforcement officer told me is that  
28 someone trying to rationalise fuel in Brussels won't  
29 mind sacrificing low population areas at the edge of

1 Ireland.

2 **INSPECTOR:** Thank you, Ms. Sinnott.

3 **MR. LYNCH:** Noel Lynch, Ballylongford.  
4 Ms. Sinnott has been an MEP  
5 for a number of years and I would like to know what has 10:15  
6 she has done to create jobs in this particular neck of  
7 her constituency?

8 **MS. SINNOTT:** I am not sure about the  
9 relevance, but I will tell  
10 them that the amount of time I spend trying to protect 10:15  
11 jobs in fishing, farming, the whole question around  
12 Shannon Airport, which is totally key to this whole  
13 area, but the problem is that this is a false economy  
14 in jobs because it's Seveso II. No-one can say it's  
15 not dangerous when the Commission rate this Seveso II. 10:15  
16 If you have a Seveso II industry in this area then it  
17 precludes many other industries from coming into the  
18 area so it's a false economy. Initially there will be  
19 some construction jobs, then this industry goes down to  
20 a relatively small number of maintenance jobs and 10:16  
21 security jobs. It's not a job hungry industry, but  
22 what happens is when you do try to attract in other  
23 jobs you have a problem because you have a Seveso II  
24 site sitting right at the front of the Shannon Estuary  
25 and that's the problem so it's going to affect your 10:16  
26 being able to develop other jobs in the area. There is  
27 also the issue of terrorism. I know we feel very far  
28 from terrorism in this area but we shouldn't. In the  
29 United States LNG terminals are considered the No. 1

1 potential target for terrorists and I believe you did  
2 have a witness from the US that talked about the amount  
3 of money spent on security; however, we are not, we  
4 can't be blind to the fact that Shannon has been used  
5 for military purposes and that certainly as we build a 10: 17  
6 military alliance in Europe, which seems to be  
7 happening, I am not happy about it but it seems to be  
8 happening, we can't be blind to the fact of what  
9 Shannon's future will be so to put an LNG terminal that  
10 close to Shannon Airport where we know there is already 10: 17  
11 military activity, it also bodes ill for the further  
12 development in terms of jobs for the area.

13 **INSPECTOR:** Thank you, Ms. Sinnott.

14 Another questioner here.

15 **MR. O' DONOVAN:** Good morning everybody. 10: 17

16 My name is Thomas O' Donovan  
17 and I am a member of An Taisce. I would like to just  
18 run a couple of things by Kathy Sinnott as she is here  
19 and thanks for coming along, Kathy. Corporate climate  
20 responsibility. We are all aware of corporate social 10: 18  
21 responsibility, but I do believe that corporate climate  
22 responsibility is a term that should be used more often  
23 now that global heating is here and here to stay.

24  
25 Just another bullet point I have here. I don't see the 10: 18  
26 need or indeed good sense for importing and storing gas  
27 and oil when in all likelihood we will be fined heavily  
28 if we use it from the EU Commission and the laws of the  
29 EU. Maybe Kathy Sinnott might address those couple of

1 points.

2 **MS. SINNOTT:** There is no question that  
3 we are supposed to be  
4 changing the balance sheet to renewables, alternative  
5 fuels. This is on the other side. I know it has been 10:19  
6 presented as green and clean, it's not and it will go  
7 on our negative side of our balance sheet in terms of  
8 our Kyoto and our European commitments so, yes,  
9 corporate responsibility, but it's even more than that.  
10 It's our commitment that we will pay dearly for if we 10:19  
11 don't put the emphasis and balance to the renewables as  
12 opposed to the others.

13  
14 I just want to say one more thing about the jobs  
15 question. Again I recognise the needs for jobs, but in 10:19  
16 the Welsh petition as I said one of the important  
17 considerations is the negative impact on jobs in the  
18 estuary and in the areas surrounding because of an LNG  
19 terminal. They already see problems with companies not  
20 staying, companies not wanting to locate and this is 10:19  
21 where a terminal has now been built. That is their  
22 experience so I think again this is not a job friendly  
23 proposition.

24 **INSPECTOR:** Thank you, Ms. Sinnott.  
25 Sir, do you want to ask 10:20  
26 something else.

27 **MR. O'DONOVAN:** Just on another point that  
28 I have here. It has been  
29 validated by a person outside of the area my submission

1 that it is a scenic and pristine area, especially  
2 yesterday when I looked down from the hill overlooking  
3 the Tarbert land bank. I would like to emphasise that  
4 if people take a look at it, and the people who are  
5 living there are very much aware of the beauty of it. 10: 20  
6 There is one thing about the Moneypoint power station,  
7 but probably in time will be decommissioned. Boats  
8 come out from Kilrush for dolphin watch and sightseeing  
9 in general. I would just like to emphasise that it's  
10 not just me that was making that submission, it has 10: 21  
11 been validated by numerous people. Thank you,  
12 Mr. Inspector.

13 **INSPECTOR:** Thank you.

14 **MR. FINUCANE:** Michael Finucane,  
15 Ballylongford Enterprise 10: 21  
16 Association. I would just like to make a few comments  
17 on Ms. Sinnott's submission regarding the estuary. If  
18 I can recollect when she canvassed our area of North  
19 Kerry her mandate was handicapped and autistic children  
20 and the mandate of the rest of the people at the time, 10: 22  
21 MEPs, was to create jobs and bring employment into  
22 employment black spots, but as the previous speaker  
23 said I didn't see anything positive coming out of  
24 Brussels -- I didn't see anything positive coming out  
25 of Brussels from Ms. Sinnott's last four years there 10: 22  
26 and I don't think she is speaking on behalf of the  
27 people that gave her the mandate to go to Brussels, the  
28 mandate she maintained which was handicapped and  
29 autistic children. There are a lot of people from our

1 area who are very displeased with her and they should  
2 be here today to let it be known, but that is her  
3 prerogative. If she seems to be taking the side of  
4 vested interest on other agendas that's fine, but  
5 I would like to remind Ms. Sinnott that North Kerry and 10: 23  
6 Ballylongford and Tarbert in general has been a black  
7 spot and that land bank was put in place by the State  
8 with taxpayers money to create employment and bring  
9 much needed jobs to the area. I am getting tired  
10 listening about these troops in Shannon and American 10: 23  
11 companies and all this, only for America we would ate  
12 one another here on this side of the country for the  
13 last 150 years since the famine because that's where  
14 all our forebears went, most of mine did anyway and  
15 I am sure that more people here. I would welcome it 10: 23  
16 with open arms and I am living there. A lot of them  
17 are retired at home with pensions out of the States.  
18 60% of our ingrowth investment in Ireland is United  
19 States investment so people should take a harder look  
20 at things and get the facts. As I said previously at a 10: 24  
21 meeting a number of years ago, they were talking about  
22 the Shannon Estuary and the scenery, I said the people  
23 can't eat scenery, it comes down to that. It's the  
24 bread and butter issues that we go by in the real world  
25 we are living in, not in this airy-fairy world that 10: 24  
26 these people seem to be living in. Thank you.

27 **INSPECTOR:** Thank you, Mr. Finucane.  
28 Can we stick to the  
29 planning issues please.

1           **MS. SINNOTT:**                       Just as a quick response.  
2    I think I was very clear in  
3           my election leaflet that I would be very concerned with  
4           everything that was of concern to my constituents if  
5           I were elected and certainly I have a huge interest and 10: 24  
6           have trojan work in the area of disability, but that is  
7           by no means the sole job of an MEP. I would like to  
8           say if I were thinking and acting as a politician  
9           I wouldn't be here today, I would do the Pontius Pilate  
10          and stay away, but there is a truth to be told about 10: 25  
11         something that is dirty and dangerous,  
12         counterproductive for jobs and destructive of the  
13         environment and that's why I became today, whether it's  
14         popular or not. Thank you.  
15         **INSPECTOR:**                        Thank you, Ms. Sinnott. 10: 25  
16    Ms. Griffin.  
17         **MS. GRIFFIN:**                        Hi , Catriona Griffin.  
18    I just want to ask  
19         Mr. Finucane how many jobs the local politicians who  
20         are living in the area have brought to the land bank? 10: 25  
21         Secondly, I would have to commend Kathy Sinnott for  
22         coming here today because out of 27 local councillors  
23         in Kerry, we had one make a brief appearance on Monday  
24         and none of the other 26 have shown up to speak for  
25         either side. Thank you. 10: 26  
26         **MS. SINNOTT:**                        I have to go or I will miss  
27    the flight.  
28         **MR. O' DONOVAN:**                    Thomas O' Donovan. I just  
29    want to make a brief point.

1 It is my submission that the local and wider community  
2 are entitled to have better use made of the land bank  
3 than gas and oil storage and distribution facilities.  
4 If the land bank was marketed properly and extensively  
5 and zoned to cleaner industries we could have an 10: 26  
6 ascending scale of high-tech, indigenous information  
7 and communication companies to utilise the highly  
8 educated and energetic world force graduating with  
9 honours from local state-of-the-art colleges and local  
10 universities. It is close to 600 acres, but the thing 10: 26  
11 is that could support numerous industries and clean  
12 industries and there are tremendous amount of companies  
13 that would love to come to that particular area and  
14 utilise the waters and there could be a little beach  
15 and a marina made up there and it would be a great 10: 27  
16 environment for our highly educated work force to live  
17 and work there. That's my submission on the work area.  
18 Thank you, Mr. Inspector.

19 **INSPECTOR:** Somebody there in the third  
20 row. 10: 27

21 **FEMALE SPEAKER:** I am from Ballylongford  
22 and I am a supporter of  
23 Kathy Sinnott and always have been. I believe in her  
24 family values and all the rest of it, which I believe  
25 in myself, but this is local people here we are talking 10: 27  
26 about and I am local and I am speaking for the local  
27 people. This land bank has been empty for a long time.  
28 These local people have been looking for something on  
29 this for a long time. We are not representing vested



1 interest, only local people. It all depends on who you  
2 want to listen to. This people have been speaking to  
3 these people for a long, long time and they have been  
4 assured that the jobs are going to go to local people.  
5 They have been talking to everybody in the communities 10: 28  
6 and we know what they are going to do, we have been  
7 assured of that. We wouldn't have people in here that  
8 is going to blow the bloody place up, we are not that  
9 stupid. It has been assured that this plot is going to  
10 be safe. 10: 28

11  
12 This spot has been a black spot for a long time in  
13 Ballylongford. We have been waiting, we have been at  
14 meetings for 25 years here and I was at the meetings  
15 for 25 years and this man beside me has too looking for 10: 29  
16 something on this land bank. It has been diagnosed for  
17 industry, not for anything else. This is industry and  
18 this is the sort of thing this bank was designated for  
19 by Shannon Development. This is what they were waiting  
20 for and now we have got it and 99% of the people are 10: 29  
21 very excited about it actually, totally the opposite of  
22 what's going on here today. There is vested interest  
23 here and they seem to be getting the likes of Kathy  
24 Sinnott in here to support them. Kathy Sinnott  
25 I supported and I would like her to support me as well. 10: 29  
26 I didn't see them going out looking for votes for her,  
27 I did. That doesn't matter, I would do it because  
28 I believed in what she believed in, but I don't believe  
29 in this. I am a local person, I want this in here and

1 I believe in the local people, they are not vested  
2 interests, they are totally selfless, they are not  
3 getting anything out of it only jobs for the local  
4 community, surely that is more important and the place  
5 has been diagnosed as safe, otherwise we wouldn't have 10: 30  
6 it in here, we are not that stupid.

7 **INSPECTOR:** Okay, I think we have  
8 really had enough of one  
9 side against the other. I would just like to  
10 concentrate on the planning issues please. 10: 30

11 **MS. SINNOTT:** Can I just say, and I mean  
12 it might sound trite, I do  
13 sympathise with that. All these years people have  
14 waited for a job, they have waited for an industry, it  
15 has been mishandled, there has been no emphasis put on 10: 30  
16 the area, suddenly something comes in and it just seems  
17 like an answer from heaven, but it's not safe. The  
18 only reason it is considered Seveso II is because it is  
19 the most dangerous type. The most dangerous rating  
20 that Europe gives is Seveso II so anyone who tells you 10: 31  
21 it is safe is contradicted by the fact that it has been  
22 labelled Seveso II. The pity is that there has been so  
23 much mishandling of this site, that there hasn't years  
24 ago been industries built up there and now this is what  
25 is on offer, but it will stop other jobs in the future 10: 31  
26 and that's the real sad thing here.

27 **MR. McCELLIGOTT:** Mr. Inspector, just one  
28 quick comment is that it is  
29 now becoming quite clear that the lack of a master plan

1 for the development of the land bank is becoming one of  
2 the substantive issues in this debate. We would like  
3 the opportunity to question a senior member of Shannon  
4 Development to answer the serious questions on the  
5 whole development of that land bank because up to now 10: 31  
6 when they are saying everything we ask is a  
7 hypothetical question, it is now becoming clear that we  
8 really need to ask them questions in more detail so  
9 therefore we are requesting an opportunity to question  
10 a senior member of Shannon Development who can answer 10: 32  
11 the questions that are being thrown around at other  
12 people, thank you.

13 **INSPECTOR:** Does that complete your  
14 submission, Ms. Sinnott?

15 **MS. SINNOTT:** Yes. 10: 32

16 **INSPECTOR:** Thank you for coming  
17 along. Just before you go  
18 do the Applicants have anything they wish to ask?

19 **MR. O'NEILL:** No, Sir. I will be making  
20 comments obviously on the 10: 32  
21 submission made by Ms. Sinnott, but I haven't any  
22 questions to put. It is Ms. Sinnott expressing a view,  
23 which of course she is entitled to hold. It is a view  
24 with which we accord and I think a lot of the matters  
25 that Ms. Sinnott has raised have been dealt with 10: 32  
26 already and those that have not been dealt with will be  
27 dealt with in the course of the balance of the  
28 submissions to be made.

29 **INSPECTOR:** Thank you, Ms. Sinnott.

1 MS. O' DONNELL: Maeve O' Donnell, an Taoiseach.  
2 I wish to comment and say  
3 that the environment is very important in this area,  
4 our tourism industry is depending an awful lot on  
5 Shannon Development. Shannon Development is working 10: 33  
6 towards the tourist industry and has a great interest  
7 in it. Our environment and all the assets we have in  
8 this area of North Kerry, there are many aspects of it.  
9 These are all the building blocks of the tourism  
10 industry and it should not be lightly thrown aside for 10: 33  
11 short-term gain which is not in the public interest,  
12 that's all I have to say. Maeve O' Donnell An Taoiseach.  
13 INSPECTOR: Thank you. Sorry, could  
14 I have the name again.  
15 MS. O' DONNELL: Maeve O' Donnell, An Taoiseach. 10: 34  
16 MR. MORAN: Could I make a few  
17 comments, Chairman, just as  
18 a Shannon Development representative. Shannon  
19 Development see this as a project of national  
20 significance, we wouldn't be here at this progress if 10: 34  
21 the Government didn't see it as being a national  
22 project. We see it as being a huge economic benefit to  
23 the area, we would see 4/500 jobs in construction over  
24 three or four years. We would see 50 full-time jobs  
25 here, we would see an awful lot of jobs in the service 10: 34  
26 industry both while it is being constructed and while  
27 it is ongoing. We would see a lot of infrastructure of  
28 the roads in the area all being improved and also as  
29 the HEA has said, our experience is that it would be

1 not in our interest or anyone's interest to freeze the  
2 land alongside it. Contrary to that we have had  
3 several inquiries for the adjoining land and we believe  
4 if this project goes ahead will add value to the  
5 adjoining land so we would be very supportive of the 10: 34  
6 project and very supportive of the economics benefits  
7 to the area.

8 **MR. McELLI GOTT:** Sorry, Mr. Inspector,  
9 I would like to ask Ogie  
10 Moran a question. If the rest of the land bank is 10: 35  
11 going to be sterilised does that not change the whole  
12 development of the land bank from their perspective?

13 **MR. MORAN:** It is not our view it will  
14 be sterilised, nor is it  
15 the view of the HSA either. Two people have said 10: 35  
16 during the inquiry in the last few days that the land  
17 will not be sterilised by it and our view would concur  
18 with the HSA, it is not to be sterilised by it.

19 **MR. McELLI GOTT:** I am just saying if the  
20 rest of the land bank is 10: 35  
21 going to be sterilised would that not change your whole  
22 opinion.

23 **MR. MORAN:** We would be very  
24 disappointed if it was  
25 sterilised. It's not in our interest or the local 10: 35  
26 interest or the national interest to have that land  
27 sterilised, we do not believe it will be nor do the HSA  
28 believe it will be.

29 **MR. McELLI GOTT:** Okay. So you admit so that

1 it would not be in your  
2 interest to have the land sterilised?  
3 **MR. MORAN:** Absolutely not.  
4 **MR. McELLI GOTT:** If the land is going to be  
5 sterilised do you so, 10: 35  
6 therefore, agree that it would not be in your interest?  
7 **MR. MORAN:** I would say that we do not  
8 believe it will be  
9 sterilised and it's not the view of others. We don't  
10 see that way nor would we want it that way. 10: 35  
11 **MR. McELLI GOTT:** Another point is that this  
12 jetty that is being built  
13 for the LNG ships that are coming in, from what I can  
14 understand it is taking up the best of the deep water  
15 and I have heard it said that John Brassil told Michael 10: 36  
16 Finucane of Ballylongford that the best of the deep  
17 water will be taken up by this jetty and that the rest  
18 of the land bank will not be touched after that so do  
19 you not agree that if that is the truth that it will be  
20 impossible to have other port facilities along the rest 10: 36  
21 of the land bank?  
22 **MR. MORAN:** I would not agree, no. We  
23 are very conscious of the  
24 fact that the rest of the land must also have access to  
25 deep water and we are well aware of that and that will 10: 36  
26 not be the case.  
27 **MR. McELLI GOTT:** If John Brassil has said  
28 that the rest of the land  
29 bank would not be able to be used for the jetty because

1 the best of the deep water is moving over more towards  
2 Tarbert, do you not think that that would affect  
3 everything?

4 **MR. MORAN:** I have never heard John  
5 Brassil say that. 10: 36

6 **INSPECTOR:** I facilitated Kathy  
7 Sinnott, I would now like  
8 to move on to the ecology module so can we draw this  
9 discussion to an end please.

10 **MR. McELLI GOTT:** Okay. 10: 37

11 **INSPECTOR:** So can we move on. This  
12 morning we were scheduled  
13 to have the ecology module. I have with me Mr. John  
14 Brophy who is an ecologist and he will be advising the  
15 Board on the ecology aspects of the proposal and he may 10: 37  
16 wish to ask some questions at the end of the  
17 submissions.

18  
19 We have had a submission from the Department of the  
20 Environment, Heritage and Local Government. They had 10: 37  
21 indicated to us that they would not be attending this  
22 hearing and they have sent us a letter. Now, I have  
23 since learned that they are in fact present in the  
24 person of Dr. Jervis Good so they may be able to answer  
25 questions or they may wish to even ask questions at the 10: 38  
26 end of the session, but I am going to read over the  
27 letter which they sent to us. This letter was  
28 addressed to myself here at the hearing and it says:

29

1 "We refer to further information  
2 received by this department from Arup  
3 Consulting Engineers in relation to the  
4 above proposed development. In  
5 previous correspondence from the  
6 Department to the Board it was  
7 recommended that further information be  
8 submitted to this office before any  
9 decision is made on this application,  
10 inter alia, including a copy of the  
11 outstanding 2007 Ecological Survey  
12 Reports listed in section 10.10.2.7 of  
13 the EIS aquatic coleoptera survey,  
14 Lepidoptera survey, surveys of lagoon  
15 and reed bed, survey of dense section  
16 of undergrowth in stream area to locate  
17 natal holt -- that's a natal holt for  
18 the otters.

10: 38

19 The above ecological survey reports  
20 were received by the Department on  
21 18 January of this year. Based on the  
22 EIS, this further information and  
23 recommended conditions there is no  
24 scientific reason to expect significant  
25 adverse effects on the proposed  
26 development on the terrestrial or fresh  
27 water components of the Candidate  
28 Special Area of Conservation. "

10: 39

10: 39

29 They refer to their previous letter for conclusions  
concerning the marine effects:

30 "With regard to the nearby special  
31 protection areas, we reiterate the  
32 previous recommendation that the  
33 following information is submitted and  
34 duly evaluated by both the Board and  
35 this office before any decision is made  
36 on this application. Further  
37 information is required on the effects  
38 of the proposed jetties on the  
39 dispersal of regularly occurring  
40 migratory bird species between  
41 Ballylongford Bay and Tarbert Bay. An  
42 estimate is required of the numbers of  
43 adult fish and mackerel crustaceans  
44 expected to be killed on the filter  
45 screens of the water intake as a  
46 proportion of the fish population  
47 available to fish eating fauna in the  
48 adjacent part of the Candidate Special  
49 Area of Conservation. "

10: 39

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Then they ask that we kindly forward a copy of the Board's determination when a decision has been made in this case to the Department.

10: 40

Now, that letter was in response to a submission from the Applicants which I think was placed on the table on Friday; is that correct?

**MR. O'NEILL:** Wednesday, I think, Sir.

**INSPECTOR:** So that subsequent submission was placed on the table?

10: 40

**MR. O'NEILL:** It's on the table at the moment in any event.

**INSPECTOR:** It is still there. Just in case any of you haven't had time to see it, I am just going to read out its summary in relation to Lepidoptera, that's butterflies and moths. It says:

10: 41

"Overall no species of particular rarity were recorded, although some of the moth species do have quite specialised or localised distributions. The development will have no direct impact on any of the reed bed, salt marsh or lagoon habitats. Provided the mitigation measures which maintain the hydrological régime of these habitats are effectively implemented no significant impact on these habitats and the fauna they support is expected to occur.

10: 41

10: 41

However, there will be a loss of relatively common habitats and thus there will be a localised moderate impact on Lepidoptera within the site as a whole. In relation to otters,

1 they say no evidence was recorded that  
2 the dense area of vegetation supports  
3 an otter breeding holt. However, in  
4 line with the mitigation measures  
5 outlined in the NRA guidelines, it is  
6 recommended that a pre-construction  
7 survey should be conducted no more than  
8 10 to 12 months in advance of  
9 construction. The objective of this  
10 survey is to ensure that no new holts  
11 have been constructed since the  
12 previous survey and to specifically  
13 check for breeding holts. It is  
14 recommended that all stream side  
15 vegetation be resurveyed at this time."

10: 42

10 Then in relation to terrestrial and aquatic  
11 invertebrates, that is coleoptera, which are beetles  
12 and water beetles:

10: 42

13 "26 species of terrestrial beetles were  
14 recorded, most of which are common and  
15 widespread; two species of rove beetle  
16 were recorded that are uncommon in  
17 Ireland. Amongst the 13 aquatic beetle  
18 species recorded, three are restricted  
19 to brackish water habitats. One  
20 species is uncommon and sparsely  
21 distributed around the coast of  
22 Ireland. Overall the report concludes  
23 that this area is of some ecological  
24 value.

10: 43

20 The development will have no direct  
21 impact on the reed beds, salt marsh or  
22 lagoon habitat provided the mitigation  
23 measures, which maintain the  
24 hydrological régime of these habitats,  
25 are effectively implemented. No  
26 significant impact on these habitats  
27 and the fauna they support is expected  
28 to occur.

10: 43

25 Finally, in relation to the lagoon and  
26 marsh habitat it is recognised that  
27 five habitats of conservation  
28 importance, namely coastal lagoon,  
29 shingle banks, upper and lower salt  
marsh and reed bed and/or swamp occur.  
Of these only the reed bed and to a  
lesser extent the coastal lagoon are  
considered to be a conservation value.  
The development will have no direct

10: 44

1 impact on any of these habitats. Again  
2 provided the mitigation measures, which  
3 maintain the hydrological régime of  
4 these habitats, are effectively  
5 implemented. No significant impact on  
6 these habitats and the fauna they  
7 support is expected to occur."

10: 44

6 That's a summary of the latest submission from the  
7 Applicants. So I am now going to call on people to  
8 make submissions in relation to ecology. Do I have  
9 anybody who wishes to speak, this gentleman here first.  
10 Could I have your name

10: 45

11 **MR. FITZSIMONS:** Michael Fitzsimons, Shannon  
12 Regional Fisheries Board.

14 **MR. FITZSIMONS ADDRESSED THE ORAL HEARING AS FOLLOWS**

10: 45

16 Inspector, our submission is in two sections I suppose.  
17 The first is a covering letter from the CEO of the  
18 Shannon Regional Fisheries Board and the second is an  
19 assessment report of the development which should be  
20 read in conjunction with the CEO's letter.

10: 47

22 The Shannon Regional Fisheries Board does not object in  
23 principle to the development proposals in the strategic  
24 infrastructure application to An Bord Pleanála which is  
25 briefly outlined above. We do have some concerns and  
26 recommendations in relation to the proposal which are  
27 presented below.

10: 47

28  
29 In particular, we ask An Bord Pleanála to apply the

1 precautionary principle to all aspects of this  
2 development and ensure that the proposals are  
3 transparent and can be seen to be environmentally  
4 sustainable into the future. It is most important that  
5 ongoing monitoring takes place to ensure that the 10: 47  
6 mitigation measures are effective and the modelling  
7 predictions are proven under actual operating  
8 conditions.

9  
10 With reference to all work being carried out in or 10: 47  
11 adjacent to waters and in order to protect the aquatic  
12 habitats, we request that the contractors be required  
13 to consult and comply with the requirements of the  
14 Shannon Regional Fisheries Board and this should be a  
15 condition of planning. 10: 48

16  
17 The Shannon Estuary itself is an important resource and  
18 is an extremely important fishery with up to 80 species  
19 of fish frequenting and feeding in the estuary. As a  
20 source of sea angling the estuary is becoming more 10: 48  
21 important and the Board is actively developing sea  
22 angling along the coast and in the estuary. It is  
23 extremely important zone of passage for Atlantic  
24 salmon, sea lamprey, which are species listed in Annex  
25 II of the Habitats Directive. 10: 48

26  
27 In addition, the estuary is designated shellfish area  
28 and is an essential zone of passage for juvenile  
29 European eels which come into the estuary as glass

1 eels. These glass eels in particular require  
2 protection as the stock of eels returning to Ireland is  
3 declining. I would just like to point out as an aside  
4 to that that there is now an EU Directive to protect  
5 eels such as the concern about the decline in eel 10: 48  
6 stocks in Europe generally.

7  
8 In addition, the designated shellfish area has been  
9 greatly increased in 2007 and covers a considerable  
10 amount of the estuary. I am sorry I wasn't able to 10: 49  
11 bring a map of that new designated area, but it just  
12 wasn't available to me.

13  
14 The movement of glass eels is governed by the tides and  
15 they move upstream on the incoming tide. This means 10: 49  
16 that their progress up the estuary can be slow with  
17 long residence times in areas caused by unfavourable  
18 conditions.

19  
20 Juvenile salmon smolts descending the river also 10: 49  
21 require protection. Just again as an aside they are  
22 also protected by the Habitats Directive and I think  
23 also under the Water Framework Directive. It has been  
24 found that smolts can become entrapped at water intake  
25 points associated with power stations and we are 10: 49  
26 concerned that this could also happen at the sea water  
27 intake proposed for this facility. Survey work in the  
28 field has found that considerable numbers of fish from  
29 a wide variety of species may also be impinged on

1 intake screens and this is not acceptable. We  
2 recommend that at least the screens are modified and  
3 that the intake is enlarged to reduce the velocity of  
4 water at the face of the screens. In the Board's  
5 opinion the best environmental option would be the 10: 50  
6 elimination of the sea water abstraction and the  
7 development of an enclosed water recycling system for  
8 use in the regasification process.  
9

10 Given the increasing pressures on the estuary, 10: 50  
11 primarily due to the development of large  
12 infrastructure and the increased use of the estuary by  
13 shipping, it is important that the fish habitat and  
14 fish stocks are protected. This development must not  
15 impact on the potential of the estuary to be developed 10: 50  
16 as a natural fishery resource, nor should it impinge on  
17 the ability of the estuary to produce shellfish. A  
18 considerable amount of the estuary has been designated  
19 for the production of shellfish as human food. With  
20 reference to all work being carried out in or adjacent 10: 50  
21 to waters or in the 10 metres riparian zone and in  
22 order to protect the aquatic habitats we request --  
23 well, I think it's a repetition of something I said  
24 area -- that the contractors be required to consult  
25 with the Shannon Regional Fisheries Board and comply 10: 51  
26 with its requirements in relation to these areas.  
27 We request that this should be a condition of planning.  
28

29 Please find attached a report which further outlines

1 the Board's concerns in relation to the above and other  
2 aspects of the application. We would be obliged to  
3 receive a copy of the decision in relation to this  
4 development in due course. Should you require further  
5 clarification on any point please do not hesitate to  
6 contact this office. 10: 51

7  
8 Inspector, I am just going to go through the assessment  
9 report. I will skip the preamble at the start. For  
10 the purpose of clarity our concerns with dealt with 10: 51  
11 under the following headings: Estuary, freshwater,  
12 construction phase, operational phase and other  
13 concerns.

14  
15 In the context of the estuary as a whole the volume of 10: 51  
16 water being used to regasify the LNG is relatively  
17 small. However, it is clear from the field studies at  
18 other locations that sea water intakes can attract  
19 large number of fish species which may be impinged on  
20 the screens or sucked into the pipeline system. 10: 52

21  
22 Some of this is repetition as to what was covered in  
23 the article, but I am going to read it through in any  
24 event. The estuary in itself is an important resource  
25 and is an extremely important fishery with up to 80 10: 52  
26 species of fish frequenting and feeding the estuary.  
27 It is a highly important zone of passage for Atlantic  
28 salmon and sea lamprey which are species listed in  
29 Annex II of the Habitats Directive.

1  
2 The estuary is a designated shellfish area and the  
3 extent of the designated area was significantly  
4 enlarged in 2007. The estuary is an essential zone of  
5 passage for juvenile European eels which come up into 10: 52  
6 the estuary as glass eels. These glass eels in  
7 particular require protection as the stock of eels  
8 returning to Ireland is declining. The movement of  
9 glass eels is governed by the tides and they may move  
10 up stream on the incoming tide. This means that their 10: 52  
11 progress up the estuary can be slow with long residence  
12 times in certain areas caused by unfavourable  
13 conditions.

14  
15 It is noted in the EIS that the screen mesh at the 10: 52  
16 proposed intake for this facility will be approximately  
17 3 millimetres by 3 millimetres. It is clear that this  
18 is a fine mesh and will preclude the intake of a  
19 considerable amount of fish in the water column. It is  
20 proposed that the intake will operate at a rate of 10: 53  
21  $5.6\text{m}^3$  per second. The velocity of water passing  
22 through the screens at this point is not clear and  
23 requires clarification. This is important in the  
24 context of preventing fish from being impinged and/or  
25 damaged on the rotating screen. The water velocity 10: 53  
26 must be such that juvenile fish, including smolts and  
27 glass eels, will be able to swim away from the screens  
28 or be deflected away from the intake area. It is  
29 important if this is the option that is granted



1 planning permission that steps are taken to modify the  
2 intake to reduce the velocity of water at the screens  
3 and/or remove the potential for fish to be impinged on  
4 the screen due to the force of water or being sucked  
5 through the screen. We request that prior to the final 10: 53  
6 design of the screens and any subsequent alteration  
7 that the Shannon Regional Fisheries board be consulted  
8 and that a screening mechanism is installed and that  
9 will not give rise to the impingement of fish species  
10 on the screens. If permission is granted for this 10: 54  
11 abstraction it is important that in the wording of the  
12 conditions there will be provision to allow significant  
13 alterations to the screens and the intake area in the  
14 light of new technology and operating experience  
15 without the requirement of further planning 10: 54  
16 application. Equally, there must be a requirement to  
17 alter the intake box on the screen arrangements if  
18 monitoring shows that fish are being damaged at the  
19 water intake. We also suggest that this water intake  
20 requires an abstraction order and this point needs to 10: 54  
21 be clarified.

22  
23 As well as fish species the sea water being extracted  
24 will contain a large variety of other aquatic life  
25 forms such as phytoplankton and zooplankton. These are 10: 54  
26 vital life forms in the estuary and are a major part of  
27 the food baseline in the estuary. It is likely that  
28 the sudden drop in temperature in the heat exchanger  
29 will kill a portion of these life forms, but in any

1 event the introduction of biocide will ensure that most  
2 if not all will be killed. The Board has not been able  
3 to determine conclusively how the loss of these life  
4 forms will influence the overall productivity in the  
5 estuary. In view of the size of the estuary scientific 10: 55  
6 opinion available to the Board considers that the  
7 overall loss may not be significant in the context of  
8 the entire estuary; however, there will be a loss and  
9 inevitably this will have at least a local impact and  
10 over time this could be locally significant. 10: 55

11  
12 The application of the currently proposed system and  
13 the use of the biocide will also result in the  
14 production of an organic waste in the discharge. This  
15 raises a number of questions. The Board would like to 10: 55  
16 have clarification on the potential negative effects  
17 that this untreated organic waste load may have on the  
18 water quality. Will this waste stream will treated,  
19 how will this discharge be monitored and what treatment  
20 processes will be applied in the event that effluent 10: 55  
21 treatment is found to be necessary?

22  
23 It is the Board's opinion that the current sea water  
24 abstraction proposal is not acceptable. The Board  
25 believes that the use of a water recycling system 10: 56  
26 heated by a combination of waste heat and gas fired  
27 heaters to regasify the LNG would be a better  
28 environmental option. We do not accept the validity of  
29 the argument that using some of the gas in this way

1 will make any significant difference to the carbon  
2 footprint of the facility as in fact all this gas will  
3 be burned anyway. Such a system would be land based  
4 and would generally remove any risk to fish and the  
5 food web in the estuary.

10:56

6  
7 In the Board's opinion a water recycling option as part  
8 of the heat exchange would confer the following  
9 advantages:

10:56

10  
11 There will be no loss of any of the life forms  
12 contained in the water column; there will be no risk to  
13 fish species by impingement on the intake screen,  
14 damage to the habitat or impairment of the juvenile  
15 fish recruitment; there would be no impact on the food  
16 web in any way due to the abstraction of water; there  
17 would be no requirement for an abstraction order; there  
18 would be no introduction of chemical biocides; there  
19 would be no cold water plume; there would be no need to  
20 monitor the effects of the plume discharges; there  
21 would be no uncertainty on the effects in the estuary;  
22 the project would be viewed as environmentally  
23 sustainable and would meet all the requirements of the  
24 Water Framework Directive.

10:56

10:57

10:57

25  
26 In short, if the recycling option is recommended by An  
27 Bord Pleanála it will be the option that best protects  
28 aquatic biodiversity and will be the best environmental  
29 option.

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It is noted in the EIS that the small stream flowing through the site is not particularly rich in fish species, although it should be noted that the particular sites fished may not be considered to be good fish habitat due to localised conditions, for example in stream cattle trampling and may not fully reflect the potential of this stream. However, it is entirely unacceptable for the flow of the stream to be interpreted in the manner prescribed in the plans and the Environmental Impact Statement. It is fisheries policy that there should be no net loss of habitat. Where there is a loss of habitat mitigation measures would be required to offset this loss and improve the existing habitat for fish species.

10: 57

10: 57

10: 58

The Shannon Estuary carries a migratory species including salmon, sea trout, sea lamprey and European eels. Eels have been found in the stream and they are an important species. Again just to draw reference to the EU Directive. The water quality in the river has been found to have an acute value of 4 which suggests that is suitable quality for salmonids. It is not acceptable to write off the stream as being of no importance. The fisheries board is obliged to ensure that aquatic biodiversity is maintained and this would not be facilitated by the construction of the dam in such a manner that it prevents the free movement of fish. Access for all aquatic species and fish in

10: 58

10: 58

1 particular along the river must be maintained. This is  
2 a requirement under the Fisheries Acts for salmonid  
3 waters and in our opinion it is also a requirement of  
4 the Water Framework Directive. It is now policy that  
5 the Fisheries Boards' endeavour to ensure that there 10: 59  
6 would be no net loss of fishery habitat whatsoever  
7 arising from any development. In this regard we refer  
8 to the loss of 500 metres of stream habitat which is  
9 proposed in the EIS. As currently outlined the  
10 proposal to construct a dam on the stream to create a 10: 59  
11 lagoon is not acceptable. Consideration must be given  
12 to alternative arrangements or layout if this lagoon is  
13 to be constructed. It may be necessary to excavate  
14 into the land bank and provide an alternative mechanism  
15 for abstracting a portion of the flow to fill the 10: 59  
16 lagoon. At dry weather flow the maximum amount that  
17 may be abstracted from the stream should not exceed  
18 25%. A suitable control mechanism would also be  
19 required to ensure that the abstraction at DWF is  
20 controlled. The abstraction of water from this water 10: 59  
21 course may also need to be registered with the Local  
22 Authority.

23  
24 In the Board's opinion the construction of this lagoon  
25 in the format presented in the application indicates 10: 59  
26 that Shannon LNG will in effect take ownership of the  
27 water contained in the lagoon. We feel obliged to  
28 point out that in the event of a serious pollution in  
29 the water course it would not be permissible to

1 discharge polluting or deleterious matter down the  
2 spillway as currently envisaged. In our opinion  
3 Shannon LNG will be required to contain and treat all  
4 the deleterious or polluting matter that may be  
5 contained in the lagoon prior to any discharge down the 11:00  
6 spillway into the receiving watercourse.

7  
8 It is noted in the EIS that developing the site could  
9 significant disruption in the natural flows of water to  
10 the lower stream catchment. Part of this disruption 11:00  
11 may be caused by the diversion of water into a piped  
12 drainage system and also the physical movement of soil  
13 to facilitate construction. It should be a condition  
14 of planning that a re-appraisal of the surface water  
15 drainage proposals is carried out and where possible, 11:00  
16 following a risk assessment, the use of Sustainable  
17 Urban Drainage Systems should be applied to the site.  
18 This could in some measure provide additional recharge  
19 to the ground water in the area. We consider that the  
20 use of SUDS is a better environmental option especially 11:00  
21 where the risk of contamination is minimal, for  
22 examples in car parks and roadways etc.

23  
24 During the construction phase there is a significant  
25 risk that surface water draining from the site will be 11:01  
26 contaminated by excessive levels of suspended solids  
27 and/or other deleterious matter. It should be a  
28 condition of planning that the contractors be required  
29 to construct preferential flow paths to divert surface

1 waters to settlement lagoons, particularly if these  
2 waters are likely to be contaminated with silt. There  
3 should be a sufficient retention time in these lagoons  
4 to enable suspended solids to settle out at the  
5 discharge from the lagoon which will not exceed a 11:01  
6 maximum suspended solids at a level of 35 milligrams  
7 per litre. The lagoons should also have a baffle  
8 system in place to intercept surface water films and  
9 other floating debris. There should be a control valve  
10 on the discharge from each lagoon which could be closed 11:01  
11 in the event that an unacceptable effluent quality  
12 could discharge and cause pollution of the receiving  
13 water.

14  
15 We also consider that a licence issued under the Local 11:01  
16 Government (Water Pollution) Acts 1977 & 1990 is  
17 required in relation to effluents arising during the  
18 construction on the site to ensure that polluting or  
19 deleterious matter is not discharged. This will also  
20 ensure that appropriate and suitable treatment measures 11:02  
21 will also be in place to meet any required any effluent  
22 treatment. Such treatment facilities should be covered  
23 by conditions contained in any grant of permission for  
24 this facility.

25 11:02  
26 Notwithstanding the existing conditions along the  
27 stream, a riparian zone of at least 10 metres on either  
28 side of the stream should be maintained. This riparian  
29 zone will assist in intercepting pollutants such as

1 suspended solids and nutrients. In some areas to  
2 ensure the efficacy of the riparian zone additional  
3 native vegetation may need to be planted. The  
4 maintenance of this riparian zone will also provide a  
5 refuge for terrestrial species and is an essential 11:02  
6 component of the stream providing leaf litter and  
7 detritus for aquatic invertebrates.

8  
9 It should be a condition of planning that on completion  
10 of the construction phase that the streams and any area 11:02  
11 of the foreshore which may have been contaminated by  
12 silt or other pollutants will be surveyed. If deposits  
13 have found their way into these areas restoration work  
14 will be required and these restoration works should be  
15 designed and carried out in consultation with the 11:03  
16 Shannon Regional Fisheries Board.

17  
18 In relation to the discharges of storm water and  
19 treated sewage arising during the construction phase,  
20 the Board requests that as a condition of planning 11:03  
21 suitable easily accessible sampling stations should be  
22 constructed to facilitate the taking of grab samples of  
23 any effluent discharge to any watercourse. Such  
24 sampling stations will also be necessary on the  
25 permanent discharge lines. 11:03  
26

27 We require that as a condition of planning where any  
28 work is proposed in the stream or in the 10 metre  
29 riparian zone on either side of the screen that the



1 contractors will be required to consult and comply with  
2 the requirements of the Shannon Regional Fisheries  
3 Board. Method statements detailing the proposed works  
4 must be agreed with the Shannon Regional Fisheries  
5 Board.

11:03

6  
7 We note that there is a proposal to construct at least  
8 one bridge across the river and we require that this  
9 should be a clear span bridge and should not impinge on  
10 the river itself. We suggest that there should be  
11 adequate room under the bridge to facilitate the  
12 movement of animals along the banks of the stream.

11:03

13  
14 In relation to the discharges of storm water and  
15 treated sewage arising during the operational phase,  
16 the Board requests that as a condition of planning the  
17 Board will be consulted as to the design of the  
18 monitoring and sampling stations. These stations  
19 should be easily accessible, suitable for taking grab  
20 samples and sufficiently large enough to facilitate the  
21 use of automatic monitoring and sampling equipment.

11:04

11:04

### 22 23 **Operational phase.**

24  
25 The observations and recommendations detailed in this  
26 section should be applied in the event that An Bord  
27 Pleanála decides to accept the seawater intake and  
28 return proposals as outlined in the application.

11:04

1 The modelling exercises carried out in the proposed  
2 return plumes of cold water and chlorinated water  
3 indicate that the effects should not extend beyond a 50  
4 metre radius from the discharge point. If the planning  
5 permission is granted we request that it should be a 11:04  
6 condition of planning that detailed monitoring is  
7 carried out over the first year of operation to confirm  
8 the veracity of the model and show that the computer  
9 model predictions are upheld and are not exceeded. The  
10 nature and frequency of the monitoring should be agreed 11:05  
11 with the Shannon Regional Fisheries Board and should  
12 reflect the best methodologies available to confirm  
13 that the effects of the effluent discharges and the  
14 facility itself are not having a deleterious effect on  
15 aquatic species and fish in particular in either the 11:05  
16 estuary or the freshwater stream. The impact on the  
17 SAC should also be assessed and the results of  
18 monitoring should also be advised to the Shannon  
19 Regional Fisheries Board.

20 11:05  
21 The Board requests that monitoring of the seawater  
22 intake screens in particular should be undertaken to  
23 verify that fish species including glass eels are not  
24 impinged or trapped on the rotating screen at the  
25 seawater intake. We have already comment on the 11:05  
26 velocity of the water going through the screens and the  
27 problems that might be encountered by juvenile fish.  
28 Impingement in our opinion is a significant potential  
29 problem.

1  
2 If monitoring detects damage to fish species measures  
3 will have to be put in place to rectify and mitigate  
4 such damage. Provision should be provided in any grant  
5 of permission to permit modifications to the screens 11:06  
6 until satisfactory screening arrangements are in place.  
7 This should include alterations which take advantage of  
8 advances in screen types materials and systems. At all  
9 times the Board must be consulted in relation to any  
10 changes and details should be agreed with the Board 11:06  
11 prior to implementation.

12  
13 We recommend that as a condition of planning there is a  
14 reassessment on a five yearly basis on the effects of  
15 this development on water quality, fish species, 11:06  
16 aquatic habitats and biodiversity, both in the estuary  
17 and the freshwater stream. This assessment should  
18 utilise the best methodologies available to confirm  
19 that the effects of the effluent discharges and the  
20 facility itself are not having deleterious effects on 11:06  
21 the aquatic species and on fish in particular in either  
22 the estuary or the fresh water stream. The impact on  
23 the SAC should also be assessed on a five yearly basis.  
24 The results of monitoring should be advised to the  
25 Shannon Regional Fisheries Board. 11:06

26  
27 In conjunction with the above if the reassessment shows  
28 that the facility is causing a deleterious or polluting  
29 effect on waters, fisheries aquatic biodiversity or

1 other aspect of the environment the company must be  
2 obliged to undertake and necessary works in  
3 consultation with the relevant authorities to rectify  
4 the problem and if necessary to carry out habitat  
5 restoration and improvement to mitigate the damage. 11:07

6  
7 Before making its decision we request that An Bord  
8 Pleanála seeks clarification from Shannon LNG in  
9 relation to the following matters so as to ensure that  
10 the questions raised are clarified to An Bord 11:07  
11 Pleanála's satisfaction.

12  
13 1. It has come to our attention that the abstraction  
14 of natural gas does require in some cases the  
15 additional of significant amounts of chemicals in order 11:07  
16 to treat and remove contaminants. These contaminants  
17 can include amongst others hydrogen sulphide, acid  
18 gases and mercaptans. If there is a risk that these  
19 contaminants will arise in consignments of LNG, which  
20 may be delivered to the Shannon LNG facility, what 11:07  
21 quality controls are applied to LNG at source? What  
22 assurances can Shannon LNG give in relation to the  
23 quality of the gas. If into the future the source of  
24 LNG changes and the company has to remove contaminants,  
25 we recommend that they should be required to apply for 11:08  
26 further planning permission as this could significantly  
27 alter the impact of the development on the area.

28  
29 2. A technical guidelines note produced by the HM

1 Inspectorate of Pollution suggest that naturally  
2 occurring radionuclides may be present in the form of  
3 radioisotopes or lead of polonium depending on the  
4 source of the natural gas. If this type of material is  
5 found arising in the gas or in the processes used for 11:08  
6 this facility how will they be dealt with? What steps  
7 proposed to monitor for these substances? In the  
8 absence of any proposals to monitor for the substances  
9 what assurances can Shannon LNG present to the hearing  
10 that the monitoring will not be required at the Shannon 11:08  
11 LNG facility.

12  
13 3. We considered that it is important for An Bord  
14 Pleanála to ascertain whether or not the importation of  
15 this gas will give rise to any other waste product 11:08  
16 associated with LNG which could have environmental  
17 implications? I will be thinking from the Board's  
18 point of view particularly aquatic environmental  
19 implications. In this regard we again recommend the  
20 above HM Inspectorate of Pollution Guidance Note which 11:09  
21 is detailed below. I have just given it in the  
22 references. I have also attached a copy to the  
23 submission lodged with An Bord Pleanála at the present  
24 time.

25 11:09  
26 4. In a similar vein, the importation of this gas and  
27 the associated increase in boat traffic increase the  
28 potential risk that alien species may be imported into  
29 the Shannon estuary in the bilge or ballast water in

1 the LNG ships. For example, zebra mussels and now well  
2 establish and Mitten crabs have now been reported in  
3 Ireland. Both are alien species and are considered to  
4 be a nuisance pests. Both species are believed to have  
5 been imported into Ireland using shipping as a vector. 11:09  
6 We consider that even though this possibility may not  
7 be directly relevant to the planning process, it is  
8 important an environmental question that should be  
9 dealt by the planning process prior to the grant of any  
10 planning permission. Practices must also be in place 11:10  
11 to eliminate the likelihood that exotic species will  
12 not be brought into Irish waters and the company should  
13 be obliged to ensure that ships using its facilities  
14 will apply proven procedures to prevent the  
15 introduction of new alien species to Irish waters. 11:10  
16 This concludes the Board's observations at this time.  
17

18 **END OF SUBMISSION OF MR. FITZSIMONS**

19  
20 **INSPECTOR:** Thank you, Mr. Fitzsimons. 11:10  
21 Just one observation to  
22 make on some of these recommendations that should it be  
23 decided to grant permission for this development that  
24 they might more properly be dealt with by the EPA under  
25 an IPPC licence. Just on the matter of the shellfish 11:10  
26 areas, you say that these have been greatly expanded,  
27 is the actual area of the application or anywhere near  
28 it affected by the expanded area?

29 **MR. FITZSIMONS:** Sorry, I understand that it

1 is affected or it is part  
2 of that area or close to it, but I will endeavour to  
3 forward a map to the Inspector as quickly as I can get  
4 it.

5 **INSPECTOR:** Okay. There was quite a 11:11  
6 lot in that submission, do  
7 you wish to comment at this stage or will you come to  
8 it later?

9 **MR. O'NEILL:** No, Sir. Just two issues  
10 I would like to address, 11:11  
11 legal issues I suppose, by way of clarification and  
12 expressing the Applicant's view on it. The first is  
13 whether or not an abstraction order was required for  
14 taking the sea water out of the estuary and our  
15 submission is no, such an abstraction water is not 11:11  
16 required. It is only required where a Local Authority  
17 requires abstraction for water supplies and that's  
18 under the Water Supplies Act of 1942.

19  
20 The second issue then was whether or not a licence was 11:12  
21 required under the Water Pollution Acts in relation to  
22 effluents arising during construction of the site, this  
23 is at page 7 of Mr. Fitzsimons' report, the second part  
24 of his report. The answer to that is, yes, such a  
25 licence is required and will be applied for. 11:12  
26

27 In relation to the technical issues raised, those will  
28 be dealt with hopefully in the course of the  
29 submissions, although some of them cover matters which

1 were dealt with in earlier modules, especially the part  
2 that the sea water abstraction plays in the overall  
3 process and it may be necessary to readdress those  
4 matters if needs be. Insofar as matters are not  
5 addressed in evidence given by witnesses this morning, 11:13  
6 I would ask for the facility to come back and deal with  
7 those matters perhaps after lunchtime.

8 **INSPECTOR:** Okay.

9 **MR. McELLI GOTT:** Mr. Inspector, just a quick  
10 point. On page 2 paragraph 11:13  
11 2 he recommended:

12 "In the Board's opinion the best  
13 environmental option would be the  
14 elimination of the sea water  
15 abstraction and the development of an  
16 enclosed water recycling system for use  
17 in the regasification process." 11:13

18 We would be of the opinion that it would be necessary  
19 to determine if that would be the case at this stage  
20 rather than at the EPA licensing stage because that 11:13  
21 could require a new type of processing plant which  
22 would substantially change the planning application and  
23 they might have to submit new plans as well as them  
24 doing a risk assessment on the type of regasification  
25 procedure and the effects on the risk assessment that 11:14  
26 they would have undertaken so we would think that it  
27 would be necessary to clarify that point at this stage  
28 and not at the licensing stage.

29 **INSPECTOR:** Okay. It is 11:10, maybe  
we would just take a five



1 minute break at this point.

(SHORT ADJOURNMENT)

11:14

THE HEARING RESUMED AFTER A SHORT ADJOURNMENT AS  
FOLLOWS.

10 INSPECTOR: Okay everybody five minutes 11:27  
11 is well up so if we could  
12 resume our seats please. Now, I think we had a hand up  
13 before I suggested a break so this gentleman, are you  
14 speaking for An Taisce?

15 MR. O' DONOVAN: I am, yes. Thank you, 11:28  
16 Mr. Inspector. I am  
17 speaking on my own submission, I am a member of An  
18 Taisce but I am speaking on my own submission now.  
19 I would just like to make a quick comment on the last  
20 person's presentation on the aquatic area. My 11:28  
21 grandfather, father and myself had salmon licences and  
22 fishing licences in the River Shannon estuary, all  
23 above board and legal and everything else, and we  
24 fished it, we were sustainable. Of late the salmon  
25 fishing licences have been suspended last year and 11:28  
26 again this year, which is good, which I fully support,  
27 in fact all over the coast of Ireland, to help the  
28 salmon stocks to increase and flourish hopefully. The  
29 Shannon area, the Shannon Estuary is a large tributary

1 to supply smaller tributaries on the coast of the  
2 Shannon Estuary and it's a vital source of wild salmon  
3 which we read in the papers is almost extinct now.  
4 I do believe that any offsetting facility would greatly  
5 add to that potential extinction which I would hope 11: 29  
6 that everybody would be aware that once a species has  
7 been extinct there is no possible hope of ever reviving  
8 it as it is the result of millions, possibly billions  
9 of years of evolution so all the money in the world  
10 will not restore that so I would just make my 11: 30  
11 submission on that and also the other 80 species of  
12 fish which live and thrive in that area. Thank you,  
13 Mr. Inspector.

14 **INSPECTOR:** Thank you. Anybody else  
15 wish to speak on the topic 11: 30  
16 of ecology?

17 **MR. McELLI GOTT:** Mr. Inspector, I would like  
18 to show a little video  
19 about the Shannon dolphins which would be our  
20 submission. 11: 30

21 **INSPECTOR:** Okay.

22 **MR. J. McELLI GOTT:** Mr. Inspector, our  
23 submission is just to show  
24 the dolphins in the Shannon Estuary, because a lot of  
25 people can't really visual what they represent. I know 11: 31  
26 Dr. Simon Berrow did a wonderful submission in the EIS  
27 but I would just like to bring up one of the points  
28 raised in this BBC 1 coast programme, which is that  
29 Dr. Simon Berrow never did an analysis of the actual

1 pumps and the noise. Dolphins are very sensitive to  
2 sound and that there are going to be five massive pumps  
3 discharging and pumping water into the Shannon Estuary  
4 from the Shannon LNG plant and that was not taken into  
5 account in Dr. Simon Berrow's EIS submission. He 11: 32  
6 talked about the noise from the construction works but  
7 not actually the continual noise from this system that  
8 is going to be used to vaporise the LNG.

9  
10 Also, in the video I would just like to point out where 11: 32  
11 it is noted that he says at some point that the  
12 dolphins are very sensitive to noise even at the other  
13 side of the estuary. At the end of the video it is  
14 stated that what we really know about the dolphins in  
15 the estuary is that we know very little. I would just 11: 33  
16 like to give you a flavour for it anyway, and it is  
17 also very entertaining for everybody. I think there is  
18 a problem with the sound here. (Pause) I am sorry  
19 Mr. Inspector, this is not working. I will have to  
20 stop that because it is not working. 11: 39

21 **INSPECTOR:** Mr. McElligott, do you wish  
22 to abandon it at this stage  
23 and maybe come back to it later? Oh, just in time.

24  
25 (VIDEO SHOWN) 11: 40

26  
27 **MR. J. McELLI GOTT:** My only point in all that  
28 was that the dolphins are  
29 protected under the EU Habitats Directive and that we

1 have an obligation to protect that species. There is a  
2 lot of dolphin tourism from the Clare side, there is  
3 very little from the Kerry side, Dr. Simon Berrow is  
4 here so I think it would be interesting to know  
5 afterwards what he thinks the effects of the continuous 11: 44  
6 noise from the vaporising process would have on the  
7 dolphins. So, it is not an objection, it is just to  
8 lead us into the presentation, probably, from Dr. Simon  
9 Berrow later on. Thank you very much.

10 **INSPECTOR:** Thank you. Are you 11: 45  
11 speaking yourself?

12 **UNKNOWN SPEAKER:** That was a wonderful  
13 presentation. The Shannon  
14 dolphin, there are various, we'll say -- what will I  
15 call it -- tourism areas associated with Shannon and 11: 45  
16 there you have the Shannon dolphin, you have Shannon  
17 Airport, you have the River Shannon, the proud River  
18 Shannon, which has been -- people associate the Shannon  
19 with tourism, home, people from across the seas, and I  
20 do believe, it is my own thought actually, that the LNG 11: 46  
21 company should not have a monopoly on the name Shannon,  
22 that maybe call it for what it is, Hess LNG, as that is  
23 the parent company, and not to hijack the name of  
24 Shannon. Thank you, Mr. Inspector.

25 **INSPECTOR:** Thank you. Mr. McElligott. 11: 46

26 **MS. M. McELLI GOTT:** Michael McElligott, Chamber  
27 of Commerce in Tarbert. It  
28 sounds like the River Shannon is a whole tourism  
29 industry. In actual fact it is not. We make no money

1           whatsoever in North Kerry from tourism in the mouth of  
2           the Shannon. You cannot rent a boat in Tarbert. We  
3           have the ferry crossing the 24 hours a day, almost --  
4           well, 24 trips a day. From looking at that clip, what  
5           I would personally take from it is that dolphins like     11: 47  
6           noise. They follow the ferry on a continuous basis, as  
7           a matter of fact if you are on the ferry it will be  
8           pointed out to you that the dolphins are either on the  
9           left or on the right. They continuously follow the  
10          ferry. We have jet skis off Bale Beach every summer.     11: 47  
11         You have yachts. You have cruise ships coming up the  
12         River Shannon to Foynes. You have boats waiting to  
13         dock either at Shannon Airport, at Limerick Docks, at  
14         Foynes or at Aughinish, all docked right off the  
15         landbank where LNG are planning to build this. So,     11: 47  
16         clearly, noise is not a factor, in my opinion, to the  
17         dolphins.

18  
19         It was a lovely clip, but this is not Disneyland. We  
20         need industry, again like I have said before. The     11: 47  
21         Shannon has not been developed as a tourism area, along  
22         north Kerry anyway. Maybe if you go up to Lough Derg  
23         it is different. But down in our area we do not  
24         benefit from tourism in the Shannon. Thank you.

25         **INSPECTOR:**   Thank you, Mr. McElligott.     11: 48

26         **MR. J. McELLI GOTT:**   Sorry, Mr. Inspector, I  
27   would just like to ask what  
28         scientific qualifications Michael McElligott has to  
29         know what the dolphins are thinking.

1 MR. M. McELLI GOTT: I don't need a microphone  
2 for that. I have  
3 absolutely no qualifications whatsoever. But, I mean,  
4 I just watched the movie and I don't need a  
5 qualification for that. Clearly, I have been on the 11: 48  
6 ferry numerous times and it is pointed out to everybody  
7 on the ferry "dolphin to the left. Dolphins to the  
8 right". Clearly, those people there seem to think that  
9 the dolphins like noise.

10 MR. J. McELLI GOTT: Maybe it also would effect 11: 48  
11 the number of houses you  
12 have to rent that is encouraging your decision here.

13 MR. M. McELLI GOTT: This is about a planning  
14 issue and that comment  
15 there is unsophisticated and, Mr. Inspector, I don't 11: 49  
16 think you should accept that. This here is about  
17 planning for a gas terminal, this is not about a  
18 personal issue. I have houses in Tarbert and I rent  
19 them. I provide a service for people that will  
20 probably never get jobs at LNG. That remark is 11: 49  
21 uncalled for at a planning thing and it is turning this  
22 hearing into a joke. I think he should apologise for  
23 that. Thank you.

24 INSPECTOR: I think if the two  
25 McElligott's could just 11: 49  
26 call a truce at this point.

27 MR. J. McELLI GOTT: He's no relation of mine by  
28 the way. Just to say that.

29 UNKNOWN SPEAKER: I quite agree with you,

1 Mr. Inspector. My area of  
2 interest is environmental and tourism, which is a huge  
3 business in this country. It is a huge business.  
4

5 There is a dolphin watch going out from Kilrush. Now, 11:49  
6 we are all in the Shannon Estuary and, basically, the  
7 people who are in favour of this it is mostly economic.  
8 But the thing is one industry of that size and, as  
9 Kathy Sinnott said earlier, it could only attract other  
10 dirty industries, to quote Kathy Sinnott. The thing 11:50  
11 is, you know, what are we going to be left with? It is  
12 already on the planning, you know the initial stages,  
13 of trying to put oil tanks adjacent to this facility.  
14 And as far as people supporting this, I mean I have met  
15 several people who do not support this. You know, if 11:50  
16 it doesn't go ahead it is not the end of the world.  
17 The thing is if it was marketing properly I believe  
18 that several industries, clean industries, would be  
19 attracted to the area. Thank you Mr. Inspector.

20 **INSPECTOR:** Okay. I think that looks 11:51  
21 like it completes submission from the third parties.  
22 So, can I call on the applicants to make their  
23 presentation.

24 **MR. O'NEILL:** Yes, sir thank you. The  
25 first person to make a 11:51  
26 presentation is Dr. Rory Doyle and he's going to deal  
27 with the plume dispersion modelling in the EIS.  
28  
29

1 DR. RORY DOYLE PRESENTED HIS SUBMISSION AS FOLLOWS:

2  
3 MR. DOYLE: Good afternoon everyone.

4 My name is Dr. Rory Doyle  
5 and I am an Environmental Engineer with a Bachelor's 11:51  
6 Degree in Environmental Engineering and a Ph.D in  
7 coastal engineering. I am currently a group leader of  
8 environmental and water quality modelling with  
9 Aqua-Fact International Services. I have four years of  
10 modelling experience, primarily in carrying out 11:52  
11 dispersion studies and water related environmental  
12 impact studies involving field measurement and  
13 mathematical modelling techniques. My key areas of  
14 competence are hydrodynamic and solute transport  
15 modelling; computer programme; coastal and offshore 11:52  
16 engineering; and ocean wave mechanics. I have been  
17 involved in the compilation of over 20 Environmental  
18 Impact Statements for a wide number of projects.

19  
20 Just a little bit about the company I work for. They 11:52  
21 are an environmental consultancy and they specialise in  
22 monitoring and managing resources in marine, fresh  
23 water and terrestrial environments.

24  
25 The purpose of my evidence today is to provide an 11:53  
26 overview of the plume dispersion modelling. My  
27 principal points of evidence will cover the following:

28  
29 - The residual chlorine concentration of the plume



1 predicted by the model at the edge of a 50 metre mixing  
2 zone.

3 - The temperature of the plume predicted by the model  
4 at the edge of a 50m mixing zone.  
5 - A comparison of these values with the guidelines set 11: 53  
6 out by the Environmental Protection Agency.

7 - also, a comparison of the flow rate and chlorine  
8 concentration in the discharged effluent from the LNG  
9 plant with those currently allowed at Money Point and  
10 Tarbert power stations by their IPPC licences. 11: 53

11  
12 Just a little bit about my company Aqua-fact's  
13 involvement in the project. We were retained by  
14 Shannon LNG to carry out intertidal and subtidal site  
15 characterisation studies. Aqua-fact contributed to the 11: 54  
16 section of the EIS for the proposed Shannon LNG  
17 terminal development dealing with marine and estuarine  
18 ecology. Part of this EIS involved undertaking a  
19 Hydrodynamic and water quality study of the Shannon  
20 Estuary around the Ballylongford area, where it is 11: 54  
21 intended to release chlorinated cold water through a  
22 proposed outlet. This assessment was to be carried out  
23 with particular reference to possible adverse effects  
24 on the local flora and fauna.

25 11: 54  
26 The scope of the assessment: I conducted the following  
27 phases of assessment as part of the EIS:

28  
29 - Bathymetric survey data interrogation and model

1 development.

2 - Calibration and validation of the Hydrodynamic and  
3 water quality model.

4 - Running model simulations for various discharge  
5 temperatures, chlorine concentration and meteorological 11: 55  
6 conditions.

7 - An assessment of the impacts of the proposed  
8 discharge of chlorine and cold water on the local flora  
9 and fauna.

10 - An assessment of the impact of a moored ship on the 11: 55  
11 dispersion of the thermal plume

12 - An investigation of whether chlorine plumes from  
13 Money Point or Tarbert stations would interact in any  
14 way with the chlorine plume from the proposed LNG  
15 plant. 11: 55

16  
17 The methodology is outlined in the EIS so I think I can  
18 take that as read. And I will move on to the main  
19 findings of the model results, which is section 3.

20 11: 55  
21 First, there was two models used. The first model is a  
22 2D model called DIVAST. The findings from this model  
23 were that the maximum levels of residual chlorine  
24 outside a 50m mixing zone were below the limiting value  
25 of 0.01mg/l recommended in the EPA Environmental 11: 56  
26 Quality Standards thus confirming that there should be  
27 no impact on the water quality resulting from the  
28 proposed discharge of this substance at any of the  
29 proposed outfall sites.

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29

Second, outside the 50m mixing zone the maximum temperature variation between the ambient water temperature and the cold water plume was half a degree, which occurred with summertime water temperatures. This is well below the permissible temperature variation of 1.5 degrees specified by the EPA. Therefore, no adverse effects on flora or fauna are expected from discharging the specified amount of cold water from the proposed outfall site.

11:56  
11:57

Also, chlorine plumes from other sources in the estuary, that is from existing sources, from Money Point and Tarbert, were found not to interact in any significant way with the chlorine from the proposed LNG discharge.

11:57

A 3D model, COHERENS, which was a second model, provided confirmation of the results of the 2D model as well as looking at some technical issues involving the outfall intake.

11:57

Again, the maximum levels of residual chlorine outside the 50m mixing zone were below the value recommended in the EPA standards. The temperature outside the 50m mixing zone was 0.7 of a degree, similar to the 2D one and, again, below the permissible temperature variation of 1.5 degrees specified by the EPA. So, again, we note no adverse effects on flora or fauna are expected

11:57

1 from these discharges.

2  
3 Also, from a technical point of view, there wasn't any  
4 circulation between the output point and the inlet box,  
5 so that the water temperature at the intake is not  
6 affected at any stage of the spring or neap tides.

11:58

7 When we looked at the affect of a ship docked at the  
8 jetty, to see if this interacted in any way with the  
9 plumes, we found no significant impact or impingement  
10 on the flow from the discharge pipes.

11:58

11  
12 So, the potential impacts, based on the above findings,  
13 there are no adverse effects on flora or fauna or water  
14 quality expected from these thermal and biocide plumes.

11:59

15  
16 Moving on to section 4, which is the response to  
17 submissions to An Bord Pleanála. All the following  
18 submissions raise concerns relating to the discharge of  
19 cold water and chlorine and what impact these would  
20 have on the local environment. I will just read out  
21 some of these submissions.

11:59

22  
23 Kathleen Kelly is concerned that "marine life will be  
24 severely disrupted by the pumping, cooling and  
25 chlorination of seawater".

11:59

26  
27 Adam Kearney is concerned "that cooling waters will  
28 have catastrophic effects on marine life and  
29 fisheries".

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29

Mary Kelly-Godly is also concerned that "colder chlorinated water will have a detrimental effect on the marine environment".

11:59

David Callaghan is "concerned about a 100 million gallons of cooling and waste water is being discharged per day".

Geraldine Carmody is concerned about the "maritime pollution from the plant".

11:59

Patricia Anglim O'Connor -- "the releasing of chlorinated water back into the estuary will kill marine life, resulting in no more fishing".

12:00

Kathy Sinnott MEP - "the procedure of releasing cold chlorinated water will have a detrimental effect on marine life and fisheries and huge ecological consequences"

12:00

Chloe Griffin - "the habitat of the marine life will be destroyed by pumping 100 million litres of chlorinated water per day."

12:00

Patrick Griffin - "marine life will be severely disrupted by the pumping, cooling and chlorination of seawater".

1 Catriona Griffin - "the seawater which LNG will be  
2 removing from the estuary at a rate of 4.4 million  
3 gallons per hour will be chlorinated and returned to  
4 the estuary at a much colder temperature".

12:00

5  
6 Donncha and Margaret Finucane -- concerned about the  
7 environment.

8  
9 Morgan Heaphy - environmental pollution. The proposed  
10 plant will pump millions of gallons of the chlorinated  
11 seawater back into the estuary, which is a designated  
12 SAC area.

12:01

13  
14 I will take all those as a group. The response to all  
15 those submissions are that the proposed discharge was  
16 modelled using two hydrodynamic models. DIVAST, a 2D  
17 model, was initially employed to investigate the  
18 dispersion and transport of the plume and the potential  
19 environmental impact. It was then decided to use  
20 COHERENS, a 3D model, which was primarily employed to  
21 look at circulation between the intake and outlet box.  
22 This was employed to model the dispersion of the  
23 thermal plume in more detail since it included density  
24 effects due to temperature differences.

12:01

12:01

25  
26 The results from each model clearly show that all the  
27 EPA water quality standards regarding residual chlorine  
28 concentrations and water temperature differences are  
29 satisfied within a mixing zone of 50m. For such a wide

12:01

1 estuary, which is about 2km at the discharge point,  
2 this mixing zone is extremely small. For example, the  
3 IPPC licence for Money Point states that the allowable  
4 mixing zone "there shall not exceed 25% of the  
5 estuarine cross sectional area at any point". This 12: 02  
6 figure allows for a much larger mixing zone (in the  
7 order of several hundred metres) than that which was  
8 modelled in our study. So, our study is being  
9 extremely conservative in using a 50m mixing zone. It  
10 is also worth noting that Money Point discharges more 12: 02  
11 than 5 times the volume of water and more than 12 times  
12 the amount of chlorine than that at the proposed LNG.  
13 Therefore, the environmental impact from the proposed  
14 discharge will be negligible.

15  
16 There is a few other more specific submissions:  
17 Ian Lumley from An Taisce is concerned that the data  
18 (modelling data) was not provided. "(A)... this data  
19 (the modelling data) did not provide modelling  
20 information on the chlorine discharges from Money Point 12: 03  
21 power station on the opposite bank of the river and  
22 accordingly provide evaluation of the cumulative  
23 impact".

24  
25 (B) "... concerned that there is a lack of correlation 12: 03  
26 between the marine ecological section of the EIS and  
27 the separate data provided on chlorine discharges  
28 suggesting that the ecologists responsible for the  
29 marine and estuarine section of the EIS were not

1 provided with the required information to evaluate  
2 discharge impact.

3  
4 First a response to (A). All the data referred to here  
5 is provided on page 21 of appendix 11(c) and it clearly 12:04  
6 states the flow rates and chlorine concentrations from  
7 the Money Point power station. So, any cumulative  
8 effect was looked at in the model studies and it was  
9 found that there was no cumulative effect. The second  
10 response, about the information given to ecologist, the 12:04  
11 ecologist is a colleague of mine, Stiofán Creaven, here  
12 beside me, and he works for the same company and he  
13 received all the data correctly from both the 2D and 3D  
14 simulations. So, there is no discrepancy between the  
15 sections referred to there. 12:04

16  
17 The next submission: Eamonn Cusack, Shannon Regional  
18 Fisheries Board. "It would appear from the modelling  
19 report and assessment that the proposal will not  
20 negatively impact on the estuary, but it is important 12:05  
21 that this situation will continue into the future".  
22 Response: We agree with the above.

23  
24 Submission - Killoolgan Residents Association were  
25 "concerned that the public do not have all the 12:05  
26 information on the environmental impacts before a  
27 planning decision is made.

28  
29 Response: The environmental impacts of discharging the



1 proposed chlorine and cold water into the estuary have  
2 been modelled using 2D and 3D Hydrodynamic dispersion  
3 models and the results are in the public domain.

4  
5 Finally, a submission from Clare County Council. They 12:05  
6 were concerned that "the impact of developments on  
7 water bodies outside the jurisdiction of individual  
8 authorities is considered when decisions on discharges  
9 and water extraction are being made".

10 12:06  
11 Response: The hydrodynamic models considered the full  
12 width of the Shannon Estuary -- both on the Kerry side  
13 and on the Clare side -- for several kilometres  
14 upstream and downstream of the discharge point.  
15 Therefore, the potential impact of the discharge on 12:06  
16 water bodies within the jurisdiction of Clare County  
17 Council was considered.

18  
19 Lastly, another submission from Kerry County Council.  
20 "The environmental emissions from the chosen system are 12:06  
21 threefold and involve the discharge of cold water into  
22 the estuary; the presence in this discharge water of  
23 chlorine residual at a concentration of 0.2mg/l; and  
24 emissions associated with the burning of natural gas  
25 during periods when the seawater in the estuary is too 12:06  
26 cold.

27  
28 Kerry County Council has assessed the emissions and is  
29 satisfied that the emissions from the proposed

1 vapourisation plant will not have significant adverse  
2 impact on the ecology or natural environment of the  
3 area.

4  
5 Response: We agree with the above conclusions of Kerry 12:07  
6 County Council.

7  
8 So, the final conclusions then, to sum up. The results  
9 from each model clearly show that all of the EPA water  
10 quality standards regarding residual chlorine 12:07  
11 concentrations and water temperature differences are  
12 satisfied within a mixing zone of 50m. Accordingly, I  
13 am of the view that the potential impacts to flora and  
14 fauna as a result of discharging the specified amounts  
15 of chlorine and cold water will be negligible. Thank 12:07  
16 you.

17  
18 **END OF SUBMISSION**

19  
20 **INSPECTOR:** Thank you Dr. Doyle. Okay, 12:08  
21 do you have your next  
22 speaker?

23 **MR. O'NEILL:** Yes, I have. I have two  
24 other witnesses, experts,  
25 dealing with marine issue, the first of which is 12:08  
26 Stiofán Creaven.

1 MR. STOI FAN CREA VEN PRESENTED HIS SUBMI SSI ON AS

2 FOLLOWS:

3  
4 MR. CREA VEN: My name is Sti ofán Creaven  
5 and I hold a Bachelor of 12: 08  
6 Science Honours Degree in Marine Science from NUI G and  
7 a Post Graduate Master of Science in Offshore and Ocean  
8 Technology from Cranfi el d Uni versi ty in Engl and. I am  
9 a Member of the Soci ety for Underwater Technol ogy.

10 12: 08  
11 I am an ecological consul tant with Aqua-Fact  
12 Internati onal Servi ces Ltd. I have worked wi th  
13 Aqua-Fact since 2001. My main areas of experti se are  
14 in mari ne bi ol ogi cal surveyi ng and underwater  
15 surveyi ng. I have been i nvol ved i n the compi lati on of 12: 09  
16 a number of EIS' s for a wi de range of devel opments,  
17 i ncl udi ng offsho re wi nd farm constructi on i n the Irish  
18 Sea, vari ous sewage schemes, offsho re gas pi pel i ne  
19 routi ng, benthi c surveys for aquacul ture si tes i n the  
20 west of Irel and and proposed aggregate extracti on si tes 12: 09  
21 i n the Engl ish Channel and North Sea. I was a member  
22 of the Aqua-Fact di ve team surveyi ng si tes i n order to  
23 document the subti dal porti ons of Clew Bay, Kenmare Bay  
24 and Roari ng Water Bay, candi date cSACs desi gnated under  
25 the Habi tats Di recti ve. Thi s work was carri ed out on 12: 09  
26 behal f of the Nati onal Parks and Wi ldl i fe Servi ce.

27  
28 The remai nder of thi s page gi ves a few detai ls on the  
29 background of the company, I am going to ski p through

1 that, if that's all right. Page 3 documents previous  
2 work carried out by Aqua-Fact in the Shannon Estuary so  
3 I will skip through that as well, if that's okay.  
4 The top of page 4 continues on the history of studies  
5 by Aqua-Fact in the estuary. 12: 10

6  
7 I will just move on to the paragraph underneath, the  
8 final point. The purpose of my evidence is to provide  
9 an overview of intertidal and subtidal ecological  
10 surveys carried out in the proposed development area at 12: 10  
11 Tarbert/Ballylongford, Co. Kerry providing a  
12 description of both the intertidal and subtidal  
13 characteristics of the site. My principal points of  
14 evidence will cover:

- 15 12: 10
- 16 - intertidal site characterisation
  - 17 - subtidal site characterisation, and
  - 18 - concerns expressed by various parties on potential  
19 impacts to the above.
- 20 12: 10

## 21 **Section 2 - Aqua-Fact Involvement in the Project**

22

23 Aqua-Fact was retained by Shannon LNG to carry out  
24 intertidal and subtidal site characterisation studies.  
25 Aqua-Fact contributed to this section of the EIS for 12: 10  
26 the proposed Shannon LNG terminal development dealing  
27 with marine and estuarine ecology.

28  
29 **Scope of the Work:** I conducted the following phases of

1 assessment as part of the EIS scope of works,

2 including:

3 - site surveys

4 - a review of the baseline environment

5 - an assessment of the impacts of the proposed 12: 11  
6 development during the construction and operation  
7 phase of the development.

8 - recommendation of the mitigation measures necessary  
9 to avoid, reduce or remedy the adverse environmental  
10 effects identified. 12: 11

11  
12 I will take the next section, 2.3 on page 5, as read.  
13 This is all detailed in the EIS. And the top of page 6  
14 similarly as read. It is detailed in the EIS as well.  
15 Moving on to section 3 - the main findings. 12: 11

16 3.1. The results of the intertidal study at the  
17 Shannon LNG site show that Floral and Faunal diversity  
18 in this intertidal area was relatively low. Most of  
19 the intertidal habitat in the area around the site  
20 surveyed is characterised by bedrock, boulder field and 12: 11  
21 cobble, which do not contain many invertebrate species.  
22 The area surveyed is semi-sheltered and is subject to  
23 period wave action and subtidally quite fast currents.  
24 Overall, the communities found during the present  
25 survey in the shallow subtidal areas proposed for jetty 12: 11  
26 construction were relatively impoverished in terms of  
27 species diversity. All species recorded commonly occur  
28 in these habitat types. Faunal communities are typical  
29 of those expected from this area and for the medium

1 course sand to muddy sand environments encountered  
2 along this stretch of the Shannon Estuary.

3  
4 Fish species recorded in the Shannon Estuary included  
5 Atlantic salmon, trout, Allis shad, twaite shad, 12: 12  
6 European eel, sea lamprey, river lamprey and smelt.  
7 Also supported are diverse communities of small fish  
8 species, juvenile flatfish, gobies and sticklebacks.  
9 They are rich feeding grounds for adults and juvenile  
10 fish of many species, including bass, plaice and 12: 12  
11 flounder. That is information taken from an Ecoserve  
12 report, 2001.

13  
14 I will take the next section, "potential impacts", as  
15 read. It is all detailed in the EIS. I will take page 12: 12  
16 8 as read as well, page 9 as read, on to "mitigation  
17 measures". Moving on to page 10. I would just like to  
18 add a point under the final bullet point "measures will  
19 be taken".

20 12: 13  
21 In addition, to the above, the proposed facility will  
22 operate to a rigorous set of process control and  
23 monitoring measures, implementation of best available  
24 techniques, environment management plans and safety and  
25 regulatory controls in compliance with all relevant 12: 13  
26 European and Irish legislation and regulations. Also,  
27 any emissions licences required will be sought from the  
28 relevant governing body.

1 I will just detail at the bottom of that page my  
2 interaction with other members of the team. I worked  
3 with my colleague Dr. Rory Doyle in compiling the  
4 marine and estuarine ecology section. It was necessary  
5 to note the physical and chemical characteristics of 12: 13  
6 the proposed plume in order to gauge its potential  
7 impact on the receiving waters and their flora and  
8 fauna. This information was provided by Dr. Doyle's  
9 computer simulation of the plume. I also discussed  
10 potential impacts on ecology of the area and potential 12: 14  
11 for overlap into the intertidal and subtidal marine  
12 environments with Karl Dixon and Simon Berrow (impacts  
13 on terrestrial and freshwater ecology and potential  
14 impacts on dolphins respectively).

15  
16 Moving on to section 4 - responses to submissions. I  
17 intend to read the response in full and not to read the  
18 individual submissions again, because it will take up  
19 quite a bit of time I think, unless you would like me  
20 to do so. 12: 14

21 **INSPECTOR:** I think in this case, for  
22 the sake of completion it  
23 might be better.

24 **MR. CREAVER:** Read through them?

25 **INSPECTOR:** Yes. 12: 14

26 **MR. CREAVER:** Okay. So section 4 on page  
27 11.

28  
29 A list of the publications referenced in the responses

1 to submissions is presented in appendix 1 of this  
2 statement. Many of the issues raised in the various  
3 submissions have been addressed comprehensively in the  
4 Shannon LNG terminal Environmental Impact Statement  
5 (see footnotes for references to the relevant sections  
6 of the EIS volumes). The following response elaborate  
7 on the information already contained within the four  
8 volumes of the EIS.

12: 15

9  
10 **Submissions**, just a list of submissions. In a number  
11 of submissions concerns were raised relating to the  
12 following:

12: 15

- 13  
14 1. Potential ecological impacts of seawater  
15 chlorination
- 16 2. Potential ecological impacts of seawater  
17 temperature changes. Often the two are stated  
18 together and they are linked.
- 19 3. Fears of effects on fisheries/marine life,  
20 entrainment of fish due to potential mortality of  
21 organisms entering vaporisers.
- 22 4. Potential impacts on fishing (including Atlantic  
23 salmon and shellfish (including oysters)).
- 24 5. Potential pollution from the plant. Just a  
25 general submission.
- 26 6. Potential breach of the Habitats Directive - SAC  
27 important habitats and species.
- 28 7. Potential impacts on dolphins (covered by Dr. Simon  
29 Berrow)

12: 15

12: 15

12: 15



- 1 8. Potential impacts of shipping on marine ecology.  
2 9. Potential impact of jetty construction on marine  
3 ecology.

4  
5 The responses to these issues are presented below. 12:16

6  
7 4.1 on page 12 - Potential ecological impacts of  
8 seawater chlorination. This issue was raised in  
9 submissions from Kathleen Kelly - "the marine life will  
10 be severely disrupted by the pumping, cooling and 12:16  
11 chlorination of seawater".

12 **INSPECTOR:** Mr. Creaven, I think if you  
13 just do it under the  
14 headings, I hadn't realised it was going to be that  
15 lengthy. 12:16

16 **MR. CREAVER:** Okay, I will skip page 13  
17 then.

18 **INSPECTOR:** Well, if you can just read  
19 out "potential ecological  
20 impacts of seawater chlorination" and then go on to the 12:16  
21 response.

22 **MR. CREAVER:** Okay. I will move on to  
23 the response on page 15.

24 The maximum levels of chlorine are experienced in the  
25 immediate vicinity of the outfall, as expected. 12:16

26 Concentrations of residual chlorine have been shown to  
27 fall within Irish EPA limits outside a 15m radius of  
28 the outfall location. This is an acceptable zone of  
29 impact given the low sensitivity of the subtidal

1 species and communities found in the areas surveyed.

2  
3 The chlorine concentration figures generated during the  
4 modelling portion of the EIS represent concentrations  
5 experienced within a small mixing zone. Dilution will, 12: 17  
6 of course, continue beyond this distance. Chlorine  
7 levels will fall very rapidly below detection limits.  
8 Separate 2D and 3D modelling reports were compiled by  
9 my colleague, Dr. Rory Doyle, the results of which were  
10 discussed with me to assist me in assessing the 12: 17  
11 potential impacts of the proposed development. This  
12 modelling work included the simultaneous simulation of  
13 plumes from Money Point and Tarbert power stations, the  
14 proposed LNG facility and a ship docked at the proposed  
15 jetty to allow the potential for interaction for these 12: 17  
16 numerous existing and would be plumes to be  
17 investigated and the potential for impacts on the  
18 receiving environment to be assessed.

19  
20 To put the levels of chlorine being considered for the 12: 18  
21 proposed LNG project into perspective, WHO guidelines  
22 on drinking water indicate that chlorine should not  
23 exceed 0.7mg/l in water treated water, whereas the  
24 figure at the outfall for the proposed LNG facility is  
25 0.2mg/l (sodium hypochlorite (the same biocide proposed 12: 18  
26 for use in the Shannon LNG facility) is routinely added  
27 to drinking water). The maximum recommended level of  
28 residual chlorine in drinking water is three times  
29 greater than that at the proposed outfall and several

1 orders of magnitude greater than the levels predicted  
2 by the model at just 15m from the outfall. In fact, it  
3 is recommended that a minimum residual chlorine level  
4 of 0.2 to 0.3mg/l is actively maintained in drinking  
5 water distribution networks to ensure cleanliness of 12: 18  
6 supply (to further illustrate levels, swimming pool  
7 water would typically contain 1 to 3mg/l residual  
8 chlorine or approximately 10 times the recommended  
9 drinking water levels). The drinking water coming out  
10 of your tap at home may potentially be higher in 12: 19  
11 residual chlorine than the cool chlorinated seawater  
12 exiting the proposed LNG facility.

13  
14 It is helpful also to consider the purpose of the  
15 proposed chlorination when putting the levels of 12: 19  
16 chlorine into context. The proposed use of chlorine is  
17 not to actively kill living organisms in the entrained  
18 water (the proposed levels are far too low to achieve  
19 this effectively) but to discourage the settlement and  
20 growth of living organisms on the walls of the heat 12: 19  
21 exchangers. In the absence of chlorine this process  
22 would involve the development of an initial microbial  
23 biofilm, subsequent settlement of post-larval epifauna  
24 and the growth of these organisms. A well developed  
25 epifaunal turf on the internal walls of the heat 12: 19  
26 exchangers would have obvious implications for heat  
27 exchange, reducing both water flow and heat transfer  
28 capacity.

1 In order to discourage settlement the post-larval  
2 animals, a relatively small amount of chlorine (when  
3 compared with drinking water) is continuously added to  
4 water entrained into the system. Larval mussel stages,  
5 for example, are sensitive to residual chlorine at a 12: 20  
6 threshold level of 0.1mg/l (the proposed level for the  
7 LNG project is 0.2mg/l). The presence of this  
8 concentration of residual chlorine will cause valve  
9 (shell) closure - the mussels will be unable to feed  
10 and grow. It will not necessarily kill the animal. In 12: 20  
11 fact, a laboratory study has shown that mussels  
12 submitted to intermittent chlorination at a level of  
13 1mg/l (at the lower end of the swimming pool chlorine  
14 levels or approximately 10 times the proposed outfall  
15 for the LNG project - before dilution by the receiving 12: 20  
16 water of the Shannon Estuary has begun) showed very  
17 little or no mortality.

18  
19 Just some details on the exposure of time. A juvenile  
20 mussel attempting to settle in such an environment will 12: 20  
21 find it unsuitable due to the chlorine it can detect in  
22 the water and will detach itself from the substrate and  
23 attempt subsequent attachment elsewhere. This is a  
24 common strategy employed by sessile marine invertebrate  
25 fauna with planktonic larval stages when reaching 12: 21  
26 settlement size - selection of a suitable place in  
27 which to grow, potential rejection of numerous  
28 unsuitable sites before a final location is selected.  
29 Due to the rapid dilution demonstrated in the modelling

1 portion of this study, the level of free chlorine at a  
2 distance of only 15m from the outfall is already  
3 several orders of magnitude below the threshold level.  
4 Dilution continues to undetectable levels beyond this  
5 distance.

12: 21

6  
7 When the actual level of residual chlorine proposed for  
8 input is considered and the mixing capacity of the  
9 receiving waters is taken into account, it becomes  
10 clear that beyond a distance of 15m from the outfall  
11 location impact due to chlorination will be negligible,  
12 if at all detectable.

12: 21

13  
14 I will just move onto submission 2 - potential  
15 ecological impacts of sea water temperature changes.  
16 This was raised in submissions detailed on page 18,  
17 page 19 and the top of page 20. I will just start on  
18 the response section on page 20.

12: 21

19  
20 Response: The maximum influence of the cold water  
21 plume will be seen at slack high water where the  
22 temperature signature of the plume would be measurable  
23 within a zone of approximately 50m radius (the  
24 worst-case scenario modelled by Dr. Rory Doyle). At a  
25 distance of 300m from the outfall location under this  
26 worst-case scenario the presence of the thermal plume  
27 will be almost undetectable at 0.1°C or less. The  
28 natural temperatures experienced in the waters of the  
29 Shannon Estuary range between 6° in winter and

12: 22

12: 22

1 approximately 13° in summer. At varying stages of ebb  
2 and flood of the tide the temperature effects of the  
3 model plume are substantially less than seen at slack  
4 high water due to greater mixing with flowing water in  
5 the estuary channel. There will be no 'build-up' of 12: 22  
6 cold water in this area, as has been suggested. There  
7 is a net outward flow at this site. The water in the  
8 estuary is constantly being replaced by tidal mixing,  
9 combined with outflow from the largest river in the  
10 country. 12: 23

11  
12 In a previous study of plankton in the vicinity of the  
13 ESB Money Point power generation station outfall by  
14 Aqua-Fact it was shown that the thermal plume is  
15 diluted so rapidly within a short distance from the 12: 23  
16 outfall that no significant effect was seen on fish  
17 eggs or larvae. In fact, variations in salinity and  
18 the very high levels of suspended solids in the Shannon  
19 were highlighted as having a potentially greater  
20 negative impact on the eggs and larvae than the thermal 12: 23  
21 plume. (Note that the volumes of heated water produced  
22 by Money Point are several times the volume produced by  
23 the proposed LNG facility)

24  
25 Langford and Fry summarised the effects of temperature 12: 23  
26 on organisms into four categories as follows:

- 27  
28 - Lethal effects - temperatures which kill an organism  
29 prematurely

- 1 - Controlling effects - temperatures which influence
- 2 processes such as growth, feeding and reproduction
- 3 - Directive effects - temperatures which induce
- 4 activity or movement associated with temperature
- 5 selection 12: 23
- 6 - Indirect effects - temperatures which cause changes
- 7 in water chemistry or in the behaviour of other
- 8 organisms.
- 9

10 Langford pointed out that experimental data 12: 23  
11 illustrating the direct and indirect effects of  
12 temperature are abundant but that direct field  
13 observations of the effects of temperature are usually  
14 inconclusive because of modifying environmental factors  
15 and the complex interrelationships of organisms. 12: 24  
16 Increases in temperature are of greatest concern to  
17 aquatic life.

18  
19 The primary modes of damage from thermal plumes are due  
20 to temperature shock and oxygen stress. Temperature 12: 24  
21 shock comes about through exposure of animals to sudden  
22 changes in temperature of several degrees. Due to fact  
23 that rapid dilution of the thermal plume (as already  
24 shown by the model) will quickly return the temperature  
25 of the plume close to ambient temperature shock effects 12: 24  
26 due to the plume are quite simply not an issue. The  
27 amount of dissolved oxygen decreases with increasing  
28 temperatures and increases at lower temperatures.  
29 Dissolved oxygen is often a limiting factor in species

1 distributions. Due to the fact that the proposed  
2 emitted water will be at a lower temperature than the  
3 receiving water body, with increased capacity for  
4 dissolved oxygen content, no oxygen stress effects will  
5 be seen. Many ecological effects quoted in the 12: 24  
6 literature have actually occurred in thermal canals  
7 (artificially constructed water discharge channels) and  
8 not in the aquatic environment outside these canals.  
9 There is little evidence to support the hypothesis that  
10 migrating salmonids may be adversely effected by 12: 25  
11 thermal discharges.

12  
13 The potential for ecological change in the Shannon  
14 Estuary due to the emission of a cooled seawater plume  
15 is considered negligible due to the following: 12: 25  
16

- 17 a. The very high dilution capacity of the receiving  
18 waters (see the results of the model EIS section)  
19
- 20 b. The relatively low volumes of water proposed for 12: 25  
21 use (approximately one sixth of the volume used by  
22 the Money Point power station)
- 23 c. Due to the low sensitivity of habitats in the  
24 receiving environment (see also section 4.6 below)

25 12: 25  
26 Moving on to Issue 4.3 - Fears of Effects on Fisheries/  
27 Marine Life/Entrainment of fish due to potential  
28 mortality of organisms entering vaporisers:

29 This issue was raised in submissions from the following



1 on page 22 and page 23. The response begins on the  
2 bottom of page 23.

3  
4 Response: The purpose of the screening system is to  
5 reduce or eliminate entrainment of foreign material,  
6 including fish and marine life, into the heat exchange  
7 system. It is in the interest of the correct  
8 functioning of the proposed Shannon LNG facility heat  
9 exchange system to minimise the amount of material  
10 entrained into the system.

12: 26

12: 26

11  
12 Numerous field and laboratory studies and assessments  
13 of power plant impacts conducted on freshwater,  
14 estuarine and marine systems over more than three  
15 decades have indicated that fish, and to a lesser  
16 extent nektonic macroinvertebrates, are the biological  
17 communities particularly susceptible to entrainment and  
18 impingement. Most other community components of a  
19 water body have either a low exposure to intake system  
20 structures (for example benthic infauna and epifauna,  
21 vascular aquatic plants), or low sensitivity to effects  
22 from exposure (e.g. phytoplankton and zooplankton)

12: 26

12: 26

23  
24 Entrainment of fish into the system will not be an  
25 issue for fish greater than 3mm cross sectional  
26 diameter. The majority of resident estuarine fish will  
27 attach eggs to sheltered seaweed, shell or rock  
28 surfaces, thus greatly reducing the potential for  
29 entrainment of eggs from these species. The volume of

12: 27

1 water to be used for cooling of the proposed plant is a  
2 tiny fraction of the total estuary volume - further  
3 there is a net seaward flow due to the continual  
4 massive input from the Shannon river.

12: 27

5  
6 It is often assumed that most aquatic organisms  
7 entrained and passed through condensers are killed and  
8 subsequently consumed by predators inhabiting receiving  
9 waters. In this sense, entrained animals are not lost  
10 to the energy system and often provide essential food 12: 27  
11 for predators inhabiting receiving waters. In  
12 freshwaters it has been repeatedly demonstrated that  
13 the effect of entrainment on the overall populations of  
14 organisms is minimal and may account for a very small  
15 percentage of the total population. 12: 27

16  
17 Mayhew *et al* carried out a comparative review of  
18 entrainment studies at power plants in estuarine  
19 environments. Studies were conducted at many power  
20 plants to quantify the number of entrained organisms. 12: 28  
21 Early studies focussed on simple abundance and assumed  
22 total mortality. By the late 1970's and 1980's  
23 advances in sampling technology demonstrated that many  
24 entrained organisms survived the temperature shock and  
25 chlorination conditions characteristic of such systems. 12: 28  
26 Continuing refinement of sampling techniques revealed  
27 impressive survival statistics for many species  
28 (greater than 90% in some cases) with concomitant  
29 reductions in perceived impacts. Mayhew *et al* review

1 state-of-the-art sampling methods and results of field  
2 entrainment studies at seven power plants. This review  
3 demonstrates that high entrainment survival of a  
4 variety of aquatic organisms does, in fact, occur and  
5 specifies the plant operating and environmental  
6 conditions under which survival occurs. 12: 28

7  
8 LaJeone and Monzingo studied the effects of the  
9 operation of an open cycle cooling circuit for a power  
10 station on the upper Mississippi River using river 12: 28  
11 water at a rate of 64.29 m<sup>3</sup> per second on the rivers  
12 highly valued and diverse fishery (compare abstraction  
13 figure of 64.29 with a maximum of 5.5 m<sup>3</sup> per second for  
14 the proposed LNG facility). After 14 years of  
15 monitoring under an open cycle operation there have 12: 29  
16 been no measurable changes in the local fishery. Was  
17 concluded that naturally occurring environmental  
18 conditions have more profound influences on this  
19 fishery than the operation of a large generation  
20 facility. 12: 29

21  
22 It is often assume that a fish egg or larva that become  
23 entrained by an open circuit heat exchange system and  
24 is subsequently killed equates to the entrainment and  
25 death of an adult member of a population. This is not 12: 29  
26 the case. Due to the fact that it may take many  
27 thousands of eggs to contribute a single adult to a  
28 population, fish captured at any stage of their life  
29 must be compared on an equal footing with fish of

1 commercial size or reproductive age. Even seemingly  
2 large numbers of egg and larvae may therefore represent  
3 only a single adult animal in a population.

4  
5 The intakes at the ESB Money Point and Tarbert power 12: 30  
6 generating stations use 50m mesh size (as proposed to  
7 the 3mm mesh size proposed for the Shannon LNG  
8 intakes). Studies on the entrainment of fish and  
9 invertebrates were carried out concentrating on salmon  
10 smolts during the months of March, April and May. This 12: 30  
11 work was carried out by the Central Fisheries Board. I  
12 am not sure if I reference it here. It was noted that  
13 very low numbers of salmon smolts were entrained into  
14 the power station intakes during the study; therefore  
15 the use of finer screens at these power stations in the 12: 30  
16 Shannon Estuary was found to be unnecessary for the  
17 protection of fish stocks. That was in a personal  
18 communication from Paddy Gargan at the Central  
19 Fisheries Board. Based on the results of these studies  
20 it is anticipated that the numbers of adult fish and 12: 30  
21 macrocrustaceans killed on the filter screens of the  
22 water intakes of the proposed LNG facility (which will  
23 abstract approximately 1/5 of the volume abstracted at  
24 the Money Point station) will therefore be negligible.

25 12: 30  
26 Fears of effects on fisheries and marine life due to  
27 the mortality rate of organisms entering the heat  
28 exchange system of the proposed LNG facility are  
29 unfounded due to the following:

- 1
- 2 a. The very high volume and throughput of the receiving
- 3 estuary (see results of the model EIS section)
- 4 b. The relatively low volumes of water proposed for use
- 5 c. The result of investigations by the Central 12: 31
- 6 Fisheries Board carried out on behalf of the ESB
- 7 (reporting to the ESB and the DCMNR) showing that
- 8 the numbers of entrained fish and invertebrates was
- 9 negligible and did not warrant the use of screens
- 10 finer than the 50mm mesh. 12: 31
- 11 d. The low sensitivity of species in the receiving
- 12 environment (see also section 4.6 which follows)
- 13

14 Moving on to section 4.4 on page 26 - Potential impacts

15 on fishing (including Atlantic salmon) and shellfish 12: 31

16 (including oysters). This issue was raised in

17 submissions from the following people on page 26 and

18 page 27. The response beings at the final paragraph of

19 page 27.

20

21 **Response:** Shannon LNG expect that any of the

22 observations made by the Shannon Regional Fisheries

23 Board will be covered under the foreshore licence.

24 Adult Atlantic salmon possess adequate swimming ability

25 to allow them to escape impingement on intake screens. 12: 32

26 They are capable of successfully reaching the sources

27 of some of the fastest flowing rivers on the planet.

28 Salmonid spawning habitat anywhere near the LNG

29 facility, therefore the risks of egg and larvae

1 mortality to Atlantic Salmon from the proposed  
2 development can be considered as nil. Salmon will only  
3 return to the sea upon smol tification, by which time  
4 they are of sufficient size and swimming ability to  
5 escape impingement/entrainment at the proposed LNG  
6 facility intake. 12: 32

7  
8 Ruggles states that "experience has shown that it takes  
9 about 2m<sup>2</sup> of screen area for each cubic metre per  
10 second of flow for screening Atlantic salmon smol ts. 12: 33

11 At Money Point generating station on the River Shannon  
12 estuary a water intake philosophy of 0.3m/sec applies.  
13 The velocity of water at the intake of cooling water  
14 systems is generally at or below 0.3m/sec, in which  
15 case juvenile migratory salmonids are able to swim away 12: 33  
16 from intakes and continue downstream migration.

17  
18 While the impingement of salmon on screens at power  
19 station water intakes is the main concern of many  
20 workers, it is noteworthy that the significance of 12: 33  
21 impingement at estuarine sites in Britain and Europe  
22 for commercially important marine species has been  
23 found to be trivial in comparison with commercial  
24 landings.

25 12: 33  
26 Due to the rapid diluting effects of the receiving  
27 water body (plume practically undetectable - either  
28 thermally or chemically - at a distance of 300m from  
29 the outfall), the net seaward flow due to input from

1 the Shannon, the relatively low concentrations of  
2 residual chlorine in the emitted water (0.2mg/l as  
3 opposed to 0.5mg/l for Money Point power station, or  
4 greater even for tap water) and the relatively low  
5 proposed volume of water to be emitted (max 5.5 cubic 12: 34  
6 metres per second as opposed to 31.9 m<sup>3</sup> per second for  
7 Money Point) the potential effects to aquaculture and  
8 Atlantic salmon in the estuary (including oyster  
9 cultivation in nearby Ballylongford Bay) are estimated  
10 to be negligible. (See also comments on sensitivity of 12: 34  
11 bivalve species to chlorine levels in Response 1)  
12

13 Moving on to submission 4.5 - potential pollution from  
14 the plant. This was kind of a general reference to  
15 pollution which was raised in submissions from the 12: 34  
16 following. The response begins in the middle of page  
17 29.  
18

19 **Response:** Concerns on the effects of cooled  
20 chlorinated water to be produced by the plant have been 12: 34  
21 addressed in responses 1 and 2 above. Post treatment  
22 sanitary effluent and site storm water run-off will  
23 also be discharged to the estuary. Shannon LNG will  
24 ensure that adequate measures (as detail in the EIS)  
25 will be taken in dealing with these discharges to 12: 35  
26 minimise contaminants. Shannon LNG agree with the  
27 conditions recommended by the Department of the  
28 Environment, Heritage and Local Government (such as  
29 recommended consultations with the NPWS on removal and

1 preventing of fouling).

2  
3 Submission 4.6 - Potential breach of Habitats Directive  
4 - cSAC important habitats and species. This issue was  
5 raised in submissions from the following on page 29 and 12: 35  
6 on the top of page 30. Response begins in the lower  
7 half of page 30.

8  
9 **Response:** The Shannon Estuary itself is classed as an  
10 Annex 1 habitat under the Habitats Directive. It 12: 35  
11 favourable conservation status is not threatened by the  
12 proposed development for the following reasons:

- 13
- 14 - Detailed construction techniques are specified in  
15 the EIS that will help keep potential impacts from 12: 35  
16 the construction phase to an absolute minimum.
  - 17 - During the operational phase the proposed levels of  
18 chlorine and temperature changes are too small to be  
19 of consequence to this extensive habitat beyond a  
20 distance of 15m from the outfall (falling, as they 12: 35  
21 do, within EPA limits).

22  
23 In the Habitats Directive priority habitat types are  
24 identified as habitats in danger of disappearance.  
25 Estuaries are not listed as a priority habitat. No 12: 36  
26 priority habitat types are present in the intertidal  
27 and subtidal areas surveyed.

28  
29 None of the additional Annex 1 habitats recorded in the



1 Shannon Estuary occur within the intertidal or subtidal  
2 areas of the proposed site. The integrity of the  
3 subtidal and intertidal habitats will not be threatened  
4 by the proposed LNG development. The favourable  
5 conservation status of the Annex II marine fish species 12: 36  
6 present in the Shannon Estuary (sea lamprey, brook  
7 lamprey, river lamprey, twaite shad and Atlantic  
8 salmon) will not be threatened by the proposed  
9 development for the following reasons:

10  
11 a. The proposed levels of chlorine and temperature 12: 36  
12 changes are too small to be of consequence to these  
13 species beyond a distance of 15m from the outfall.  
14

15 b. Lampreys do not spawn in the marine environment, 12: 37  
16 they spawn in clean gravel beds in streams, produce  
17 larvae that burrow into mud in areas of still water  
18 spending up to eight years feeding before  
19 metamorphosing and migrating to their adult habitats by  
20 which time they are of sufficient size to be unaffected 12: 37  
21 by the proposed facility.  
22

23 c. Twaite shad is not thought to spawn anywhere within  
24 the proposed site, nor within the Shannon Estuary.  
25

26 d. Atlantic salmon do not spawn or undergo larval 12: 37  
27 development in the marine environment (section 4.4 of  
28 this statement as well)  
29

1 Two additional fish of note listed in the Irish Red  
2 Data Book also occur, namely, smelt, which have been  
3 observed spawning in the Shannon. Their main breeding  
4 grounds are in the Shannon, upstream of Limerick to the  
5 Ardnacrusha Power Station Tailrace Canal) and Pollan 12: 37  
6 (which do not spawn in the Shannon). These are not  
7 listed in Annex II of the EU Habitats Directive and,  
8 therefore, are not afforded specific protection under  
9 this legislation. Neither are they afforded protection  
10 under the Wildlife Act, 2001. 12: 37

11  
12 Ships must comply with EU Directives on waste  
13 management, pollution control, loading and unloading of  
14 cargos, together with all governing Acts, bye-laws and  
15 instructions from the relevant Harbour Master. An 12: 38  
16 increase of 5 to 15% in an already busy shipping  
17 channel will not threaten the integrity of the habitats  
18 present nor impact upon the favourable conservation  
19 status of the protected species occurring within the  
20 Shannon Estuary cSAC. 12: 38

21  
22 Due to (among other factors) the nature of the proposed  
23 physical and chemical characteristics of the proposed  
24 water output from the planned LNG facility and the  
25 diluting capacity of the receiving water body it is 12: 38  
26 estimated that impact of the proposed development to  
27 intertidal and subtidal habitats and species in the  
28 area will be negligible or undetectable.  
29

1 Based on the results of detailed survey and analysis  
2 work, we are of the opinion that the proposed  
3 development will not constitute a threat to the  
4 favourable conservation status of the non-priority  
5 habitats present or to the protected species in the 12: 38  
6 Shannon Estuary and therefore will not constitute a  
7 breach of the Habitats Directive.

8  
9 Sub 4.7 - Potential Impact on Dolphins. This will be  
10 covered by Dr. Simon Berrow. 12: 39

11  
12 Submission 4.8 - potential impact of shipping on marine  
13 ecology. This has been raised in submissions from the  
14 following. Then on the top of page 33. The response  
15 begins at the bottom of page 33. 12: 39

16  
17 **Response:** The issue of impacts on shipping on  
18 cetaceans is dealt with by Dr. Simon Berrow of the  
19 Shannon Dolphin and Wildlife Foundation. LNG ships  
20 arriving in the estuary will be in the loading 12: 39  
21 condition, they will not discharge any ballast water.  
22 There will therefore be no potential of exotics through  
23 ballasting or cargo operations. Ship hulls will be  
24 coated with tin-free-anti-fouling paints to prevent the  
25 attachment or growth of marine organisms. There will 12: 40  
26 be minimum potential for the introduction of foreign or  
27 exotic species due to the presence of ships hulls in  
28 the Shannon Estuary.

1 An increase of 5% to 15% in an already busy shipping  
2 channel will not adversely affect the organisms in this  
3 area that habituated to the presence of, and  
4 intermittent disturbance caused by shipping traffic.  
5 Ships must comply with EU Directives on waste 12: 40  
6 management, pollution control, loading and unloading of  
7 cargos, together with all governing Acts, bye-laws and  
8 instructions from the relevant Harbour Master.

9  
10 Moving on to submission 4.9 - Potential Impact of Jetty 12: 40  
11 Construction on Marine Ecology. This issue was raised  
12 in submission from the following people on page 34.  
13 The response begins beneath that, just at the lower end  
14 of page 34.

15 12: 40  
16 **Response:** The proposed construction methodology is  
17 covered comprehensively in the Shannon LNG terminal EIS  
18 text. Piles for the jetty foundation will be drilled  
19 and socketed into the rock. Due to the fact that  
20 spoils from the drilling operation will be conveyed to 12: 40  
21 the surface by a reverse circulation through the  
22 drill -- stem and contained within designated scows or  
23 other vessels, the potential impacts from this  
24 operation on marine ecology will be kept to an absolute  
25 minimum.

26  
27 The dedication of Shannon LNG to the minimisation of  
28 detrimental environmental effects during the  
29 construction period is clearly detailed in the EIS

1 text.

2  
3 I am of the view that every reasonable care and  
4 precaution relating to the construction phase  
5 (including the requirement that "the construction  
6 contractor will be required to demonstrate that working  
7 practices and construction methods are appropriate to  
8 ensure that appropriate measures will be in place to  
9 prevent construction materials and equipment from  
10 entering the marine environment") and its potential  
11 impact on marine ecology has been set out in the EIS  
12 prepared by Shannon LNG.

13  
14 Conclusion:

15 5.1 - Chlorine: When the actual level of residual  
16 chlorine proposed for input is considered and the  
17 mixing capacity of the receiving waters is taken into  
18 account, it becomes clear that beyond a distance of 15m  
19 from the outfall location, impact due to chlorination  
20 will be negligible, if at all detectable.

21  
22  
23 5.2 - Temperature: The potential for ecological change  
24 in the Shannon Estuary due to the emission of a cooled  
25 seawater plume is considered negligible due to the very 12:42  
26 high dilution capacity of the receiving waters, the  
27 relatively low volumes of water proposed for use and  
28 the low sensitivity of habitats in the receiving  
29 environment.

1  
2 5.3 - Fisheries and Marine Life: Fears of effects on  
3 fisheries and marine life due to the mortality rate of  
4 organisms entering the heat exchange system of the  
5 proposed LNG facility are unfounded due to the very 12: 42  
6 high volume and throughput of the receiving estuary,  
7 the relatively low volumes of water proposed for use  
8 and the low sensitivity of species in the receiving  
9 environment.

10  
11 5.4 - Fishing and Aquaculture: The potential effects  
12 to aquaculture and Atlantic salmon in the estuary  
13 (including oyster cultivation in nearby Ballylongford  
14 Bay) are estimated to be negligible. There are no  
15 cases where the population of a fish species has been 12: 43  
16 shown to be significantly depleted by cooling water  
17 systems (that generally result in much greater  
18 temperature differentials than observed), either by  
19 impingement, entrainment or thermal discharge  
20 mortalities. The results of numerous studies have  
21 shown that early fears of a wide scale ecological  
22 damage arising from discharge of thermal effluent have  
23 proved to be unfounded.

24  
25 5.5 - Potential breach of the Habitats Directive:  
26 Based on the results of detailed survey and analysis  
27 work it is clear that the proposed development will not  
28 constitute a threat to the favourable conservation  
29 status of the non-priority habitats present or to the

1 protected species in the Shannon Estuary and,  
2 therefore, will not constitute a breach of the Habitats  
3 Directive.

4  
5 5.6 - Potential Impact of Shipping on Marine Ecology:  
6 An increase of 5% to 15% in and already busy shipping  
7 channel will not adversely affect the organisms in this  
8 area that are habituated to the presence of, and  
9 intermittent disturbance caused by, shipping traffic.  
10 Ships must comply with EU Directives on Waste  
11 Management, Pollution Control, Loading and unloading  
12 cargoes, together with all governing Acts, Bye-Laws and  
13 instructions from the relevant Harbour Master.

14  
15 5.6 - Potential Impacts of Jetty Construction on Marine  
16 Ecology: I am of the view that every reasonable care  
17 and precaution related to the construction phase and  
18 its potential impact on marine ecology has been  
19 detailed in the EIS prepared by Shannon LNG.

20 12: 44

21 Accordingly, I am of the view that the potential  
22 impacts of the proposed LNG terminal development in  
23 terms of intertidal and shallow subtidal environment  
24 will be negligible. Thank you.

25 12: 44

26 **END OF SUBMISSION**

27  
28 **INSPECTOR:** Thank you Mr. Creaven.  
29 Okay, do you want to

1 present your next speaker.

2 **MR. O'NEILL:** Yes, sir. My next speaker  
3 is our TV star Dr. Berrow.

4 **DR. BERROW:** Good afternoon, Mr.

5 Inspector, Ladies and 12: 44

6 gentlemen. My name is Dr. Simon Berrow and I hold a  
7 Bachelor of Science Honours Degree in Applied Ecology  
8 from Liverpool Polytechnic, graduating in 1987, and a  
9 post graduate Doctor of Philosophy in Zoology from  
10 University College, Cork, submitted in 1991. 12: 45

11  
12 I am a self-employed biologist. One of my roles is  
13 coordinator of the Irish Whale and Dolphin Group and  
14 also Project Manager of the Shannon Dolphin and  
15 Wildlife Foundation. I also carry out some additional 12: 45

16 consultancy work. My main areas of expertise are in  
17 cetaceans (whales, dolphins and porpoise) and birds. I  
18 have been working on cetaceans in Irish waters since  
19 1989. I initiated the Shannon Dolphin Project in 1993  
20 and have published extensively on cetaceans in the 12: 45

21 scientific literature. I have been involved in the  
22 compilation of a number of EIS for a range of marine  
23 developments, including the recent crossing of the  
24 Shannon Estuary by the Bord Gáis pipeline in 2001.  
25 12: 45

26 This work was carried out for Shannon LNG under the  
27 auspices of the Shannon Dolphin and Wildlife  
28 Foundation. The Foundation was established in March  
29 2000 to development and provide educational awareness



1 and conservation of the Shannon dolphins and other  
2 wildlife in the region. The Foundation has grown into  
3 a credible influential group which has had an impact on  
4 the conservation awareness of the bottlenose dolphins  
5 in the Shannon estuary. We carry out annual monitoring 12: 46  
6 of dolphin tour boats on behalf of NPWA, we monitor  
7 compliance with Disposal At Sea Licences for Shannon  
8 Foynes Port Company, the ESB and other clients. We  
9 have also carried out a number of research projects on  
10 the dolphins, including assessing the level of 12: 46  
11 persistent pollutants, ongoing research on acoustic  
12 behaviour and the development of acoustic monitoring  
13 techniques.

14  
15 The purpose of my evidence is to provide an overview of 12: 46  
16 the impact assessment of the proposed development on  
17 bottlenose dolphins in the Shannon Estuary.

18  
19 Section 2: The Foundation were retained the Shannon  
20 LNG to carry out an impact assessment of the proposed 12: 46  
21 development on bottlenose dolphins, including a 12  
22 month baseline monitoring in line with international  
23 best practice. The Foundation produced the section of  
24 the EIS for the proposed LNG terminal dealing with the  
25 bottlenose dolphins within section 11 of the marine and 12: 47  
26 estuarine ecology. Obviously, I worked closely with  
27 Rory and Stiofán on that.

28  
29 I conducted the following phases of assessment as part

1 of the EIS. We carried out a review of baseline  
2 information on dolphins at the site. We carried out 12  
3 month acoustic monitoring of the site for the  
4 bottlenose dolphins. We carried out an assessment of  
5 the impact of the proposed development during the 12: 47  
6 construction and operation phase of a development and  
7 we made recommendations on the mitigation measures  
8 necessary to avoid, reduce or remedy the adverse  
9 environmental effects identified.

10  
11 Just to briefly explain some of the methodology. I  
12 won't read everything that was under there. Very  
13 little was known about the use of the site by  
14 bottlenose dolphins. In order to obtain high quality  
15 data on the use of the area of the proposed jetties 12: 47  
16 acoustic devices for deployed. Acoustic monitoring can  
17 provide data throughout the day and night in all sea  
18 conditions, which cannot be achieved by other  
19 techniques, especially visual. The acoustic monitoring  
20 was carried out between June 2006 and June 2007 using 12: 48  
21 gear called TPODS.

22  
23 A TPOD is a self-contained computer and hydrophone  
24 which can log the echolocation clicks of dolphins.  
25 They are recognised as powerful tools for determining 12: 48  
26 habitat use in environmental impact assessments. The  
27 detection distances of TPODS for bottlenose dolphins in  
28 the Shannon Estuary is estimated at a maximum of 1240m  
29 (just over a kilometre) and it is estimated that 82% of

1 dolphins within 500m of the pods are detected. The  
2 ecolocation clicks of dolphins are very directional so  
3 if you are pointing straight at it you are going to  
4 detect it from a great distance. Whereas, if you are  
5 moving away, as in my voice, you are less likely to  
6 record the clicks, hence the range in the detection  
7 distances.

12: 48

8  
9 This study was the longest time series of data  
10 collected using this equipment in Ireland. In  
11 addition, this study provided new data from a  
12 previously unstudied site in the estuary and the first  
13 acoustic data collected in the Shannon Estuary over a  
14 winter. Despite the loss of some gear, which was  
15 immediately replaced, this was the most efficient  
16 method available to collect high quality data on the  
17 dolphin habitat use. All these findings are documented  
18 in section 11 volume 2 of the EIS. I will just mention  
19 a couple of the main findings just to refresh people's  
20 memories.

12: 48

12: 49

12: 49

21  
22 The dolphins were detected in all months except July  
23 2006 and May 2007. However, the detection rate per day  
24 and the duration of detections declined throughout the  
25 autumn and winter, before showing a slight increase in  
26 spring and early summer. This suggests seasonal  
27 difference in the use of the site, with most use  
28 occurring during the summer. The duration of  
29 encounters was very low, with a mode of one minute at

12: 49

1 both monitoring sites and a mean of 4 minutes. This  
2 suggests that the dolphins only use the site for short  
3 periods, probably while they are passing through the  
4 site. Dolphins rarely used Ballylongford Bay. There  
5 was no evidence that the site was used as a foraging  
6 area for dolphins. 12: 50

7  
8 The potential impacts, I will skip over some of it  
9 because most of it is mentioned in the EIS. Well, all  
10 of it is mentioned in the EIS. I will just go to 4.2.1 12: 50  
11 because we provided extra data on the acoustics and I  
12 hope that I will address a couple of the issues raised  
13 this morning.

14  
15 Before I read 4.2.1, Mr. Inspector, I would just like 12: 50  
16 to remind people about sound. I think my colleague  
17 Colin Doyle covered the description of intensity, how  
18 you record intensity through decibels, what decibels  
19 mean, but I don't think he really explained the  
20 importance of frequencies. Just to give you some idea. 12: 50  
21 We as humans have a sensitivity between 100 hertz and  
22 20 kilohertz. Bottlenose dolphins are sensitive  
23 between 1 kilohertz and 130 kilohertz. So, anything  
24 below 1 kilohertz bottlenose dolphins sensitivities  
25 don't exist. They really can't hear anything below 1 12: 51  
26 kilohertz. But they can hear frequencies at a much,  
27 much higher range than we can. For example, the  
28 recordings you heard on the video there, they were all  
29 recorded within our audible range. So those weren't

1 modified, you can hear clicks and whistles. But when  
2 you are hearing clicks you are only listening to the  
3 bottom, bottom end of the range of the clicks. Most of  
4 it and most of the intensity of it you can't hear, it  
5 is way beyond our range. Obviously, a similar 12: 51  
6 situation involves bat, where you can't really hear.  
7 Women are slightly higher, women can actually get a  
8 higher range. Some women can hear bats quite well,  
9 where most men can't. Most men can't hear a lot of  
10 things. 12: 51

11  
12 If we look at bailing whales, bailing whales are  
13 actually sensitive to much lower frequencies, going  
14 down to 20 or 30 hertz, so a lot of the impact of  
15 marine noise would effect bailing whales more. There 12: 52  
16 are no bailing whales in the Shannon Estuary. Colin  
17 has provided data on the intensity and frequency that  
18 is produced by a range of different activities that  
19 will be carried out during this whole construction and  
20 operation and I just pulled out three which I think are 12: 52  
21 most important.

22  
23 In terms of drilling, this is drilling the piles for  
24 the construction of the jetty, he estimates 100  
25 decibels within 10 to 200Hz. So, within 10 to 200Hz 12: 52  
26 within 50m it is about 100 decibels. Now remember,  
27 dolphins can't really hear anything below 1kHz, or a  
28 1,000Hz is the same thing.  
29

1 Piling will produce sound intensity of 120 to 130  
2 decibels, which is about the limit of what we can  
3 stand. 140 decibels is about our limit in noise. Rock  
4 music is about 120 decibels, some a bit louder. But  
5 piling is 120 or 130 decibels. But, again, it is at 10 12: 53  
6 to 100Hz so it is very low frequency.

7  
8 Blasting, he estimates the residual sound pressure  
9 waves that would go into the Shannon Estuary from land  
10 at 150 to 160 decibels, which is quite loud. But, 12: 53  
11 again, it is between 10 and 100Hz, which is a very low  
12 frequency. That's all within 50m of the site.

13  
14 Sound attenuates with distance and the high frequency  
15 component attenuates faster. That's why low frequency 12: 53  
16 sound travels further and you can tend to hear the low  
17 frequency rumbles over the higher frequency detail. It  
18 is a very complicated, obviously, system and every site  
19 behaves differently depending on the temperature of the  
20 water, the substrate type, so it is hard to generalise 12: 53  
21 about how sound is going to affect.

22  
23 Just to give you some idea of the boats before I go  
24 back into the submission. A tug travelling at around  
25 10 knots is estimated to produce about 160 decibels, 12: 54  
26 which is quite loud, about 630Hz. So we would be able  
27 to hear that. Dolphins couldn't. A zodiac, like you  
28 saw on the video there, we are talking 6.3kHz at a  
29 sound level of 150 decibels. Now, we are most

1 sensitive at 4kHz, which by no coincidence is the same  
2 frequency as our voice. We have evolved to hear our  
3 voice, 4kHz. So, in actual fact the sound of the boat  
4 there at 150 decibels and its 6kHz would be detectable  
5 by dolphins and is quite loud.

12: 54

6  
7 A large ship is estimated at 170 decibels, which again  
8 is quite loud. But the frequency is quite low, 100,  
9 125Hz. Quite a low frequency. Hopefully that quick  
10 lesson in basic marine physics will give a bit of  
11 context to the section I will read out here now. I  
12 think it addresses some of the issues raised.

12: 54

13  
14 I am going back to 4.2.1, Mr. Inspector, on page 6.  
15 The two jetties will be constructed with steel piles.  
16 The preferred construction method is to drill and  
17 socket the piles into position. However, a piling  
18 system consisting of a rotary percussive hammer may be  
19 used if necessary. Drilling and piling may cause local  
20 disturbance to cetaceans (to bottlenose dolphins). The  
21 areas subjected to the sound pressure wave would depend  
22 on the source level. The louder it is the further it  
23 travels. Bottlenose dolphins, as I said, have an  
24 acoustic range of between 1 and 139kHz, with peak  
25 sensitivities of around 20 to 120kHz. We are sensitive  
26 to the 20kHz so their peak sensitivities are beyond what  
27 we hear. General acceptable received levels with  
28 limiting masking -- that's means sound overlapping the  
29 sound they are producing, so, if you like, interfering

12: 55

12: 55

12: 55

1 with them -- is around 150 to 170 decibels.  
2 Received sound into the local marine environment from  
3 drilling (the preferred construction technique) has  
4 been calculated at 100 decibels at 10-200Hz, low  
5 frequency, which is thought to be below detectable 12: 56  
6 levels to dolphins. They are not sensitive to that low  
7 frequency. Received sound into the local marine  
8 environment from piling is going to be loud at 120-130  
9 dB but, again, low frequency at 10-100Hz. Which,  
10 again, is likely to be undetectable by bottlenose 12: 56  
11 dolphins. It is not envisaged that blasting will occur  
12 as part of the construction phase. Received sound  
13 levels into the marine environment from blasting on  
14 land have been calculated at 120-160dB, quite high  
15 intensity, but the frequency is quite low at 10-100Hz. 12: 56  
16 That's all within 50 metres of the blast site. Again,  
17 below detectable levels by dolphins.

18  
19 You are correct that we didn't estimate the intensity  
20 of noise generated by the discharge pipes. But, again 12: 56  
21 from my experience of Money Point and elsewhere, and  
22 they are very low frequency. The other point that was  
23 mentioned from the other Mr. McElligott. It is not  
24 that dolphins like the noise of the ferry, they can't  
25 hear it. If you were on the bow of that ferry, if you 12: 57  
26 were a good enough swimmer to swim that fast you would  
27 be able to hear it, it would be very loud, you would  
28 get out of the way. Dolphins can't hear it, it is  
29 below their detectable levels. So I think that gives



1 us some context and we have to remember what they are  
2 sensi tive to and not impose our own anthropomorphi c  
3 posi ti on.

4 **INSPECTOR:** Sorry Dr. Berrow, can you  
5 give some explanati on as to 12: 57  
6 why they appear to chase ferries and other boats?

7 **DR. BERROW:** Well, if you read the  
8 literature, it is supposed  
9 to be energy saving, that they are riding on the bow  
10 wave of the vessel, it is obviously pushing a huge 12: 57  
11 volume of water ahead of the vessel so that by being  
12 pushed along they are saving energy and that's a to  
13 good ecological technique. But, to be honest, I think  
14 they are just having fun. It is good craic and it can  
15 get quite boring in the Shannon Estuary for a dolphin 12: 58  
16 at times. Sometimes they bow ride my vessel and  
17 something else more exciting will come along and you  
18 feel quite put out.

19  
20 Just returning to the statement. I will skip the other 12: 58  
21 bits because that's all in the Environmental Impact  
22 Assessment. We will go on to Mitigation Measures,  
23 section 5 on page 8 of 16.

24  
25 5.1.1 - The Construction: The procedures for 12: 58  
26 monitoring of the drilling and piling will be agreed  
27 with the Wildlife Service prior to construction. We  
28 recommended that a Marine Mammal Observer (MMO) is used  
29 when this construction is carried out. A recent study

1 by David in 2006 recommends the minimum exclusion zone  
2 during pile driving, which probably won't occur, but if  
3 it does, of 500m and we are recommending an exclusion  
4 zone of 1000m (1km). Mitigation measures occur in the  
5 Shannon Estuary for a range of activities, dredging, 12: 59  
6 dredge disposal and the deployment of rock armour, and  
7 if that was going to carry on again we would require  
8 the use of an MMO to enforce an exclusion zone around  
9 the vessel.

10  
11 The rest is in the EIS so I will skip straight to the  
12 response, 6.2 on page 10.

13  
14 As already outlined, there has been a number of  
15 submissions referred to on the potential impacts of the 12: 59  
16 discharge of chlorinated seawater on the dolphins and  
17 the submissions listed have been read out already. My  
18 response to that, obviously pulling on a lot of the  
19 work that has already been presented by Rory.

20  
21 **Response:** The maximum residual level of sodium  
22 hypochlorite discharged into the estuary will be  
23 0.2mg/l. This concentration dilutes to an  
24 insignificant level outside a 50 metre radius of the  
25 outfall, which we call the mixing zone. It should be 12: 59  
26 remember that dolphins have a very poorly developed  
27 olfactory sense, unlike their acoustic sense, so it is  
28 unlikely they will actually even detect this chlorine  
29 plume. Also, as is already mentioned, the sodium

1 hypochlorite is discharged from Money Point and Tarbert  
2 power stations at higher concentrations and dolphins  
3 still regularly forage at this important foraging site.  
4 So, we would expect the impacts to be negligible.

5 13:00

6 6.2.2, again discharge of cold water plume. I think  
7 really most of that has been covered by Rory and  
8 Stiofán. We don't think there will be any impact on  
9 the flora and fauna. It should be remembered that the  
10 important thing about the Shannon is that dolphins are 13:00  
11 residents, the same animals occur all year round. The  
12 most northerly distributed resident bottlenose dolphins  
13 in Europe, if not in the northern hemisphere, are in  
14 north east Scotland, off the Murray Firth, where the  
15 mean seawater temperature there is some three degrees 13:00  
16 colder than the Shannon Estuary. So, they are not at  
17 the edge of their range, They are tolerant to much  
18 colder water.

19  
20 6.2.3 - impacts of accidents and spillages. Again, I 13:01  
21 think this was covered a lot last week in terms of the  
22 likelihood of a large spillage of LNG. There is  
23 contingency plans put in place which would include  
24 dolphins, of course, consideration of dolphins. In  
25 controlled exposure experiments of dolphins for oil 13:01  
26 spills they have been shown to avoid an oil spill. So,  
27 they can obviously detect that there is something on  
28 the surface and they won't generally surface in a  
29 contaminated area. There is no data on the reaction of

1 dolphins to an LNG spills, there have not been any  
2 large LNG spills to monitor. But dolphins are highly  
3 mobile and are likely to avoid or exit the area  
4 affected.

13:01

5  
6 6.2.4 - Impact of drilling and/or pile driving. One  
7 submission raised this, the Department of Environment.  
8 They have, again, recommended that a 500m exclusion  
9 zone for 20 minutes prior to pile driving. What we are  
10 recommending is much more strict than that, it will be 13:02  
11 a 1000m for one hour, which is consistent with the  
12 National Parks and Wildlife Service Acoustic Guidelines  
13 For Minimising the Impact of Acoustic Surveys on  
14 cetaceans. Again, we will clarify that with the  
15 National Parks and Wildlife Service. 13:02

16  
17 6.2.5 - Impact on potential prey: This was raised by  
18 two submissions, and their removal on the dolphins. I  
19 think really that has been covered fairly extensively  
20 by Stiofán, who estimates there will be no removal of 13:02  
21 fish large enough to be potential prey of bottlenose  
22 dolphins due to the appropriate size of intake screens  
23 and the relative low intake velocity compared to the  
24 prevailing currents. So, with no removal of fish  
25 obviously we wouldn't expect any impact on fish eating 13:02  
26 predators such as dolphins.

27  
28 6.2.6 - Increase of Marine traffic. One submission.  
29 Again, as I have kind of explained, it is predicted

1 that around one vessel a week will be arriving and  
2 departing the terminal in initial operation, increasing  
3 to 125 per annum. A number of tugs will be required.  
4 Currently around 160 vessels movement per annum are  
5 reported by the Shannon Foynes Port Company, thus 100 13: 03  
6 ship movements per annum computes to an increase of  
7 about 5% on ship traffic, up to 15% at full capacity.  
8 There will be no risk of collision between dolphins and  
9 ships. Indeed, as you saw, bottlenose dolphins  
10 regularly bow ride large vessels in the estuary. This 13: 03  
11 will lead to increased noise levels in the estuary but  
12 this will be below 200Hz, which is low frequency and  
13 beyond the detectable levels by bottlenose dolphins.  
14 Therefore, this increased traffic is not thought to be  
15 significant to affect the dolphins in the estuary, 13: 03  
16 which, as you have seen, is already a busy shipping  
17 channel. Dolphins, as they are resident, are  
18 accommodated already to this noise.

19  
20 6.2.7 - impact on tourism was raised. There were two 13: 04  
21 submissions on that. There is no doubt the  
22 restrictions adjacent to the jetty will have a small  
23 direct impact on dolphin watching vessels. The Kilrush  
24 boat would do most of its dolphin watching up river of  
25 Scatterry Island, between Tarbert and Money Point 13: 04  
26 jetties. And, obviously, the presence of a terminal  
27 will have an impact on the land and seascape setting  
28 for water-based tourism. However, the area, which will  
29 become unavailable for dolphin-watching vessels through

1 the enforcement of safe zones, is very small and is not  
2 thought to be significant. The present land and  
3 seascape in the area is already industrialised, with  
4 Money Point and Tarbert dominating the skyline, and yet  
5 this hasn't prevented the development of  
6 dolphin-watching in the area and it is not thought that  
7 the extra presence of an LNG terminal would have any  
8 impact further on that.

13:04

9  
10 There was one general concern about the potential  
11 impact on dolphins which I think we have covered.

13:04

12  
13 In conclusion, if we look at different aspects that  
14 were addressed. We feel there will be a negligible  
15 affect on the discharge of chlorinated seawater,  
16 undetectable outside the 50m mixing zone.

13:05

17  
18 Likewise with the cold water plume, a negligible affect  
19 undetectable outside the 50m mixing zone.

13:05

20  
21 Impact of accidents and spillages: Although very  
22 unlikely, mitigation is available under the Pollution  
23 Contingency Plan, which will take due consideration of  
24 dolphins.

13:05

25  
26 The impacts of piling and driving: We feel that we can  
27 successfully mitigate that through the use of MMOs to  
28 implement an exclusion zone around the construction.

1 Impact on prey items: As no large fish will be removed  
2 from the estuary there will be no concurrent impact on  
3 the dolphins.

4  
5 Impact on marine traffic: It will negligible because 13:05  
6 most of the noise generated is low frequency, which is  
7 below that detectable by bottlenose dolphins. Again,  
8 the impact on tourism would also be negligible.

9  
10 Accordingly, I am of the view that the potential 13:06  
11 impacts of the proposed LNG terminal in terms of  
12 bottlenose dolphins will be minimal in the short-term,  
13 providing mitigation measures are fully implemented and  
14 not significant in the long-term.

15 13:06  
16 **END OF SUBMISSION**

17  
18 INSPECTOR: Thank you, Dr. Berrow. It  
19 is 1:05 at this stage so  
20 maybe we will take a break for lunch and I would ask 13:06  
21 people to be back by 2:05. Thank you everybody.

22  
23 **LUNCHEON ADJOURNMENT**

24  
25  
26  
27  
28  
29

1 THE HEARING RESUMED AFTER THE LUNCHEON ADJOURNMENT AS  
2 FOLLOWS.

3  
4  
5 **INSPECTOR:** Good afternoon everybody, 14:08  
6 if we could take our seats  
7 please. Now, this morning we heard the Applicant's  
8 presentation in relation to the marine component of the  
9 ecology module. I think it would be best if we pressed  
10 on and heard their remaining submissions which 14:09  
11 I understand they are going to be three further  
12 submissions on the other aspects so I am going to call  
13 on the Applicants to introduce their next speaker.

14 **MR. O'NEILL:** Thank you, Sir. The next  
15 speaker is Carl Dixon who 14:09  
16 is going to deal with terrestrial and fresh water  
17 ecology issues.

18  
19 MR. CARL DIXON ADDRESSED THE ORAL HEARING AS FOLLOWS

20 14:09  
21 **MR. DIXON:** My name is Carl Dixon and  
22 I hold a Bachelor of  
23 Science Honours Degree in ecology from University  
24 College Cork. I am a partner in DixonBrosnan  
25 Environmental Consultants Cork which I established with 14:09  
26 Damien Brosnan in 2001. My main areas of expertise are  
27 in terrestrial and freshwater ecology and mammal  
28 surveys. I have been involved in the compilation of a  
29 number of Environmental Impact Statements and ecology



1 surveys for a wide range of developments including  
2 housing developments, quarries, road, pig units,  
3 wastewater discharges and wind farms. Larger projects  
4 include the gas pipeline to the West (Limerick-Clare  
5 section) Tralee Western Ring Road and a proposed 14: 10  
6 bio-ethanol plant at Marino Point, Cork.

7  
8 Prior to setting up DixonBrosnan, I worked as an  
9 independent environmental consultant and planner for  
10 the Rural Environmental Protection Scheme. Prior to 14: 10  
11 this I worked with the Coomhola Salmon Trust providing  
12 consultancy on freshwater issues and developing  
13 educational programmes.

14  
15 DixonBrosnan is a multidisciplinary environmental 14: 10  
16 consultancy which was established in 2001. Our surveys  
17 include terrestrial ecological surveys, mammal surveys,  
18 Environmental Impact Assessment, aquatic surveys and  
19 noise assessment. The purpose of my evidence is to  
20 provide an overview of terrestrial freshwater ecology 14: 10  
21 and fauna.

22  
23 The main issues we covered were: Habitats, birds and  
24 mammals, aquatic survey and a fish assessment.

25 14: 11  
26 Coming to our involvement in the project. We carried  
27 out an initial constraint study to determine areas of  
28 ecological constraint which were factored into the  
29 design of the project at an early stage. Habitats

1 within the site were classified using a classification  
2 scheme outlined in "A Guide to Habitats in Ireland"  
3 (Fossitt, 2000). The habitat map was based on JNCC  
4 methodology on phase 1 habitat surveys. The  
5 classification scheme used to define impacts on 14: 11  
6 habitats was based on a classification scheme developed  
7 by the National Roads Authority.

8  
9 Following consultation with the National Parks and  
10 Wildlife Service and the Shannon Regional Fisheries 14: 11  
11 Board, the requirement for further surveys was  
12 ascertained.

## 13 14 **2.2, Surveys**

15  
16 A number of these specialist surveys were carried out 14: 11  
17 in advance of the EIS with further surveys carried out  
18 in the summer of 2007. In addition to work carried out  
19 by DixonBrosnan, special surveys were also carried out  
20 by number of outside consultants. 14: 12

21  
22 The specialist site surveys completed for the EIS were  
23 as follows:

24  
25 Botanical survey - Dr. Mary O'Connor; aquatic survey of 14: 12  
26 lagoon and stream - Aquatic Services Unit;  
27 electro-fishing survey of stream - Aquatic Services  
28 Unit; winter bird counts - Cork Ecology; detailed  
29 badger survey/bait marking survey, DixonBrosnan;

1 detailed otter survey - DixonBrosnan; bat survey -  
2 DixonBrosnan.

3  
4 Upon completion of these assessments, I was involved in  
5 the compilation of the section of the EIS dealing with 14: 12  
6 terrestrial and fresh water ecology. This included an  
7 assessment of the impacts of the proposed development  
8 during the construction and operation phase of the  
9 development; mitigation measures necessary to avoid,  
10 reduce or remedy the adverse environmental impacts 14: 12  
11 identified.

12  
13 Subsequent to the preparation of the EIS, further  
14 specialist surveys were carried out in the summer of  
15 2007 as follows: A Moth and Butterfly (Lepidoptera) 14: 12  
16 survey by DixonBrosnan; a survey of a dense section of  
17 undergrowth in the stream area to determine if otter  
18 holts were present - DixonBrosnan; a survey of  
19 terrestrial of aquatic coleoptera - Stephen McCormack;  
20 report on lagoon and marsh habitat - Dr. Cillian Roden 14: 13  
21 and Dr. Geoff Oliver.

22  
23 The results of these surveys are detailed in the  
24 DixonBrosnan report entitled Supplementary Ecological  
25 Surveys at a proposed LNG site at Ballylongford, 14: 13  
26 Co. Kerry. The conclusion of this report are included  
27 in appendix 1 of this statement and were furnished to  
28 the Board on Tuesday and these conclusions were read  
29 out by yourself, Mr. Inspector, earlier.

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29

The main findings I will take as read including the mitigation impacts and mitigation. I will come to the conclusions which are on page 20.

14: 13

**Section 5: Conclusions.** There will not be any direct impacts on designated terrestrial habitats adjoining the proposed development site. There will be a loss of large areas of relatively common habitats. This will result in a net loss of food sources and breeding sites for terrestrial birds and mammals. However, new landscape planting will replace some of this lost habitat.

14: 14

The potential impact on the stream is likely to be local and moderate and negligible originally. No significant long-term impact is expected on birds within the SPA, candidate SAC and Proposed National Heritage Area.

14: 14

Badgers will no longer persist in the operational area; where possible they will be displaced to artificial sites. However, there will be a significant localised impact on the species.

14: 14

Bats, which will be displaced due to the demolition of roosting sites, will be encouraged to use alternative roost sites. Some feeding habitat will be lost. The impact will be locally significant but slight to

14: 14

1 negligible at regional level. No long-term impact on  
2 otters are expected to occur. Frogs will be relocated  
3 to comparable habitat where possible; however, there  
4 will be a localised loss of habitat.

14: 14

5  
6 Overall, although there will be impacts at a local  
7 level, the impacts are not expected to be significant  
8 at a regional or national level.

9  
10 I will now deal with the individual submissions which  
11 are on page 9 to 19.

14: 15

12  
13 Section 4 on page 9. Submission relating terrestrial  
14 and fresh water ecology, submission from Kathleen Kelly  
15 and Patrick Griffin. The section of these submissions  
16 relevant to terrestrial fresh water ecology were as  
17 follow:

14: 15

18  
19 There are numerous species of wildlife and birds  
20 residing in the present land bank. Once the  
21 construction of the LNG plant has begun, green fields  
22 will be concreted over, hedgerows will be destroyed.  
23 Hedgerows may be removed at will, presently farmers are  
24 not permitted to cut hedges at certain times of the  
25 year due to birds nesting.

14: 15

14: 16

26  
27 **Response:** Hedgerows which are common in the area will  
28 be removed as a result of the proposed development.  
29 Vegetation will be removed outside of the peak breeding

1 season, March to June, where possible.

2  
3 The proposed development will result in the removal of  
4 large areas of grassland. Most of this grassland is of  
5 limited value from an ecological viewpoint. Although 14: 16  
6 it is accepted that there will be a net loss of common  
7 habitats due to the development. Mobile species  
8 such as birds and mammals will generally move to  
9 alternative habitat in the area.

10  
11 Generally the types of grassland and hedgerow recorded  
12 from the site are very common in the Irish countryside  
13 and are often removed or in some cases recreated by  
14 normal farming practices, albeit on a smaller scale.

15  
16 The operational area will not occupy the entire  
17 development site and large areas will be planted with  
18 trees and shrubs. The use of a high proportion of  
19 native species will ensure that the new habitats  
20 created by landscape planting will be of ecological 14: 16  
21 value for birds and other fauna.

22  
23 Submission from Adam Kearney: The section relevant to  
24 me is as follows: Any accidental releases that may  
25 occur will have a huge bearing on the environment 14: 17  
26 surround the plant both during onshore and offshore  
27

28 **Response:** The EIS notes that the risk of accidental  
29 LNG spills is small and manageable with current safety

1 policies and practices. In the unlikely event of a  
2 spill occurring, it will be contained within the  
3 operational area of the site. Thus, there would be no  
4 impact on high value terrestrial and freshwater  
5 habitats. 14: 17

6  
7 Submission from Kathy Sinnott: Concerns that massive  
8 ships will have devastating effect on the wildlife  
9 including dolphins and birds in the Shannon Estuary. 14: 17

10  
11 ... within Europe, natural habitats are continued to  
12 deteriorate and an increasing number of wild species  
13 are seriously threatened. The area is of  
14 international and ecological importance and contains 18  
15 important habitats and six invertebrate species, three 14: 17  
16 seiize of lamprey, bottlenose dolphin, otter and  
17 freshwater pearl mussel as well as including six bird  
18 species, brent goose, Golden plover, Dunlin, Redshank,  
19 Bar-tailed godwit, Black-tailed godwit. The Shannon  
20 Estuary east of Askeaton/Kildysert has been designated 14: 18  
21 as an SPA.

22  
23 **Response:** As noted in the EIS the proposed development  
24 adjoins the Lower Shannon candidate Special Area of  
25 Conservation and the River Shannon and River Fergus 14: 18  
26 Estuaries Special Protection Area. Both are important  
27 designations which indicate the ecological importance  
28 of the Shannon Estuary.

1           However, although the SPS supports internationally  
2           important concentrations of wildfowl and waders, no  
3           significant concentration of divers, grebes or ducks  
4           were recorded in the inshore waters bordering the  
5           proposed site. The majority of divers were found  
6           offshore in areas where no development is planned.  
7           Similarly, no significant high tide roost was found  
8           within the site and the area did not support large  
9           numbers of feeding wildfowl or waders. A high tide  
10          roost of primarily dunlin, lapwing and ringed plover  
11          was noted on the beach east of point A in January, but  
12          no species were recorded in nationally important  
13          numbers. No development is planned for this area of  
14          beach and any disturbance due to nearby construction  
15          works is likely to be temporary.

14: 18

14: 18

14: 19

16  
17          Other species noted in the submission are lamprey,  
18          three species, freshwater pearl mussel and otter. The  
19          stream on site does not provide suitable habitat for  
20          any of the lamprey species or pearl mussel. As noted  
21          in the EIS otters do occur along the stream downstream  
22          of the site, but there is no evidence to indicate that  
23          there will be any long term impact on this species.

14: 19

24  
25          Particular care will be given to the boundaries between  
26          the proposed development site and the designated areas.  
27          Consultation will be undertaken with the National Parks  
28          and Wildlife Service with regard to the nature of the  
29          proposed works along this boundary. All construction

14: 19



1 staff and contractors will be notified of the location  
2 of these boundaries and be aware that no waste of any  
3 kind is to be deposited in these protected areas.

4 Detailed environmental management plans will be  
5 prepared and implemented with particular emphasis on  
6 the protection of designated areas.

14: 19

7  
8 Submission from Catriona Griffin: The land bank is  
9 currently teeming with wildlife, bats, badgers,  
10 rabbits, foxes, swans and multiple other species of  
11 birds. Shannon LNG claim that most of these species  
12 will relocate, relocate to where? The immediate area  
13 will be covered in concrete.

14: 19

14  
15 **Response:** The operational area will not occupy the  
16 entire development site and following construction  
17 large areas will be planted with trees and shrubs.  
18 This will create new habitat for fauna.

14: 20

19  
20 Although there will be a net loss of grassland and  
21 hedgerow habitat, no rare or important habitat will be  
22 removed as a result of the proposed development. In  
23 addition there is a large amount of corresponding  
24 habitat in the surrounding area. Species such as  
25 rabbits, foxes and many countryside birds are mobile  
26 and generally will move to alternative sites.

14: 20

14: 20

27  
28 For terrestrial birds, the majority of hedgerows, scrub  
29 areas and disused farm buildings within the

1 construction area of the site will be lost during  
2 construction. Where possible, vegetation will be  
3 removed outside the peak breeding season March to June  
4 to avoid disturbance to nesting birds.

14: 20

5  
6 Development of the site would result in the removal of  
7 two badger setts and probably impacts on two other  
8 setts. Where possible artificial setts will be  
9 constructed for badgers prior to the commencement of  
10 construction works. This will be done subject to  
11 agreement with the National Parks and Wildlife Service,  
12 local landowners and the Department of Agriculture.

14: 20

13  
14 The removal of two farm buildings on the site will  
15 result in loss of roosting sites for common pipistrelle  
16 bats. Bat boxes or similar will be put in place to  
17 provide alternative roosting sites for these bats.

14: 21

18  
19 There may be some short-term disturbance of otters  
20 during the construction phase of the development;  
21 however, these impacts are likely to be locally slight  
22 and temporary. There is strong evidence that otters  
23 can habituate to noise. The construction of the  
24 embankment will result in a small loss of feeding  
25 ground for otters; however, the estuary will provide  
26 most of the prey for this species.

14: 21

27  
28 The pair of mute swans that breed on the small lagoon  
29 at the western end of the site shall not be affected by

1 the development as there is no development proposed for  
2 this area. It is expected that species such as curlew,  
3 which were recorded feeding in fields within the  
4 proposed site regularly throughout the winter months,  
5 will move to adjacent fields for feeding in winter.

14: 21

6  
7 There were five parts then to the submission from the  
8 Department of the Environment, Heritage and Local  
9 Government.

10  
11 Part (a): In the absence of outstanding 2007  
12 ecological reports, there is insufficient information  
13 to determine the effects on the coastal lagoon habitat  
14 or the protected plant species *Lamprothamnium*  
15 *papillosum* which may occur in the lagoon. The  
16 outstanding 2007 ecological reports listed in section  
17 10.10.2.7 of the EIS: Aquatic Coleoptera survey,  
18 Lepidoptera survey, surveys of lagoon and reed bed,  
19 survey of dense section of undergrowth in stream area  
20 to locate natal holt.

14: 21

21  
22 The **response** to part (a): Detailed surveys on aquatic  
23 coleoptera and lepidoptera, the lagoon and reed bed  
24 habitat and the section of dense undergrowth on the  
25 stream area to locate natal holt were carried out  
26 following the submission of the EIS. These reports  
27 have now been submitted.

14: 22

28  
29 Part (b): No blasting can be undertaken at the site

1 without prior consultation with the National Parks and  
2 Wildlife Service conservation ranger.

3  
4 **Response:** As requested no blasting will be undertaken  
5 at the site without prior consultation with the NPWS. 14: 22  
6 A detailed method statement will be drawn up by an  
7 ecologist and agreed with the NPWS prior to the  
8 commencement of works. The method statement will  
9 specify the timing of blasting operations and the need,  
10 if any, for ecological supervision. 14: 23

11  
12 Part (c): Further information required on the effects  
13 of the proposed jetties on dispersal of regularly  
14 occurring migratory bird species between Ballylongford  
15 Bay and Tarbert Bay. 14: 23

16  
17 **Response:** Six winter birds counts were carried out  
18 during 2006/2007 to determine bird usage of the site on  
19 the section of the estuary which adjoins the site.  
20 Although the River Shannon and River Fergus estuary SPA 14: 23  
21 supports internationally important concentrations of  
22 wildfowl and waders, no significant concentrations of  
23 divers, grebes or ducks were recorded in the inshore  
24 waters bordering the proposed site. The majority of  
25 divers and grebes were found offshore from an area 14: 23  
26 where no development is planned. Similarly, no  
27 significant high tide roost was found within the site  
28 and the area did not support large number of feeding  
29 wildfowl or waders.

1  
2 There was no indication of significant movements of  
3 birds along the coast between Ballylongford Bay and  
4 Tarbert Bay recorded during the extensive winter  
5 surveys. Any such bird movements would be unlikely to 14: 24  
6 be significantly affected by the presence of the  
7 proposed jetties as birds are unlikely to have any  
8 significant problems in flying around or over them.  
9

10 As requested an annual winter survey will be carried 14: 24  
11 out before, during and after construction from a  
12 sufficient number of vantage points between Beal Point  
13 and Tarbert Island to establish the extent to which  
14 this part of the estuary is used by diver species  
15 listed in Annex I of the Birds Directive. This survey 14: 24  
16 will include the area in which the jetties will be  
17 located and will provide additional information on  
18 regularly occurring migratory birds at these locations.  
19

20 Overall, there is no evidence to suggest that the 14: 24  
21 proposed jetties will have a significant impact on the  
22 dispersal of regularly occurring migratory birds  
23 species between Ballylongford Bay and Tarbert Bay.  
24

25 Section (d) I think I have just covered actually. It's 14: 24  
26 the request for the annual winter birds survey and we  
27 agree that we will carry that out for divers.  
28

29 Section (e): Potential breeding sites and resting

1 places used by or likely to be used by bat species and  
2 otter will be resurveyed prior to works being carried  
3 out in or near them. Appropriate mitigation measures  
4 will be carried out for the protection of these sites  
5 and places in accordance with legal requirements and  
6 best mitigation practice. 14: 25

7  
8 **Response:** Potential breeding sites and resting places  
9 used by or likely to be used by bats species and otter  
10 will be resurveyed prior to commencement of works will 14: 25  
11 could impact on these species. Where required,  
12 detailed mitigation measures will be agreed with the  
13 National Parks and Wildlife Service prior to  
14 implementation.

15 14: 25  
16 Submission from Eamonn Cusack, Shannon Regional  
17 Fisheries Board: In relation to the fresh water stream  
18 on this site the Board disagrees with the comment that  
19 there is no facility for recreating habitat. We have  
20 significant experience in recreating and restoring 14: 25  
21 habitat and we believe that if land is made available  
22 this can be done at the site. The Board is prepared to  
23 work with the developer to design and to supervise any  
24 necessary works to recreate habitat and carry out any  
25 required improvement works. 14: 25

26  
27 **Response:** Surveys carried out on the watercourse  
28 within the site did not indicate that salmonid species  
29 are present. The watercourse does support a small

1 number of common fish species. The creation of the  
2 pond will provide a significant habitat for the fish  
3 species which currently use the watercourse. The pond  
4 may also provide an important refuge for fish during  
5 periods of low flow.

14: 26

6  
7 Submission from Killorgan Residents Association. It's  
8 in four parts. Part (a): Concern also has to be  
9 expressed on the effect of additional surface water  
10 runoff from the site and water supply to and from the  
11 proposed new pond as well as chemically modified collar  
12 sea water discharging from the vaporising process on  
13 the wetland habitats to the north west of the site.

14: 26

14  
15 **Response:** Standard interceptors will be utilised on  
16 any discharge of surface water from the site, thus no  
17 significant impact on the receiving water is expected  
18 to occur. The wetland habitats to the north west of  
19 the site will not be directly affected by the proposed  
20 development. Environmental management plans which will  
21 be prepared for the site will have particular emphasis  
22 on protecting the designated habitats which adjoin it.

14: 26

14: 27

23  
24 Submission part (b): There will be a negative impact  
25 on the candidate SAC. The Board has no basis for  
26 finding that the development will words of the Habitats  
27 Directive "not adversely affect the integrity of the  
28 site". There will also be a negative impact on the  
29 proposed NHA and SPA. A grant of planning would be

14: 27

1 against the Habitats Directive and Water Framework  
2 Directive. The ecological sensitivity of the area has  
3 been recognised by the Kerry County Development Plan in  
4 declaring both Ballylongford Bay and Tarbert Bay as  
5 areas of ecological importance. For this reason we 14: 27  
6 object to any environmental damage in this area.

7  
8 **Response:** There will be no direct impact on important  
9 terrestrial habitats within designated areas such as  
10 lagoon, reed bed, salt marsh and shingle and gravel 14: 27  
11 bank habitats. Similarly, no significant indirect  
12 impacts are expected to occur.

13  
14 The construction method will minimise impacts on  
15 downstream aquatic habitats. Standard interceptors 14: 28  
16 will be utilised on any discharge of surface water from  
17 the site and thus no significant impact on the  
18 receiving water is expected to occur. Although the  
19 Shannon estuary supports internationally important  
20 concentrations of wildfowl and waders, no significant 14: 28  
21 concentration of divers, grebes or ducks were recorded  
22 in the inshore water bordering the proposed development  
23 site. Similarly, no significant high tide roost was  
24 found within the site and the area did not support  
25 large numbers of feeding fowl or waders. Although some 14: 28  
26 short-term disturbance of these species may occur,  
27 significant long-term impacts are not expected.

28  
29 With the implementation of all mitigation measures it



1 is considered unlikely that the development will  
2 significantly impact on designated habitats or impact  
3 significantly on fresh water ecology. Thus there is no  
4 evidence to indicate that the development  
5 will adversely affect the integrity of designated  
6 sites. 14: 28

7  
8 Submission part (c): We object to old buildings being  
9 demolished houses...as these houses are also used by  
10 bats. We object that the homes of bats will be 14: 28  
11 destroyed contrary to the Wildlife Act 1976 and 2000  
12 and the EU Habitats Directive.

13  
14 **Response:** Bats were recorded from two buildings within  
15 the development site. Mitigation measures will be 14: 29  
16 agreed with the National Parks and Wildlife Service  
17 prior to the demolition of these buildings. Buildings  
18 with roosting bats will be demolished outside the  
19 breeding season to avoid disturbance to breeding bats.  
20 Alternative roosting sites will be provided via bat 14: 29  
21 boxes.

22  
23 It is noted that pipistrelle bats are readily common in  
24 Ireland and will roost in a wide variety of sites,  
25 including modern houses. The number of bats affected 14: 29  
26 by the demolition of roosts is small and the impact  
27 will not be significant on a regional or national  
28 basis. Although there will be a loss of feeding  
29 habitat there is considerable amount of similar habitat

1 in the surrounding area.

2

3 Submission part (c): We object that the bird and sea  
4 life will be seriously impacted by the lights and the  
5 sound.

14: 29

6

7 **Response:** The winter bird surveys at the proposed site  
8 found no significant concentrations of divers, grebes  
9 or ducks in the inshore waters bordering the proposed  
10 site. Similarly, no significant high tide roosts or  
11 large numbers of feeding wildfowl or waders were  
12 recorded.

14: 29

13

14 Blasting operations during the construction phase could  
15 potentially cause disturbance; however, a detailed  
16 method statement will be drawn up by an ecologist and  
17 agreed with the National Parks and Wildlife Service  
18 prior to the commencement of works. The method  
19 statement will specify if required the timing of  
20 blasting operations and the need, if any, for  
21 ecological supervision.

14: 30

14: 30

22

23 There is evidence of birds habituating to loud noises.  
24 After an initial period of disturbance, it is expected  
25 that birds in the area will become habituated to noise  
26 from the site. Operational noise will be within EPA  
27 approval levels and birds will be expected to habituate  
28 to this level of noise.

14: 30

29

1 Lights used with the development site will be the  
2 minimum necessary for operational, safety and  
3 navigational purposes. These are unlikely to have a  
4 significant impact on birds.

14: 30

5  
6 Just to summarise our conclusions again. There will  
7 not be any direct impacts on designated threshold  
8 habitats adjoining the proposed site, although there  
9 will be a loss of some common habitats. The impact on  
10 the stream is likely to be local and moderate. No  
11 significant impact is expected on birds and designated  
12 areas. There will be significant localised impacts on  
13 badgers. There will be a local impact on bats. No  
14 long-term impact on otters are expected and there will  
15 be a loss of habitat for frog.

14: 31

14: 31

16  
17 Overall, although there will be impacts at a local  
18 level, the impacts are not expected to be significant  
19 at a regional or national level.

14: 31

20  
21 END OF SUBMISSION OF CARL DIXON

22  
23 **INSPECTOR:** Thank you, Mr. Dixon. Your  
24 next witness.

25 **MR. O'NEILL:** The next speaker is John  
26 Redding who will speak to  
27 geology, soils, hydrology and hydrogeology.

14: 31

1 MR. JOHN REDDING ADDRESSED THE ORAL HEARING AS FOLLOWS

2  
3 MR. REDDING: Good afternoon,  
4 Mr. Inspector, Ladies and  
5 gentlemen. My brief of evidence is relatively short so 14: 32  
6 I propose to read it through in its entirety. My name  
7 is John Redding. I hold a Bachelor of Science Honours  
8 Degree in Geology gained in 1968 from University  
9 College London and a post graduate Doctor of Philosophy  
10 degree in Marine Geology gained in 1972, also from 14: 32  
11 University College London. I am a member of the  
12 Institution of Professional Geologists.

13  
14 I am an independent geological consultant working for  
15 Arup Consulting Engineers. My main areas of expertise 14: 32  
16 are in applied geology, hydrogeology and marine  
17 geology. I have previously been involved in a  
18 compilation of number of Environmental Impact  
19 Statements for a wide range of developments including  
20 the Mayo-Galway Gas Pipeline, site development at 14: 32  
21 Ballygiblin in Co. Cork and the site development for  
22 Indaver in Ringaskiddy also in Co. Cork.

23  
24 I was formally employed by Ove Arup and Partners in  
25 London in their offices in London having joined that 14: 32  
26 company in 1972. At the time of my leaving Ove Arup  
27 and Partners to become an independent consultant, I was  
28 principal geologist responsible for ground  
29 investigation and site evaluation for a wide range of

1 large industrial, public sector and commercial  
2 engineering projects. In the latter capacity and  
3 subsequently I have been closely involved with similar  
4 engineering projects in Ireland since 1982. The sorts  
5 of project that I have been involved with in Ireland 14: 33  
6 including the N3 Navan-Kells, the N7-N8 Portlaoise,  
7 Roscrea and Thurles, N11 Gorey Bypass road scheme, also  
8 the Cork to Dublin, Limerick, Waterford and northeast  
9 pipeline, phases 1 and 2, high pressure natural gas  
10 pipelines, also pharmaceutical plants for Novartis and 14: 33  
11 Pfizer in Co. Cork.

12  
13 I am also Managing Director and part owner of a small  
14 UK company that specialises in seabed levelling and  
15 trenching using a patented ducted-propeller jettying 14: 34  
16 system.

17  
18 The purpose of my evidence is to provide an overview of  
19 the Shannon LNG project from the standpoint of geology,  
20 soils, hydrology and hydrogeology. These form the 14: 34  
21 subject matter of chapters 12 and 13 of the EIS. My  
22 principal points of evidence will cover issues to do  
23 with sustainable water supply for the development,  
24 impact of the development on geology, soils, hydrology  
25 and hydrogeology, specific issues associated with 14: 34  
26 potential for impact on protected wetland habitats,  
27 geohazards, including earthquakes, tsunamis and  
28 potential diminution of water supply from nearby  
29 domestic boreholes.

1  
2 I cover now my EIS involvement in the project. Arup  
3 Consulting Engineers was retained by Shannon LNG to  
4 carry out detailed ground investigation studies for the  
5 purpose of preliminary engineering design for the 14: 34  
6 development. In addition, they were contracted to  
7 carried out environmental baseline studies for the  
8 purpose of Environmental Impact Statement. I have been  
9 involved in both these aspects. A significant  
10 contribution to the available baseline information on 14: 35  
11 geology, soils, hydrogeology has come from the project  
12 specific ground investigations for which I have been  
13 involved in both the specification and interpretation.

14  
15 An important area of interface exists between geology, 14: 35  
16 soils, hydrology and hydrogeology and terrestrial  
17 ecology, particularly in relation to the protected  
18 wetland habitats. Arup Consulting Engineers,  
19 therefore, commissioned Minerex Environmental Ltd. to  
20 undertaken detailed environmental, hydrological and 14: 36  
21 hydrogeological investigation work in and peripheral to  
22 the wetland areas. I have been responsible, together  
23 with others from Arups, for the Minerex brief and for  
24 overseeing their work and liaising with Minerex  
25 personnel during the course of their field studies. 14: 36  
26

27 I have been also been involved with preliminary  
28 assessment for the geotechnical suitability of the site  
29 and with previous engineering design aspects of the

1 site development.

2  
3 I come on now to the assessment methodology.

4  
5 I conducted the following phases of assessment as part 14: 36  
6 of the scope of works: I carried out a number of site  
7 walkover surveys, including a foreshore survey to  
8 examine the rocks and soils exposed along the coast and  
9 a survey of the entire course of the main D1 stream  
10 that crosses the site. I carried out a review of 14: 36  
11 baseline information including published and manuscript  
12 maps and other publications obtained at the Geological  
13 Survey of Ireland's offices in Dublin. Stereoscopic  
14 examination and interpretation of project-specific  
15 aerial photographs as well as earlier archive aerial 14: 36  
16 photography. I also carried out evaluation of project  
17 specific ground investigation data and evaluation of  
18 data pertaining to seismic and other geoscience related  
19 risks. I also undertook interpretation of available  
20 stream flow, rainfall, infiltration and 14: 37  
21 evapo-transpiration data relative to an understanding  
22 of the surface and groundwater flow across the site and  
23 the potential for storage of surface stream flow on the  
24 site. Also an assessment of the impacts of the  
25 proposed development during the construction and 14: 37  
26 operational phases of the development and latterly  
27 recommendations of the mitigation measures necessary to  
28 avoid, reduce or remedy the adverse environmental  
29 impacts identified.

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For this purpose I have used techniques of survey, assessment and interpretation developed and applied over some 30 years as a practising 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 and also by the guidelines prepared by the Institution of Geologists of Ireland.

14: 37

14: 37

Upon completion of these assessments, I was involved together with Minerex personnel in the compilation of the two sections of the EIS dealing with geology and soils, that's chapter 12, and with hydrology and hydrogeology, that is chapter 13. I propose to deal with the issues associated with each of these sections of the EIS under separate headings.

14: 38

I deal first with the main findings for the geology and soils. The site is essentially a greenfield site and so the soils and geology are relatively undisturbed and unaltered by human activity. The site is underlain by rocks of upper Carboniferous age forming part of the Shannon Group, which has wide regional extent in the present area. Lithologically, the rocks comprise mainly interbedded sandstones, siltstones and mudstones that form a thick repetitive sequence. The rocks are well indurated, by which I mean that they are compact and hard, and as a result of past tectonic activity

14: 38

14: 38



1 they have been tilted and folded along fold axes that  
2 run mainly in a east north east-west south west  
3 direction. This folding has imprinted a general grain  
4 onto the regional topography. A number of minor  
5 displacement faults and fractures have been identified 14: 39  
6 on the site running at right angles to the main fold  
7 directions. In some cases these find minor topographic  
8 expressions - such as in the alignment of stream  
9 valleys that cross the site.

10  
11 Bedrock strata are overlain by glacial tills, which 14: 39  
12 form the uppermost geological deposits over much of the  
13 site and which vary in thickness from zero to  
14 approximately nine metres. Two different tills have  
15 been identified relating to different phases of glacial 14: 39  
16 emplacement. The lower till tends to be more compact  
17 and invariably dark grey in colour compared to the  
18 upper till which is often more brownish in colour.  
19 Both tills have a similar composition comprising gravel  
20 to boulder size rock fragments in a clayey, silty, 14: 40  
21 sandy matrix. The thinish till tends to occur over  
22 the northeast part of the site where glacial scar has  
23 removed the lower till and resulted in a reduced  
24 deposition of upper till. The thickest sections of  
25 till occur beneath the more western parts of the site 14: 40  
26 and in declivities in the bedrock surface associated  
27 with faulting and fracturing.

28  
29 Recent peaty alluvium occurs within the lower part of

1 the main D1 stream valley.

2  
3 Identical rock types found onshore also extend offshore  
4 and are similarly overlain by glacial till which  
5 generally appears to be more gravelly in the offshore 14: 40  
6 areas. An increasing thickness of soft alluvium or  
7 estuarine salt or clay is present in the area beyond  
8 the proposed jetty head, although closer to the shore  
9 this layer has been removed by recent tidal scour.

10 14: 40  
11 Onshore agricultural soils are mainly the product of  
12 weathering of the underlying till. Two main soil types  
13 have been identified and correlated with identified  
14 soil described in neighbouring areas of Co. Limerick.  
15 These are the Mountcollins series soils and the Kilrush 14: 41  
16 series. Mountcollins series soils tends to be friable  
17 and relatively free draining and occupy more elevated  
18 sloping ground, whereas Kilrush series soils are more  
19 gleyed -- by that I mean they are more clay and  
20 generally poorly drained -- and occupy persistent wet 14: 41  
21 hollows.

22  
23 I come on now to deal with the hydrology and  
24 hydrogeology. A limited amount of surface flow occurs  
25 across the site in the form of seasonal, i.e. winter 14: 41  
26 flow in ditches and minor stream courses. This is  
27 generally greatly reduced during the summer. Some  
28 surface ponding is present, but the only persistent  
29 standing water feature is the coastal lagoon located

1 just to the west of the main D1 stream outlet.

2  
3 The main surface drainage feature is the D1 stream that  
4 runs across the site and into the Shannon at  
5 Knockfinisk. This rises in the form of several small 14: 42  
6 springs at Cockhill on the northeast slopes of the  
7 Glansillaigh Hill. The stream has a total length of 3.6  
8 kilometres and commands a catchment area of  
9 approximately two square kilometres. The main base  
10 flow to the stream occurs along a section to the south 14: 42  
11 of Ralappane and is the result of an efflux of  
12 groundwater from the bed of the stream. The lower  
13 reaches of the present stream pass through protected  
14 wetland areas and the flow contributes to sustaining  
15 these habitats. Additional sources of water to these 14: 42  
16 habitats includes saline inundation (particularly at  
17 high spring tide in the estuary) and groundwater  
18 upwelling, in addition of course to direct surface  
19 rainfall.

20 14: 42  
21 In order to provide a source of fresh water for the  
22 development, primarily for hydrotesting of the tanks  
23 but also for fire protection and other uses,  
24 consideration has been given to impounding a portion of  
25 the flow of the stream. My colleague Mr. Eoghan Lynch 14: 43  
26 has already given evidence on other potential sources  
27 of water that have been considered.

28  
29 A preliminary assessment of the stream flows and annual

1 water budget in the stream based on available rainfall  
2 and evapo-transpiration data (subsequently confirmed by  
3 onsite gauging measurements) has indicated that a  
4 significant proportion of winter flow in the stream is  
5 lost directly to the Shannon and so effectively 14: 43  
6 bypasses the wetland habitats. During the summer,  
7 however, low flows (of the order of about 7 and a half  
8 litres a second or less during drought years) are  
9 insufficient to prevent significant saline intrusion.  
10 The latter occurs when high spring tide in the estuary 14: 43  
11 coincides with low flow in the stream.

12  
13 Therefore, a scheme to provide a source of fresh water  
14 for the development is required which will not only  
15 maintain existing fresh water supply for the wetland 14: 44  
16 habitats, but will also maintain the natural balance of  
17 fresh and salt water inflow. To this end it is  
18 proposed to impound the stream water by building a  
19 retaining embankment across the valley at a location  
20 which will serve to minimise the area of impoundment 14: 44  
21 and avoid encroachment directly into the wetlands.

22  
23 Importantly, the filling of the pond will be planned  
24 and undertaken to ensure adequate residual flow in the  
25 stream and prevent adverse impacts. This will mean 14: 44  
26 taking water into storage only during periods of  
27 moderate to high stream flow, essentially during the  
28 period between September and March, while maintaining a  
29 minimum base flow downstream of the impoundment at all

1 times. It is estimated that it may take up to two  
2 years, i.e. two winter seasons, to fill the reservoir  
3 to capacity. Once filled, the stream flow will then  
4 revert to its pre-construction seasonal variations.

14: 45

5  
6 Groundwater level monitoring and boreholes purposely  
7 fitted with standpipes and piezometers has established  
8 that there is a general northward flow of groundwater  
9 across the site towards the Shannon. Most of this flow  
10 appears to take place in the upper weathered zones of  
11 the bedrock, which are more permeable than both the  
12 overlying glacial till and the underlying unweathered  
13 rock. The general groundwater flow direction more or  
14 less mirrors the direction of ground slope which is  
15 from south to north across the site, although there is  
16 an additional component of groundwater flow towards the  
17 main D1 stream valley.

14: 45

14: 45

18  
19 The glacial till acts as a confining layer; in other  
20 words, because of its lower permeability it provides a  
21 cap onto the groundwater surface, acts as a confining  
22 layer in a downslope direction and so groundwater is  
23 locally under piezometric pressure in low lying and  
24 western areas of the site where the till sheet is  
25 thickest. This means that boreholes drilled to the top  
26 of the bedrock often experience a rise in groundwater  
27 level. In some cases this rise in groundwater level  
28 may overtop the surface producing artesian conditions,  
29 particularly during the winter when groundwater levels

14: 45

14: 46

1 are at their highest. Persistent wet ground,  
2 symptomatic of these artesian conditions, has been  
3 identified locally in areas peripheral to the high  
4 ground of Knockfinglas Point. Artesian conditions have  
5 also been identified locally within and peripheral to 14: 46  
6 the wetland areas following the installation of nested  
7 piezometers which indicate an upward hydraulic  
8 gradient. Thus locally the wetland areas appear to be  
9 sustained additionally by groundwater upwelling.

10  
11 Groundwater generally does not pose a problem for the  
12 site development and despite the depth of excavation  
13 for the main part of the development, construction  
14 levels are for the most part above the main, i.e.  
15 bedrock, groundwater surface. Some seepage is expected 14: 47  
16 to occur along the main cutting face, particularly  
17 during the winter. However, this can be dealt with  
18 together with any surface water during the construction  
19 phase by pumping from temporary sumps and in the longer  
20 term by permanent site drainage. 14: 47

21  
22 Because the underlying strata only constitute a poor  
23 aquifer and because groundwater discharge to the  
24 Shannon discharges to the Shannon rather than into an  
25 area of higher groundwater potential or groundwater 14: 47  
26 abstraction, there are no significant issues to do with  
27 groundwater resource protection. Additionally, the  
28 main part of the site development does not lie on the  
29 groundwater flow path to the wetland areas and so there

1 is no risk of contamination or reduction of water  
2 supply to the latter areas.

3  
4 Locations falling within the development where artesian  
5 conditions have been encountered are primarily in areas 14: 48  
6 of proposed fill. In these areas an underlying layer  
7 of coarse drainage material will be placed to enable  
8 any seepage to flow downslope.

9  
10 I deal now with the potential impacts, first on the 14: 48  
11 geology and soil side. Detailed geotechnical and  
12 ground investigation works have indicated that the  
13 geology of the site is generally favourable for the  
14 development as presently laid out. The development  
15 does not extend to areas of soft ground which are 14: 48  
16 associated mainly with the wetland habitats. The main  
17 items of plant, i.e. the tanks, are located in an area  
18 where the glacial soils are relatively thin so the  
19 tanks can be found on shallow depth on competent rock.  
20 The other main structure, that is the water retaining 14: 48  
21 embankment, is located in an area where the underlying  
22 bedrock and glacial till would provide a suitable load  
23 bearing foundation. Other lighter structures can be  
24 found at a shallow depth within the till which has  
25 reasonable load bearing capacity. 14: 49

26  
27 Excavated mixed rock and glacial till would be suitable  
28 for re-use as general fill and for landscaping. With  
29 some degree of selection the excavated rock will also

1 be suitable for use as both rock fill and a structural  
2 fill. For example for construction of the water  
3 retaining embankment over the stream and by suitable  
4 crushing and grading for use as aggregate. Similarly  
5 with proper selection and compaction the glacial till 14: 49  
6 is generally suitable as an impermeable core for the  
7 water retaining embankment and is a possible liner for  
8 the reservoir. All of the soil and rock material that  
9 will be excavated as part of the construction will be  
10 reused on site. My colleague Mr. Eoghan Lynch has 14: 49  
11 already given evidence regarding the construction  
12 aspects of the development.

13  
14 the site has been assessed to be in an area of low  
15 seismic hazard, i.e. it is not affected by earthquakes. 14: 49  
16 Faults in the bedrock are of considerable antiquity and  
17 are inactive and faults and fractures have not  
18 attracted any significant weathering that would alter  
19 the rock mass at depth; in other words, there is no  
20 risk of underground cavities or soft zones. Other 14: 50  
21 geoscience hazards that have been considered include  
22 tsunamis and radon. These have been assessed as not  
23 posing a hazard for the development.

24  
25 Mr. Inspector, there are no identifiable negative 14: 50  
26 impacts associated with the development regarding the  
27 geology and soils.

28  
29 I will come down to the hydrology and hydrogeology.



1  
2 Two areas where the hydrogeology has assumed more  
3 significance from the point of view of potential  
4 environmental impacts are the potential for change in  
5 groundwater regime to the wetlands associated with the 14: 50  
6 construction of the water retaining embankment in the  
7 pond and, secondly, the possible effects of the  
8 construction on any nearby water supply boreholes.  
9

10 It has been shown that the main stream valley where it 14: 51  
11 crosses the site is located along a fault induced  
12 fracture zone within the bedrock. This fracture zone  
13 is what accounts for the unusually straight alignment  
14 of the stream valley. It also appears to provide a  
15 preferential pathway for groundwater flow, as suggested 14: 51  
16 by the way that the groundwater contours locally turn  
17 towards the stream. While there is potential for the  
18 construction to reduce the flow of groundwater in the  
19 bedrock, for instance if the foundations for the  
20 embankment were to extend into the bedrock, equally 14: 51  
21 there is potential for the groundwater flow to be  
22 increased as a result of the additional head of water  
23 in the reservoir. For these twin reasons the  
24 embankment is being installed at shallow depth with no  
25 excavation into the bedrock and no cut-off beneath the 14: 51  
26 base of the embankment. Provision will also be made  
27 for decreasing the permeability of the in situ soil in  
28 the pond area, i.e. by remounding and compaction of the  
29 in situ till materials, to prevent excessive leakage as

1 required. The overall aim of the embankment and pond  
2 design will therefore be to maintain the status quo as  
3 far as groundwater flow along the valley is concerned.

4  
5 The potential for impact on the nearby water supply 14: 52  
6 boreholes relates to the possibility of a reduction in  
7 borehole water levels and thus pumping yields, such as  
8 might occur if significant de-watering were required as  
9 part of the excavation works. However, this has to be  
10 seen in the context of the deepest excavation being 14: 52  
11 generally above the main groundwater surface and the  
12 nearest water supply borehole being approximately 300  
13 metres from the nearest explanation. Logic would,  
14 therefore, suggest the distance to the nearest borehole  
15 is too great, the intervening strata too impermeable 14: 52  
16 and any drawdown of groundwater level at the site too  
17 small to have any measurable effects on water supply  
18 borehole water levels. However, against this is the  
19 argument already posed that faults and fractures can  
20 provide preferential pathways for increased ground 14: 53  
21 water flow. Thus there remains a remote possibility  
22 that a water supply borehole may be linked to the site  
23 by such a pathway.

24  
25 I will come on to the mitigation measures now dealing 14: 53  
26 first with geology and soils.

27  
28 Mr. Inspector, there are no specific geology and soils  
29 mitigation measures required. Coming now to the

1 hydrology and hydrogeology mitigation measures.  
2 The one area where hydrology and hydrological  
3 mitigation measures are proposed is in relation to  
4 nearby water supply boreholes. The proposed mitigation  
5 is to monitor to relevant boreholes during construction 14: 53  
6 and subject to the owners consent to provide, and when  
7 required, a supplementary water supply with an  
8 alternative permanent supply being provided if the  
9 primary borehole supply proves to be permanently  
10 affected. 14: 54

11  
12 Note that additional mitigation and good practice  
13 measures in relation to wetland areas are discussed by  
14 my colleague Eileen McCarthy in her brief of evidence.

15 14: 54  
16 I would like to come now to the responses to the  
17 submissions to An Bord Pleanála. Firstly, the  
18 submissions. There are three submissions which raise  
19 concerns relating to the hydrology and hydrogeology.  
20 I will read each of the three submissions first and 14: 54  
21 then deal with the responses second.

22  
23 In An Taisce's submission, that's L049, the issue of  
24 regulating the base flow in the stream is raised and  
25 particularly the merits or otherwise of maintaining a 14: 54  
26 10 litres a second base flow. In the Kilcolgan  
27 Residents Association submission, that's L054, concern  
28 was expressed under the heading: "Environmental  
29 pollution sea water use polluting the Shannon Estuary",

1 about the fact that additional surface water runoff  
2 from the site might have in relation to water supply to  
3 and from the proposed new pond.

4  
5 Similarly, in the Shannon Regional Fisheries Board's 14: 55  
6 submission, that's L052, concern was expressed about  
7 and I quote:

8 "The discharge of polluting or  
9 deleterious matter that can be expected  
10 during the construction phase. It is 14: 55  
11 anticipated that precipitation on the  
12 site will carry significant amounts of  
suspended solids in the surface water  
leaving the site."

13 I will deal now with the responses. The ten litres a  
14 second was an initial assessment figure. It tended to  
15 demonstrate that impounding the stream could in fact 14: 55  
16 provide a practical solution capable of satisfying both  
17 the water needs of the project and the possible needs  
18 of the wetlands. It is a figure that can be maintained  
19 during the filling stage of the pond, but the plan is  
20 to allow the stream to revert to its existing seasonal 14: 56  
21 flow variation once filling is complete.

22  
23 Discharge of surface water from the site is  
24 specifically dealt with in section 13.6 of the EIS.  
25 This states that and I quote: "During the construction 14: 56  
26 phase surface water arising as groundwater seepages and  
27 runoff from cutting faces, as well as surface water  
28 arising from direct rainfall onto platform areas, will  
29 be removed from the main construction area by means of

1 a combination of suitable falls on soft grade surfaces  
2 and temporary drainage ditches. The water will then be  
3 passed through a series of settlement and filtration  
4 ponds to remove any suspended solids before being  
5 discharged directly to the Shannon Estuary." 14: 56

6 Therefore, there will be no additional runoff into the  
7 ponds, a situation that will obtain also during the  
8 operational phase.

9  
10 Similarly, page 21 of volume 1 of the EIS states that, 14: 56  
11 and I quote: "During construction of the embankment  
12 and pond, the stream will be culverted along this  
13 entire section in order to avoid any increase in silts  
14 reaching the wetland areas."

15  
16 In conclusion, therefore, I am of the view that the 14: 57  
17 potential, i.e. negative impacts, of the proposed LNG  
18 terminal development in terms of geology, soils,  
19 hydrogeology and hydrology will be insignificant in the  
20 short-term, i.e. during construction, and imperceptible 14: 57  
21 in the longer term during operation. That's my brief  
22 of evidence, Mr. Inspector.

23  
24 END OF SUBMISSION OF DR. REDDING

25  
26 INSPECTOR: Thank you, Dr. Redding. 14: 57  
27 Can we have your next  
28 speaker please.

29 MR. O'NEILL: The final expert on this

1 topic is Eileen McCarthy  
2 who is going to deal with geology and hydrogeology of  
3 protected habitats.  
4

5 MS. EILEEN MCCARTHY ADDRESSED THE ORAL HEARING AS  
6 FOLLOWS

14: 58

8 MS. MCCARTHY: Good afternoon,  
9 Mr. Inspector, Ladies and  
10 gentlemen. Section 1.1. My name is Eileen McCarthy 14: 58  
11 and I hold of Bachelor of Science Honours Degree in  
12 Earth Science (1998) from University College Cork and a  
13 postgraduate Masters of Science Degree in Hydrogeology  
14 (2001) from University College London. I am also  
15 involved in part-time doctorate studies in wetland 14: 58  
16 hydrology at Trinity College Dublin, 2003 to present.  
17 I am a member of the International Association of  
18 Hydrogeologists and I am a member of the Chartered  
19 Institution of Water and Environmental Management.

14: 58

21 Section 1.2. My area of expertise is in wetland  
22 hydrology and hydrogeology, peat geotechnical  
23 assessments and ecohydrology for conservation studies.  
24 I have been involved in the compilation of a number of  
25 Environmental Impact Statements for a range of 14: 58  
26 developments that include wind farms, road schemes,  
27 pipelines, gas terminals, mining and quarry  
28 developments.  
29

1 My doctorate studies are focussed on the  
2 hydrogeological functioning of flushes in blanket bogs  
3 in Ireland. Other research interests are  
4 eco-hydrological studies of the impact of linear  
5 developments, such as road schemes and pipelines, on 14: 59  
6 peat land environments such as raised bogs, blanket  
7 bogs and fens, and academic studies of the impact and  
8 reversibility and forestry plantations relative to  
9 blanket bog hydrology.

10  
11 Section 1.3. I am a co-owner, director and senior  
12 hydrogeologist with Minerex Environmental Ltd. which is  
13 MEL. I have ten years experience in environmental  
14 consultancy, with seven years experience as a company  
15 owner and director. 14: 59

16  
17 Section 1.4. MEL is an independent Irish owned company  
18 specialising in consultancy and contracting services in  
19 the hydrogeological, hydrological, ecological,  
20 geophysical and geotechnical disciplines since 1994. 14: 59  
21 Our work types include environmental impact  
22 assessments, groundwater resource and vulnerability  
23 assessments, ecological flora and fauna surveys,  
24 hydrological restoration projects, water quality  
25 assessment and monitoring, contaminated land 15: 00  
26 assessment, waste management and licensing and  
27 geophysics for a wide range of purposes.

28  
29 Section 1.5. The purpose of my evidence to provide an

1 overview of the following: The reasons for the study;  
2 methodology and codes of practice undertaken for the  
3 study; developing a site conceptual model for  
4 evaluating baseline hydrology and hydrogeology;  
5 identification of impacts arising from the proposed 15:00  
6 assessment; providing recommendations to mitigate  
7 identified impacts; identifying residual impacts.

8  
9 Section 2, MEL's involvement in the project.

10 15:00  
11 2.1. MEL was retained by Shannon LNG to carry out a  
12 detailed hydrological and hydrogeological Environmental  
13 Impact Assessment of the proposed Shannon LNG terminal  
14 development on the terrestrial habitats within the  
15 Lower Shannon Candidate Special Area of Conservation 15:01  
16 and within Ballylongford Proposed National Heritage  
17 Area.

18  
19 Scope of works, section 2.2. MEL's scope of works  
20 deals specifically with the hydrology and hydrogeology 15:01  
21 of the wetlands. The protected wetland habitats are  
22 located on the western part of the site along and  
23 adjacent to the lower reaches of the main stream.  
24 I refer to appendix 13 figure 2 of volume 4 of the EIS.

25 15:01  
26 Section 2.3. The main habitat types that were studied  
27 are: The lagoon and saline lake, code CM1 which is a  
28 candidate SAC and a proposed NHA. This is a priority  
29 habitat and it gives a reference under Natura 2000 code



1 for Annex 1 as 1150; the second habitat is the reed and  
2 large sedge swamp FS1 which is a candidate SAC and  
3 proposed NHA; the third one is the tidal river which is  
4 CW2, which is a proposed candidate SAC and proposed  
5 NHA; the fourth is the depositing river FW2, which is a 15:02  
6 candidate SAC and proposed NHA; and the 5th is the  
7 Upper Salt Marsh which is given the code CM2 and is a  
8 proposed NHA only.  
9

10 Section 2.4. It is noted that while these habitats are 15:02  
11 located outside of the main development area, i.e. the  
12 main plant, their location is sufficiently close to  
13 require a study of investigation of potential impacts  
14 by the proposed development and ancillary  
15 infrastructure particularly in relation to impacts on a 15:02  
16 main stream that transverses the site.  
17

18 Objections of study, section 2.5. The objectives of  
19 the are (a) develop a conceptual model of hydrological  
20 functioning for the terrestrial wetland habitats, (b) 15:02  
21 predict and evaluate direct or indirect hydrological  
22 and hydrogeological impacts by the proposed development  
23 on the wetland habitats; mitigate by avoidance,  
24 reduction or remedy the predicted habitats on the  
25 wetland habitat. 15:03  
26

27 Methodology, section 2.6. MEL conducted the following  
28 phase investigations and assessment. First of all, a  
29 desk study, including development of a preliminary

1 conceptual hydrogeological model was undertaken;  
2 secondly, a site survey, including preliminary  
3 hydrochemical survey and scoping for site  
4 investigations was completed; thirdly, a detailed site  
5 investigations programme, including installation of a 15: 03  
6 groundwater and surface water monitoring network, was  
7 undertaken; fourthly, a monitoring programme to provide  
8 factual data on baseline conditions was and continues  
9 to be undertaken. I refer to footnote No. 3 there.  
10 MEL is engaged in ongoing monitoring of the groundwater 15: 03  
11 and surface water network that has been installed  
12 specifically to study the wetland hydrology and  
13 hydrogeology. I refer to section 13.7, paragraph 4 of  
14 volume 2 of the EIS. This data is being used to  
15 interrogate, evaluate and support the conceptual 15: 04  
16 hydrogeological model developed for the functioning of  
17 the wetland hydrology.

18  
19 Back to the main text. Testing and re-evaluation of  
20 preliminary conceptual hydrogeological model with 15: 04  
21 factual monitoring data and as necessary updating of  
22 that model; an assessment of the impacts of the  
23 proposed development during the construction and  
24 operation phase of the development; finally,  
25 recommendation of the mitigation measures necessary to 15: 04  
26 avoid, reduce or remedy the adverse environmental  
27 effects identified.

28  
29 Section 2.7, EIS integrated process. It is noted that

1 several meetings and workshops took place during the  
2 compilation of the EIS with the objective of  
3 communicating results, avoiding impacts and enhancing  
4 interaction overlap with other disciplines involved in  
5 the study.

15: 04

6  
7 Section 2.8. In particular for this study this  
8 included interaction with the following:

9 \* The design theme with respect to engineering,  
10 geotechnical considerations in the construction of the  
11 proposed development;

15: 05

12 \* The hydrology and drainage team in terms of designing  
13 measures to simulate baseline conditions for the  
14 project in order to protect and benefit the protected  
15 habitats;

15: 05

16 \* The flora and fauna team in terms of confirming  
17 habitat significance and agreeing required mitigation  
18 measures.

19 \* Also consultation was undertaken with the National  
20 Parks and Wildlife Service to discuss the study results  
21 and the proposed mitigation intended to avoid and  
22 reduce identifiable impacts.

15: 05

#### 23 24 Standards of Code of Practice

15: 05

25  
26 2.9. MEL has undertaken the hydrological and  
27 hydrogeological impact assessments in accordance with  
28 the following standards and codes of practice:

29 \* The Environmental Protection Agency (2002)

1 *"guidelines on information to be contained in*  
2 *Environmental Impact Statements"*.

3 \* The Irish Geological Institute, 2002, "Geology in  
4 environmental impact statements - a guide".

5 \* The site investigation programmes was completed 15: 06  
6 according to the British Standards Institution 1999  
7 codes of practice for site investigation BS 5930.

8  
9 2.10. Upon completion of these assessments, I was  
10 involved with together with Arup personnel in the 15: 06  
11 compilation of the section of the EIS dealing with the  
12 hydrology and hydrogeology, that is chapter 13 of  
13 volume 2 of the EIS. Also MEL's full technical impact  
14 assessment report is reproduced in full in appendix 13  
15 of volume 4 of the EIS. 15: 06

16  
17 The Main Findings

18 2.11. The main findings and conclusions of the site  
19 investigations, the monitoring programme and the  
20 hydrogeological conceptual model are: 15: 06

21 \* There are four water 'types' that contribute to the  
22 wetlands in terms of water levels, flow and chemistry.  
23 These are (a) rainwater, (b) groundwater, (c) runoff  
24 and drainage water and (d) sea water. The predominance  
25 of each water type has a strong control on the type and 15: 07

26 distribution of individual habitats. I will refer you  
27 to figures 13.5 of volume 2 of the EIS for illustration  
28 \* The lagoon and saline lake, code CM1, receives its  
29 water from saline intrusion and overtopping, as well as

1 from groundwater throughflow and local drainage inflow.  
2 The dominant control is that of seawater recharge,  
3 hence producing this habitat type. It is an important  
4 conclusion that the main stream, which Minerex has  
5 labelled D1, does not contribute water to the lagoon  
6 and saline lake. 15:07

7 \* The reed and large sedge swamp (code FS1) receives  
8 water from a combination of sources. It is affected by  
9 saline intrusion on its north western side, it receives  
10 surface water overflow from the stream D1 at times of 15:07  
11 peak drainage flow, but most significantly it receives  
12 groundwater seepage due to upwelling from a fault  
13 located along its northern back water boundary. Again  
14 I refer to appendix 13 figure B1 of volume 4 of the EIS  
15 for illustration. 15:08

16 \* The Tidal River CW2 and the Upper Salt Marsh CM2 are  
17 clearly influenced and controlled by saline water  
18 influence due to their proximity to the coast. The  
19 tidal river is a dynamic water conduit where fresh  
20 water from inland is mixing with brackish to saline 15:08  
21 water, that is sea water from the estuary.

22 \* The Depositing River (code FW2) is wholly freshwater  
23 and receives water from groundwater stream flow  
24 including tributary contribution such as from smaller  
25 drains which Minerex have labelled D2 and D3, reference 15:08  
26 to figure 13.4 of volume 2 of the EIS and from overland  
27 runoff during high rainfall periods. The location of  
28 the interface between a tidal river CW2 and the  
29 depositing river FW2 is dynamic and is controlled by

1 differences in hydraulic head.

2 \* D1 'gains water' along the upper section of its flow  
3 path, but then loses water along the middle section of  
4 this flow path before gaining water again along its  
5 lower section of flow. D1 thus receives ground water 15:09  
6 recharge in the area of protected habitat, particularly  
7 the reed and large sedge scamp FS1. This is further  
8 substantiated by groundwater hydraulic information,  
9 that is from boreholes, standpipes and piezometers  
10 installed. Reference is made to appendix 13 figure H3 15:09  
11 of volume 4 of the EIS for illustration.

12 \* Combined with the identification of a fault  
13 contributing groundwater seepage at the back wall of  
14 the reed and large sedge swamp (FS1), it is evident  
15 that the water supply to this particular habitat is 15:09  
16 complicated within inputs of saline, freshwater,  
17 groundwater and rainfall, but that groundwater plays a  
18 critical part in sustaining this habitat.

19 \* D1 does not contribute water to the lagoon and saline  
20 lake CM1 habitat and has a secondary role in the 15:10  
21 contribution of water to the upper salt marsh CM2.

22 \* The main habitat of potential risk within the stream  
23 system D1 is the reed and large sedge swamp FS1.

24  
25 2.12. All potential impacts from all proposed aspects 15:10  
26 of the infrastructure development such as in the main  
27 plant, access roads, lay down areas, constructed  
28 drainage, embankment and pond have been examined in the  
29 context of the hydrology and hydrogeology of the

1 protected habitats.

2  
3 I refer to sections 2.13 and 2.14 whereby I have  
4 basically reproduced the impacts of mitigation from the  
5 EIS. I will not read them out here again just to keep 15: 10  
6 my brief of evidence concise, but basically they are a  
7 reproduction of the EIS. You will find them in  
8 appendix 13 of volume 4 of the EIS, section 5 for  
9 impacts and section 6 for mitigation measures.

10  
11 I will just conclude very quickly that I have set out  
12 the findings of potential impacts and required  
13 mitigation measures in the EIS. It is my conclusion  
14 that the proposed development will have an  
15 insignificant impact in the short-term and 15: 11  
16 imperceptible impact in the long-term on the hydrology  
17 and hydrogeology of the terrestrial wetland habitats.

18  
19 If I bring you then to page 11 of 15, my response to  
20 submissions received. 15: 11

21  
22 4.1. Two of submissions identified concerns relating  
23 to the hydrology and hydrogeology of the protected  
24 habitats. These are:

25 (a) Submission No. 49 by the Kerry association of An 15: 11  
26 Taisce, section concerning "Surface and Waste Water".  
27 This is located on page 3, paragraph 1 under surface  
28 and wastewater.

29 (b) Submission No. 52 by Shannon regional fisheries

1 Board, the section concerning "Discharge of Polluting  
2 Or Deleterious Matter that can be expected to arise  
3 during the Construction Phase". That's on page 1,  
4 bullet point No. 1, paragraph 1 on that submission.

15: 12

5  
6 Firstly, I will respond to submission No. 49: The  
7 Kerry association of An Taisce. I paraphrased the  
8 submission:

9  
10 "The existing stream on the site to be  
11 dammed so as to supply fresh water for  
12 certain processes. This will change  
13 the flow rate downstream of the  
14 embankment, but it is proposed to  
15 maintain a minimum flow at all times.  
16 This is obviously a change on the  
17 existing situation where a stream  
18 almost dries up in drought conditions  
19 and has implications for the amount of  
20 salt water backing up. The EIS sees it  
21 as a benefit but has this been fully  
22 checked out."

15: 12

15: 13

23 An Taisce's submission queried whether there has been  
24 sufficient study and impact assessment of the proposed  
25 water retaining embankment on the hydrology of the  
26 protected wetlands which are located further downstream  
27 of the proposed embankment.

15: 13

28 My response is as follows, section 4.3.

29 MEL has undertaken a detailed impact assessment study  
of the potential direct and indirect impacts of the  
proposed development on the hydrology and hydrogeology  
of the protected habitats. One of the main focuses of  
the study has been to assess the impact of the proposed  
water retaining embankment on a main stream D1.

15: 13



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The main habitat of concern is that of the reed and large sedge swamp, FS1. The main stream D1 does not contribute in any way to the priority habitat lagoon and saline lake CM1 and thus this habitat is not subject to any potential impact by the proposed embankment.

15: 13

MEL has investigated and continues to investigate the threshold water levels and flow requirements of D1 in the context of the sustainable hydrology of the protected wetlands. Specifically, the following methodology is being applied to understand sustainable water levels and flow rates in D1 in relation to the habitats:

15: 14

15: 14

1. The water balance calculations using catchment size rainfall and evapotranspiration.
2. Direct and manual measurements of flow under high, medium and low flow regimes over different seasons.
3. Automated measurements to provide stream hydrograph function, from which base flow and threshold levels of minimum sustainable flow can be calculated.
4. Water level measurements and hydraulic radiant measurements within and at the boundary of the protected habitats to identify habitat response under different flow regimes associated with seasonal and tidal variations. Additionally, this baseline monitoring provides data on the natural baseline

15: 14

15: 14

1 fluctuations of water levels, hydraulic gradients and  
2 chemistry within the habitats.

3  
4 MEL has been commissioned to undertake a minimum  
5 twelve months monitoring programme of which three 15: 15  
6 months monitoring and data acquisition still remains to  
7 be completed. This covers the end of winter and spring  
8 months. Based on the data to date MEL can confirm that  
9 10 litres a second is a sustainable flow discharge rate  
10 in the main stream. Current data indicates flow rates 15: 15  
11 as low as six litres a second during the late summer  
12 months of 2007.

13  
14 A minimum discharge rate from the embankment pond will  
15 be considered at the end of the monitoring programme. 15: 15  
16 A key factor to remember is that MEL is not relying  
17 solely on discharge rates in the D1 stream to identify  
18 the responses and sensitivity of the wetlands to  
19 seasonal changes and flow, but MEL is relying on a  
20 combination of water levels, hydraulic gradients and 15: 15  
21 most importantly water chemistry within and proximal to  
22 the wetland.

23  
24 The impact of drought conditions has been considered  
25 during the preliminary design of the embankment pond. 15: 16  
26 Shannon LNG is agreeable to consult with the NPWS, that  
27 is the National Parks and Wildlife Service, to discuss  
28 a compensation flow during any exceptional or prolonged  
29 dry period.

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It is emphasised again that the main stream D1 has no function in hydrology of the priority habitat lagoon and saline lake (CM 1) and thus no impact can arise on this habitat from the proposed water retaining embankment.

15: 16

Submission No. 52: Shannon Regional Fisheries Board. I paraphrase: "We have concerns about the discharge of polluting or deleterious matter that can be expected to arise during the construction phase. It is anticipated that precipitation on the site will carry significant amounts of suspended solids in the surface waters leaving the site. It is essential that sufficient treatment and any other necessary measures are applied to the surface water discharge streams to prevent the discharge of polluting or deleterious matter. The discharges should comply with a discharge licence to discharge granted by either the EPA or Kerry County Council. The Fishery Boards as a statutory authority must be consulted in relation to drafting a licence."

15: 16

15: 16

15: 17

4.5. Response: It has been acknowledged in section 2.14 of this brief of evidence and in section 5 of appendix 13 of volume 4 of the EIS, i.e. Minerex full technical report, that the construction phase introduces a significant risk of water quality deterioration arising from runoff entrainment of 'natural', and that is suspended solids, nutrients and

15: 17

1 potential trace elements, and 'introduced' such as  
2 petroleum products or construction materials,  
3 pollutants.

4  
5 In the context of terrestrial hydrology and 15: 18  
6 hydrogeology, i.e. ditches, streams, sheet runoff and  
7 groundwater infiltration, the following mitigation and  
8 pollution control measures have been outlined in the  
9 EIS to prevent, reduce and manage water runoff,  
10 discharge and accidental spillages at the site. 15: 18

11  
12 Section 7.13.6 of volume 2 of the EIS: The employment  
13 of good construction management practices such as the  
14 CIRIA guidance document on "Control of water pollution  
15 from construction sites, guidance for consultants and 15: 18  
16 contractors 2001". Activities and protection measures  
17 from this guidance document are summarised in section  
18 7.13.6 of volume 2 of the EIS. Implementation of the  
19 CIRIA guide's recommendations (or updated version where  
20 applicable at the time of the construction phase) will 15: 18  
21 minimise the risk of pollution to groundwater and  
22 surface water arising from the construction activities.  
23 I also would like to make reference to Eoghan Lynch's  
24 brief of evidence for further information on this  
25 guidance document. 15: 19

26  
27 Section 13.6 of volume 2 of the EIS and I paraphrase:  
28 "During the construction phase surface water arising as  
29 groundwater seepages and runoff from cutting faces as

1 well as surface water resulting from direct rainfall  
2 onto platform will be removed from within the main  
3 construction area by means of a combination of suitable  
4 falls and subgrade surfaces and temporary drainage  
5 ditches. The water will then be passed through a  
6 series of settlement and filtration ponds to remove any  
7 suspended solids before being discharged directly to  
8 the Shannon." I make reference to John Redding's brief  
9 of evidence.

15: 19

10  
11 Section 6 of appendix of volume 4 of the EIS and  
12 section 2.14 of this brief of evidence: MEL has  
13 outlined a number of pollution control mitigation  
14 measures to protect, prevent and reduce impacts from  
15 construction activities on surface water and  
16 groundwater quality. Issues dealt with are:  
17 \* Release of suspended solids to surface water;  
18 \* Risk of pollution from petroleum leakage;  
19 \* Other material pollutants such as nutrients, trace  
20 elements.

15: 19

15: 20

15: 20

21  
22 Specific mitigation measures proposed for the above  
23 identified pollutants, in addition to those outlined  
24 elsewhere in the EIS, are:

15: 20

25  
26 (a) the main stream D1 will be protected by a culvert  
27 during the construction phase of the development. This  
28 will protect the stream channel from receiving  
29 suspended solids runoff and other potential

1 contaminants such as nutrients during the construction  
2 phase of the project. See also section 7.3.2.1 of  
3 volume 2 of the EIS.

4  
5 (b) a minimum of 25 metres constraint zoning will be 15: 20  
6 applied around the terrestrial candidate SAC with  
7 proposed NHA habitat boundaries with respect to  
8 proposed construction activity, landscaping and  
9 development areas.

10 15: 20  
11 (c) the drainage and pollution control measures  
12 discussed under section 13.6 of volume 2 of the EIS  
13 will be installed prior to the main construction  
14 activities to control increased runoff and associated  
15 suspended solids loads in discharging of surface waters 15: 21  
16 from the construction areas. Where possible, drainage  
17 control should be installed during dry weather  
18 conditions.

19  
20 (d) To control and contain potential spillage of 15: 21  
21 petroleum by vehicles during construction, discrete  
22 fuel stations that are bunded and drained to an all  
23 interceptor are recommended for the purpose of safe  
24 fuel transfer and storage. A suitably qualified  
25 management company will take responsibility for 15: 21  
26 management and maintenance of the oil interceptor and  
27 associated drainage on a regular basis, including  
28 decommissioning.

1 (e) The vehi cul ar and plant equi pment used on si te wi ll  
2 require regu lar mechani cal checks and audi ts to prevent  
3 spill age of the petrole um on the exposed ground during  
4 constructi on. Thi s wi ll part form of the constructi on  
5 envi ronmental management procedures. 15: 22

6  
7 (f) Sani tati on during the constructi on phase wi ll be  
8 i solated and contained i n speci fi cally desi gned waste  
9 holdi ng tanks that wi ll be mai ntained by a servi ce  
10 contracto r on a regu lar basi s and wi ll be removed from 15: 22  
11 si te on compl eti on of the constructi on phase.

12  
13 (g) A constructi on phase envi ronmental management  
14 system that i ntegrates all of the mi ti gati on measures  
15 outli ned i n the EIS to mi ni mi se pol luti on or 15: 22  
16 contami nati on of water and soi ls on the si te wi ll be  
17 submi tted to Kerry County Counci l for approval pri or to  
18 the devel opment commenci ng.

19  
20 (h) water quali ty moni tori ng during the constructi on 15: 22  
21 phase i s recomme nded i n order to confi rm di scharge  
22 water quali ty values from the constructi on areas as  
23 well as recepto r water quali ty to confi rm and provi de a  
24 check on the effecti veness of pol luti on control  
25 measures i nstalled. MEL recomme nds that the compl iance 15: 22  
26 testi ng and reporti ng shoul d be underta ken on a weekly  
27 basi s. A di scharge li cence wi ll be requi red, the  
28 condi ti ons of whi ch wi ll be speci fi ed by Kerry County  
29 Counci l presumabl y after consul tati on wi th Shannon

1 Regional Fisheries Board and other relevant bodies.

2  
3 Section 5 outlines my conclusion.

4  
5 5.1. In conclusion it can be stated that MEL has 15: 23  
6 carried out a detailed study investigation into the  
7 hydrology and hydrogeology of the projected terrestrial  
8 habitats of the candidate SAC and proposed NHA. MEL is  
9 also continuing with its monitoring programme to  
10 further substantiate the conceptual hydrogeological 15: 23  
11 model for the site. The interpretation of this data  
12 will provide the necessary information to enable  
13 baseline conditions of water supply and water chemistry  
14 to the protected habitats to be maintained for each of  
15 the individual water sources identified, that is 15: 23  
16 groundwater, surface water, seawater and rainfall.

17  
18 Section 5.2. Accordingly, I am of the view that the  
19 potential impacts of the proposed LNG terminal 15: 24  
20 development in terms of the hydrology and hydrogeology  
21 of the protected wetlands will be insignificant in the  
22 short-term and imperceptible in the long-term and  
23 that's the end of my evidence.

24 **INSPECTOR:** Thank you, Ms. McCarthy.

25  
26 **END OF SUBMISSION OF MS. MCCARTHY**

27  
28 Okay I am going to throw it open to the floor if we  
29 have any questions.



1           **MR. O'NEILL:**                       Just before you do that,  
2   Sir, if I may, and it may  
3           be of some assistance. Mr. Fitzsimons' report that was  
4           delivered today, what we are intending to do, a lot of  
5           the issues have already been addressed in the evidence     15: 24  
6           that you have heard and indeed in earlier evidence, but  
7           hopefully for the benefit of Mr. Fitzsimons, the  
8           members of the public and you what we intend doing is  
9           assimilating all those relevant issues and delivering  
10          them to you. Unfortunately it won't be ready I don't     15: 24  
11         think until tomorrow morning, but as soon as it is done  
12         it will be made available.

13  
14         There was just one point that I think clarification is  
15         required or needs to be made by us in relation to     15: 25  
16         figures that Mr. Fitzsimons has in his report and I am  
17         just going to ask, if I may, Mr. Creavan to deal with a  
18         particular issue in relation to the intake volumes of  
19         seawater which I referred to in the assessment report  
20         prepared by Mr. Fitzsimons, that is page 4 of his     15: 25  
21         submission to you, Sir. You will see at the top of the  
22         page there is a reference to an intake operating at  
23         rate of 5.6 cubic metres per second and I just want to  
24         Mr. Creavan to comment on that because I think that  
25         does need to be corrected.     15: 25

26         **MR. CREAVAN:**                       At the top of page 4 there,  
27   it has already been pointed  
28         out, just to quote from Dr. Fitzsimons' submission: It  
29         is proposed that the intake will operate at a rate of

1 5.6 cubic metres per second which is a volume, a flow  
2 rate as opposed to a linear speed. So the actual  
3 intake velocity is 0.5 metres per second, that is the  
4 figure that should be quoted here. I would also like  
5 to clear up and maybe try to put that in context and 15: 26  
6 maybe clear up a few technical terms.

7  
8 In terms of the intake there are two velocities to  
9 consider. There is the intake velocity, which is the  
10 velocity at the screen, at the intake and then there is 15: 26  
11 what is termed the approach velocity which is the  
12 velocity at an unspecified distance from the screen  
13 which is generally given as the distance at which a  
14 particular species of fish will react to the presence  
15 of the inflow so that's two terms to clear up there. 15: 26  
16

17 To put that figure into context, 0.5 metres per second  
18 equates to a little bit less than 1 knot. Currents in  
19 the area, in the estuary, regularly go up to 4 knots so  
20 you are talking a quarter of the speeds encountered in 15: 27  
21 the environment close by. I think that's enough to  
22 clear up on that.

23 **INSPECTOR:** Thank you. Will we go on  
24 to questioning?

25 Ms. Griffin. 15: 27  
26  
27  
28  
29

1 THE APPLICANTS WITNESSES WERE CROSS-EXAMINED AS FOLLOWS  
2 BY THE OBJECTORS

3  
4 1 Q. MS. GRIFFIN: Catriona Griffin. Just to  
5 ask Dr. Rory Doyle, on page 15: 27  
6 10 of his statement he mentions:

7  
8 "It is also worth noting that  
9 Moneypoint discharges more than five  
10 times the volume of water and more than  
11 twelve times the amount of chlorine  
12 then the proposed plant."  
13

15: 27

14 I don't think it is acceptable to say that just because  
15 Moneypoint are polluting more that it makes this seem  
16 better, acceptable?

17 A. MR. DOYLE: I gave that as a point of  
18 evidence because it was 15: 28  
19 brought up in some of the submissions about have we  
20 considered Moneypoint and the interaction and the  
21 volumes there. I am using it as a reference point to  
22 say that the amount that Moneypoint is emitting is far  
23 more, but the important figure I think from the model 15: 28  
24 studies is the actual EPA guidelines which were given  
25 at 0.1 milligrams per litre. As I have pointed out in  
26 that statement of evidence that the concentrations  
27 emitted by the plant comply with all the EPA  
28 guidelines. Kerry County Council have also said they 15: 28  
29 are happy with the model results and An Taisce have  
also said that, yes, the model results seem to suggest  
that there will be no pollution and it's my opinion  
that there will be no pollution whatsoever from the

1 chlorine or the cold water.

2 2 Q. In your opinion?

3 A. In my expert opinion.

4 **MR. O' DONOVAN:** Thomas O' Donovan. I would  
5 like to ask the panel who 15: 29  
6 have just given their presentation where they all  
7 employed by LNG gas people and can we take it that they  
8 will be unbiased and independent in their submissions.

9 **MR. O' NEILL:** Perhaps I should answer  
10 that as not being one of 15: 30  
11 the panel of experts. Yes, all the experts were  
12 employed by Shannon LNG, but they are experts and they  
13 have their reputations to consider and no expert, no  
14 professionally qualified expert is going to jeopardise  
15 his or her future simply for the purpose of one 15: 30  
16 particular project. I think you can rest assured that  
17 each and every one of the experts has given his or her  
18 independent assessment. Yes, employed by Shannon LNG  
19 to give that assessment, but the assessment that is  
20 given is independent and doesn't simply say what it 15: 30  
21 says because that's what Shannon LNG want to be said.  
22 No doubt during the preparation of the EIS if  
23 difficulties were identified with the proposal as it  
24 then stood, the development and the mitigation measures  
25 were constructed to overcome and deal with those 15: 31  
26 differences and that's the advantage of having the  
27 independent experts there, they can identify, 'Look  
28 there may be an issue with this, you must deal with it  
29 a different way, you must overcome that issue' and what

1 you have heard is that the experts who have given  
2 evidence in relation to this module are satisfied that  
3 any issues that arise have been adequately dealt with.  
4 **MR. O' DONOVAN:** If I may just respond to  
5 that. As far as the fish 15: 31  
6 life is concerned and pretty much the land area too the  
7 real expert is the life in the sea or in the Shannon  
8 Estuary, the salmon, the dolphins and everything else.  
9 They are very sensitive to all these changes and  
10 everything else and unfortunately in a lot of cases it 15: 32  
11 is after the event that we know the full impact. While  
12 I accept their unbiased and independent persuasion,  
13 I thank them for their interest. I am just a lay  
14 person, I can't afford to employ experts, but having  
15 lived in the area and having fished in the area for a 15: 32  
16 number of years and the generations before me I would  
17 like that tradition to condition. As far as the salmon  
18 is concerned, salmon are a shore fish, they don't go no  
19 more than maybe ten metres from the shoreline and as  
20 I say we are all in the process of maintaining the wild 15: 32  
21 salmon, it's a huge worldwide interest now and campaign  
22 so any potential damage to that area would be very  
23 detrimental.  
24 **INSPECTOR:** Thank you very much.  
25 3 Q. **MS. O' CONNOR:** At the risk of repeating 15: 33  
26 myself I would like to ask  
27 the people who did the survey did they survey the plot  
28 of land that is not in the ownership of Shannon  
29 Development. I did supply a map in my submission, it

1 adjoins the stream where it meets the Shannon Estuary.  
2 It's not in the ownership of Shannon Development, it's  
3 in private ownership, 1.8 acres, do they intend to  
4 monitor the water levels of chemical compositions and  
5 will they seek permission before entering that land? 15: 33

6 **MR. O'NEILL:** If I deal with the last  
7 issue and then I will pass  
8 the microphone down. There isn't, as I understand, any  
9 intention to enter onto the 1.8 acres. If there is a  
10 need to do obviously the permission of the owner will 15: 34  
11 have to be obtained in the absence of statutory powers.  
12 I am now going to ask Ms. McCarthy to deal with the  
13 first issue that you raised.

14 A. **MS. MCCARTHY:** Yes, our baseline study  
15 has been involved in 15: 34  
16 monitoring because it's really important in terms of  
17 the saline intrusion of the stream so from a scientific  
18 point of view it would be very important for us to  
19 continue monitoring. In terms of intrusion that's  
20 something for the council to deal with in terms of 15: 34  
21 access to lands and all the rest, but what we do there  
22 is basically we walk along the stream, we take  
23 measurements from little pipes that are installed in  
24 the ground. We walk in, we don't take vehicles and we  
25 try obviously not to disturb grounds in any shape or 15: 35  
26 form, livestock etc. We do some flow measurements, but  
27 it's all kind of stuff you put on your back and off you  
28 go and you walk through the area so we definitely  
29 wouldn't be causing track marks, that kind of thing.

1 4 Q. Do you actually measure where the soil is, where the  
2 pasture is, do you take any measurement?  
3 A. We have done that in kind of the initial investigation,  
4 we put in points in the ground, we logged the geology  
5 and we took the chemistry and all the rest so we have 15: 35  
6 done the main part, but now we are really more  
7 interested in water, groundwater and surface water,  
8 what's flowing around on the surface and also in those  
9 pipes in the ground, that's our main concern from now  
10 on. Obviously we will take a view of any observational 15: 35  
11 things as we go along, but we won't be introducing any  
12 more equipment into the ground so what is there is  
13 there and we will just go there once a month and just  
14 take water levels, chemistry, flow measurements, that's  
15 the main scope of works from now on. 15: 36  
16 **MS. O'CONNOR:** Thank you.  
17 **INSPECTOR:** Any further questions?  
18 5 Q. **MR. McELLI GOTT:** I have a question for  
19 Dr. Berrow. Dr. Berrow, if  
20 there was no industry in the Shannon Estuary would the 15: 36  
21 dolphins be happier, do you think?  
22 A. **DR. BERROW:** I am not sure what a happy  
23 dolphin looks like. I know  
24 they smile, but it's kind of fixed. It's an impossible  
25 question to answer really. I would suspect, and I have 15: 36  
26 very little evidence really, that dolphins have been in  
27 the Shannon Estuary for hundreds if not thousands of  
28 years. I often quote St. Senan who banished the Cathar  
29 from Scattery Island and there is a lovely book by a

1           guy in Limerick who talked about the Shannon monster  
2           and real life sightings of the Shannon monster which  
3           sound to me just like dolphins. They talk about fins  
4           cutting through the water, they talk about the breadth  
5           of the surface, so if the legend of the Cathar on           15: 37  
6           Scattery is a reference to these sea creatures that  
7           would mean that dolphins have been in the estuary since  
8           at least the sixth century. I suspect they have been  
9           there hundreds if not thousands of years. Whether they  
10          are more abundant, less abundant, it's impossible to           15: 37  
11          tell, but in some sites where there are resident  
12          bottlenose dolphins, historically they probably weren't  
13          there. The Murray Firth, which I mentioned in my  
14          submission, if you go back 30/40 years they weren't  
15          there and they are leaving that area. The best           15: 37  
16          reference we have is 1835, two months in Killee where  
17          Knox describes porpoises in the estuary, but they were  
18          dolphins. That's quite long time.

19  
20          In terms of is there more or less than there was before           15: 37  
21          industry arrived on the shores of the Shannon, it's  
22          impossible to tell, but what it does reflect, and  
23          I have often said this, is it's still a vibrant,  
24          healthy environment for dolphins. An abundance  
25          estimate, it's very hard to count dolphins, but an           15: 38  
26          abundance estimate that was funded by the wildlife  
27          service as part of their monitoring requirements was  
28          carried out last summer 2007 actually showed an  
29          increase in dolphins. Now, it's within a lot of



1 variations so you wouldn't put your house on it, but  
2 certainly the numbers are estimated at 140, a  
3 statistical model but it's based on data as opposed to  
4 120. If that reflects the dolphins, they are certainly  
5 not declining and they are possible increasing, but 15: 38  
6 what it means is that we have a stable, healthy dolphin  
7 population. As I think was suggested my ambition would  
8 be to maintain that and we have to address these issues  
9 to make sure that we protect that environment habitat  
10 and as far as this project is concerned I am obviously 15: 38  
11 happy with it as I wouldn't be providing this evidence.

12 6 Q. There was a lot of recent reports of whales getting  
13 beached, there was three or four there recently along  
14 the west coast, why do you think that was caused or  
15 would it be relevant to you? 15: 39

16 A. It's not. They were fin whales. Two of the three lie  
17 stranded on the same day, one in Roundstone in Galway  
18 and one in Ballinskellig in Kerry. Since then we had  
19 one in Bere Island in West Cork. They are young  
20 whales, probably recently weaned, possible not even 15: 39  
21 weaned. I visited the one in Roundstone, I didn't  
22 visit the one in Ballinskellig but it was emaciated,  
23 which might sound like a negative thing, but what  
24 actually it is probably reflecting is that there is an  
25 increase in this species off the Irish coast. They 15: 39  
26 have been protected for many, many years and the  
27 population is increasing rapidly throughout the north  
28 Atlantic, which is a very good thing, but obviously if  
29 a population increases then animals die, especially

1 young immature ones that are still learning to fend for  
2 themselves so in actual fact, although it sounds, to me  
3 it is quite a positive thing because it means there are  
4 more fin whales out there. No, it doesn't have any  
5 effect. When I was talking about frequency ranges, 15: 40  
6 bathing whales, like fin whales, would react to the low  
7 frequency that we have discussed during this, but  
8 obviously it is not relevant because we are talking of  
9 bottlenosed dolphins, but populations change,  
10 populations increase as well as decrease and I think we 15: 40  
11 should keep that open mind.

12 **MR. McELLI GOTT:** Thank you.

13 **MR. O' DONOVAN:** Mr. Inspector, thank you.

14 Mr. Eamonn Ryan's goal is  
15 to have 42% of all energy needs coming from renewable 15: 40  
16 sources and a good scolding from Brussels if we don't  
17 change our ways. In that context do I fully see the  
18 need or indeed the good sense for importing and storing  
19 gas and oil when in all likelihood we could be heavily  
20 fined if we use it, would there be anybody to address 15: 41  
21 that bigger picture maybe?

22 **INSPECTOR:** I think we are on the  
23 ecology module at the  
24 moment so let's stick with that.

25 **MR. O' DONOVAN:** Sorry, okay. I just 15: 41  
26 want to make one mention  
27 here, if I say. I have a book here, it is printed in  
28 1872. It has got a whole history of the earth and the  
29 environment and the atmosphere at that particular time.

1 It has got a full synopsis, a full coverage really of  
2 all different temperatures and everything else. I was  
3 informed by Kathy Sinnott this morning that Yahoo are  
4 looking for rare books and so forth so I will be  
5 donating it to the world through the Yahoo website so 15: 41  
6 everybody can have a look at it. I won't part with the  
7 book and I haven't one for everyone in the audience,  
8 I am sorry. Thank you, Mr. Inspector.

9 **INSPECTOR:** Thank you.

10 **MS. O'CONNOR:** Can I just say one more 15: 42  
11 thing for Ms. McCarthy.  
12 I think it would be a good idea for her to liaise with  
13 us when she is going even in the stream because we have  
14 public liability insurance and responsibilities as  
15 regards animals and that, they have to have access to 15: 42  
16 the stream. We previously had not had to consider  
17 that, we knew ourselves when the animal were on the  
18 land and when they were being wintered, but it would be  
19 a good idea to liaise.

20 **MS. MCCARTHY:** We contacted Shannon LNG in 15: 42  
21 the Ballylongford office so  
22 that we let them know when we are down on site, but all  
23 means we have no problem in taking your phone number  
24 and the site operative will call you a couple of days  
25 in advance, that's no problem. We do that all the time 15: 43  
26 for road schemes and stuff so I will take that into  
27 account and we will do that from now on.

28 7 Q. **MR. FITZSIMONS:** Inspector, I just want to  
29 say thank you to Stiofán

1 for the velocity figure which was really what we were  
2 looking for. We may come back to you on that  
3 particular figure, but it looks to be quite adequate.  
4 Just to take up one or two other points. In relation  
5 to suspended solids and the discharge of suspended 15: 43  
6 solids from the site, we were aware from the EIS that  
7 there were proposals to have filter ponds etc., but our  
8 concern is that we have had significant experience on a  
9 number of projects in other parts of the country where  
10 even though the filter ponds are allegedly put into 15: 44  
11 place that we still find pollution arising from them  
12 and I think it would be important, just as a comment,  
13 to ensure that the design and the use of the filter  
14 ponds is monitored so that it does actually reach a  
15 design and effluent quality standard that can be 15: 44  
16 verified. That's my main point on that. We just have  
17 had serious problems on a number of major areas where  
18 filter ponds allegedly were put in and have been found  
19 to be totally inadequate.

20 15: 44  
21 A query for Carl Dixon: With regard to the standard  
22 interceptors, are these just for individual discharge  
23 or drainage areas, is that part of a whole scheme or is  
24 there going to be a final interceptor in the surface  
25 water drainage area? I am thinking in terms of an 15: 45  
26 accidental discharge where, say, a lorry has a crash or  
27 something like that and you are getting a large volume  
28 of oil being discharged, will the interceptors be  
29 capable of handling that?

1           A.     **MR. LYNCH:**                     Mr. Inspector, it is Eoghan  
2   Lynch here, if I may answer  
3           that question. During the construction phase there  
4           will be a series of interceptors associated with the  
5           temporary runoff surface water situation and they will     15: 45  
6           be moved around on an as required basis as the works  
7           phases are being developed. In the operational phase  
8           there will be a petrol interceptor at the inlet to the  
9           storm water outfall before it goes into the estuary  
10          which will catch any spillages that will get into the     15: 45  
11          surface water system.

12  
13          With respect to the situation of a very large spill  
14          from a tanker tipping over or whatever, it is not  
15          envisaged that that event would occur, but the system     15: 46  
16          is such that the surface water system associated with  
17          the roads is quite adequate by normal industry  
18          standards.

19         8 Q.     **MR. FITZSIMONS:**                     Thank you. Just one other  
20   query in relation to the     15: 46  
21          lagoon. We do have a difficulty with the construction  
22          of the lagoon and the use of the long culvert pipe  
23          which doesn't particularly assist the movement of  
24          aquatic species. We know that this stream does have a  
25          relatively small population of eels, but eels are     15: 47  
26          becoming more and more important at the present time.  
27          We would be concerned that the movement of species up  
28          and down this watercourse, this small stream is going  
29          to be impacted on by this lagoon, I have heard that you

1 may be addressing this maybe tomorrow, but I am just  
2 wondering -- I may not be able to be here tomorrow so  
3 I am just wondering if somebody could discuss that, is  
4 there an alternative to the lagoon system, the way it  
5 is proposed at the present time that will move into the 15: 47  
6 land bank as opposed to completely impounding the  
7 stream because the way the impoundment is proposed will  
8 completely cut off the extreme in terms of the movement  
9 of any aquatic species up and down so I would like to  
10 clarify that. 15: 47

11 A. MR. DIXON: I can't talk really about  
12 the alternative designs for  
13 the lagoon as such. I suppose just to make a few  
14 general points about the fish species. We didn't find  
15 any salmonids obviously within the watercourse. 15: 48  
16 I think eels should be able to migrate around it even  
17 by just crossing terrestrial habitats through wet  
18 grass. Sticklebacks would be isolated, but I think the  
19 pond will be a very important refuge for that species  
20 in periods of low flow anyway so if for instance the 15: 48  
21 upper section of the stream were to get very dry the  
22 sticklebacks could persist in the pond and repopulate  
23 it that way so I think it actually has quite a few  
24 advantages in terms of providing alternative habitat.

25 9 Q. MR. FITZSIMONS: Just one of the things that 15: 48  
26 bothers us, the quality of  
27 the stream is quite good and there is actually no  
28 reason except that perhaps there may have been a  
29 pollution incident in the stream at some time in the

1 past, there is no reason why there shouldn't be  
2 salmonids in it, it's not going to be a massive fishery  
3 or anything like that.

4 A. My own feeling on it, I walked it extensively myself,  
5 and obviously electrofished it, I suppose there are 15: 49  
6 small areas where you could potentially see a couple of  
7 brown trout surviving, but my own feeling is that flows  
8 probably drop to such an extent that they periodically  
9 will get wiped out and just at the moment I cannot see  
10 them persisting as a viable population within the 15: 49  
11 stream.

12 MR. FITZSIMONS: I have noted the flows in  
13 the summer time, I think  
14 one of the other people said was down to about 6 litres  
15 a second which is quite low. That's fine. 15: 49

16 INSPECTOR: Mr. McElligott.

17 MR. McELLI GOTT: Mr. Inspector, Patricia  
18 Anglim O' Connor wants a say  
19 a few words about the ecological effects on the  
20 pipeline. 15: 50

21 MS. P. O' CONNOR: Mr. Inspector, Ladies and  
22 Gentlemen, my name is  
23 Patricia Anglim O' Connor. I wish to read out a  
24 statement here that I have prepared. We wish to state  
25 that we have been informed by Shannon LNG that it is 15: 50  
26 building a pipeline through our lands for the proposed  
27 LNG terminal. Mr. Biggane of Shannon LNG and  
28 Mr. Mangan of An Bord Gáis visited our house and told  
29 us the pipeline would be going through our lands. We

1 stated that we weren't happy about this and they  
2 informed us that there were mechanisms in place if  
3 people don't comply, namely CPO. They told us that the  
4 IFA has an agreement with An Bord Gáis and that IFA are  
5 representing the farmers. However, IFA already had a 15: 51  
6 meeting at The Lanterns hotel to discuss the pipeline.  
7 We were not invited because the initial route of the  
8 pipeline was not going through our lands at that stage.  
9 The route has since been changed and no-one from IFA  
10 has contacted us to discuss it. Apart from a quick 15: 51  
11 phone call from the County Chairman Mr. John Stack. We  
12 also received a phone call from the secretary of the  
13 Listowel office of Shannon LNG to confirm same and to  
14 make an appointment with us to meet with Mr. Biggane  
15 and Mr. Mangan. Our lands at Ballinaghour Glen, Co. 15: 51  
16 Limerick are situated along the scenic route which is a  
17 wonderful scenic area with views of four counties, the  
18 River Shannon and is of serious environmental and  
19 ecological importance.

20  
21 We do not agree to the damage this is causing to our  
22 property and object that this pipeline issue has not  
23 been discussed at this oral hearing. We now request a  
24 full submission and discussion of the environmental  
25 consequences of the pipeline as well as all other 15: 52  
26 issues. For example, we are participants in REPS, that  
27 is the Rural Environmental Protection Scheme and any  
28 changes re land use could lead to penalties unless we  
29 have our REPS plan amended by a planner. You cannot



1 discuss the consequences of the LNG terminal and ignore  
2 the pipeline issue as this is all one project. From  
3 speaking with other land owners we know that many are  
4 very worried and concerned and are opposed to the  
5 sterilisation of their properties without their  
6 consent. Thank you, Mr. Inspector.

15: 52

7 **INSPECTOR:** Thank you. It's not  
8 strictly on ecology, but  
9 can you give some sort of answer in relation to that?

10 **MR. O'NEILL:** Yes, I can. I would just  
11 like to point out to  
12 Ms. O'Connor that the application in relation to the  
13 laying of the pipeline, obviously first the path of the  
14 pipeline has to be identified and agreed in conjunction  
15 with Bord Gáis Éireann and then more significantly  
16 perhaps the whole process has to be subjected to an  
17 Environmental Impact Assessment, as we have had an  
18 Environmental Impact Assessment in this case, and the  
19 pipeline itself will be subject to scrutiny by An Bord  
20 Pleanála. If there is instances of compulsory  
21 acquisition, obviously a scheme has to be prepared  
22 identifying the lands which have to be compulsorily  
23 acquired and the owners or occupants of the lands can  
24 object to that proposal for whatever reason they see  
25 fit, again it's a matter that has to be considered by  
26 An Bord Pleanála who gives approval or not as the case  
27 may be to the compulsory acquisition. Finally, if of  
28 course there is compulsory acquisition there is  
29 compensation payable in accordance with defined well

15: 53

15: 53

15: 53

15: 54

1           tried and tested guidelines in relation to the amount  
2           of the compensation. What one is talking about at the  
3           end of the day is a pipeline underground rather than  
4           obviously overground so the impacts are thereby  
5           significantly lessened on what they otherwise might be. 15: 54

6           **INSPECTOR:**                                Okay.

7           **MS. P. O'CONNOR:**                         Thank you, Mr. Inspector,

8           **MR. M. McELLI GOTT:**                        I just want to comment on  
9    the pipeline passing  
10           through the scenic area. The scenic route is actually 15: 54  
11           in Glin, Co. Limerick and it goes for about a mile and  
12           a half, the official class of the scenic route road.  
13           I own one house of three houses on scenic route road  
14           that is my family home and we have no objection to the  
15           pipeline passing below our property. In actual fact at 15: 55  
16           the moment we are looking down at one of the biggest  
17           pig farms in the North Kerry-West Limerick area so  
18           I certainly don't see the pipeline affecting the scenic  
19           area in any way whatsoever.

20           **INSPECTOR:**                                Thank you. Do we have any 15: 55  
21    other questioners on the  
22           issue of ecology? What about the Department of the  
23           Environment, Heritage and Local Government, do you have  
24           any concerns.

25           **MR. GOOD:**                                    Mr. Chairman, we have four 15: 55  
26    minor concerns and I would  
27           be grateful if you would afford me some table space if  
28           you wish me to elaborate on that. I just need to  
29           arrange some papers. Mr. Chairman, Ladies and

1 Gentlemen, there are four outstanding concerns, two of  
2 which have been pointed out in the submission for  
3 further information from the Department to the Board.  
4

5 There is two concerns which were raised in the 15: 56  
6 submissions that were raised by the consultants today  
7 so maybe I could take those first, they were relatively  
8 minor matters. The first is in the submission I think  
9 by Dr. Dixon on terrestrial matters. It's on page 13  
10 and it refers to badgers. Just to point out that it is 15: 57  
11 mentioned there, it's about the compensation for  
12 badgers, the removal of badgers setts, under section  
13 23.5 of the Wildlife Act as amended, that's 1976 to  
14 2000, it's not correct to say that they will be  
15 compensated by a new sett where possible, it's an 15: 57  
16 obligation to have a new created sett because it's the  
17 replacement of or it's the maintenance of the breeding  
18 place, the breeding site or the resting place of the  
19 badgers so if that 'where possible' could be removed.

20 **MR. DIXON:** I think the only caveat we 15: 57  
21 had to that was perhaps a  
22 TB issue, if it turned out that they had TB, that might  
23 cloud matters somewhat, but apart from that it is fully  
24 intended that artificial setts would be provided.

25 **MR. GOOD:** Yes. Unfortunately there 15: 58  
26 is no mechanism in the  
27 Wildlife Act to get around this, it's a legal issue.  
28 The second issue then relates to Dr. McCarthy's point  
29 on page 12 of her contribution as regards NPWS

1 consultation for compensation flow during drought  
2 periods. As a matter of good planning practice it  
3 would be preferable if the mitigation measures for  
4 compensating for drought flow were put in place before  
5 the planning decision was made, just as a matter of  
6 good planning practice.

15: 59

7  
8 The other two points then which were presented from the  
9 Department in written form. The first one -- both of  
10 these were dealt with to some degree in the responses  
11 by the consultants -- the first one is on page 15 of  
12 Dr. Dixon's contribution or submission to the Board and  
13 if you just give me some time I will try and get that  
14 out.

15: 59

15  
16 This relates to the requirement for further information  
17 for the effects of the proposed jetty or jetties on the  
18 dispersal of migratory birds between Tarbert Bay part  
19 of the SPA and Ballylongford Bay, part of the SPA. In  
20 response again on page -- excuse me, I will just get my  
21 bearings -- on page 15 of the submission by the  
22 consultants today, paragraph No. 4, it is stated that:

15: 59

23 "Any bird movements would be unlikely  
24 to be significantly affected by the  
25 presence of the proposed jetties as  
26 birds are unlikely to have any  
significant problem in flying around or  
over them."

16: 00

16: 00

27  
28 Now, there is no scientific data or observation to  
29 support that. Our obligation under both European case

1 law and under the procedures in the Directives on the  
2 legislation is that there must be no scientific doubt  
3 so that may be easily enough resolved by just having a  
4 literature review of previous observations around  
5 jetties. I know there is a similar situation in the 16:01  
6 Aughinish alumina jetty where there are two breeding  
7 site, mudflat breeding sites either side of it so there  
8 is observational data from that jetty I think, but  
9 again we would have to have data to be satisfied that  
10 that is not an issue. 16:01

11 **MR. DIXON:** I don't think we would have  
12 any problem in doing a  
13 literary review as you requested.

14 **MR. GOOD:** Okay. The final point  
15 then relates to again the 16:01  
16 issue that has been raised earlier as regards the  
17 intake screens and the mortality on the intake screens,  
18 the impingement mortality. I would just like to cite  
19 from -- unfortunately I don't have the author of  
20 this -- it's studies that were done on the Fawley Power 16:01  
21 Station, Southampton Water Power Station near  
22 Southampton. It was estimated -- and this is from page  
23 88 of British Wildlife December 1999 -- it was  
24 estimated and I will quote from it:

25 "That fish and crustacean sucked into 16:02  
26 the intake are impinged and killed on  
27 the filter screens in large numbers. A  
28 typical power station in a lower  
29 estuarine locality annually catches  
more than 100 species of fish and macro  
crustaceans and kills from 2 million to  
20 million individuals a year."

1  
2 Now, in responding to that I am just not clear as to  
3 what we have asked as further information. Is an  
4 estimate of the numbers of adult fish and mackerel  
5 crustaceans that may be expected to be killed on the 16:02  
6 filter screens of the water intake as a proportion of  
7 the fish population available to fish eating fauna in  
8 the adjacent part of the cSAC, we haven't actually got  
9 an estimate of that so what we are looking is an  
10 estimate. Given that there is a potential source of 16:03  
11 concern from observations on power station intakes and  
12 again I am referring to the impingement, to the  
13 mortality on the screen because the screen mesh size is  
14 smaller than in other areas. If we take those figures  
15 from the UK studies we could be ending up with about 16:03  
16 now -- this is just using the same figures very roughly  
17 -- about 0.7 million casualties in terms of adult fish  
18 and macro crustaceans per annum. Now, that may sound  
19 like a lot of animals, it may be small relevant to the  
20 rest of the estuary, but what we are looking for again 16:03  
21 is quantitative data as to what the proportion is, we  
22 want an estimate of that.

23 **MR. CREAVAN:** First of all, were intake  
24 velocities or total flow  
25 volumes specified for the power station in question? 16:04

26 **MR. GOOD:** They were but unfortunately  
27 I don't have the copy of  
28 the page, they was a larger intake volume.

29 **MR. CREAVAN:** Okay. To begin I suppose



1 you mentioned that the filter screen mesh size is  
2 considerably smaller; therefore, you are likely to have  
3 more mortality at the screen rather than as taken in.  
4 Again going back to our requirement to have no  
5 reasonably scientific doubt, there is information there 16:06  
6 that there is considerable mortality at some of the  
7 power station intake screens. The estimate, I am not  
8 looking for a highly accurate estimate, I am looking  
9 for some type of use of the data that is in the  
10 literature already to derive an answer to this. It 16:06  
11 doesn't have to be a survey based estimate, what I am  
12 saying is there is information there in the literature,  
13 there is information there by experts who have done  
14 monitoring at these stations that if that data can be  
15 used and if we can get some estimate of the population 16:07  
16 of fish and mackerel crustaceans available to bird life  
17 within the estuary and to other predatory groups,  
18 I know that Simon mentioned that it's not a relevant  
19 issue for dolphins, but it shouldn't be difficult to  
20 make that estimate. 16:07

21 **MR. CREAVAN:** Estimates would be very,  
22 very site specific, you  
23 will appreciate that, but the main I suppose suggestion  
24 would be monitoring. Even though the intake screens  
25 and the process speeds have been designed with 16:07  
26 possibility of impingement and entrainment in mind  
27 monitoring would be recommended as a measure.

28 **MR. GOOD:** I would agree that  
29 monitoring would be a good



1 idea, but we are still in the position that we cannot  
2 make a decision or advise the Board to make a decision  
3 on this without having some estimate which removes that  
4 doubt that this is going to be an issue. From my own  
5 limited experience of the literature I wouldn't expect 16:08  
6 it to be an issue, but we need some sort of an  
7 estimate, some use of the existing literature that is  
8 out there. It shouldn't be difficult to estimate the  
9 number of in fish and mackerel crustaceans in a body of  
10 water like the Shannon because we are not talking about 16:08  
11 very closely related to the development area, we are  
12 talking about a feeding area which is much bigger.

13 **MR. CREAVER:** Yes. We can certainly -- I  
14 mean consultation and  
15 getting figures from the Fisheries Board will give an 16:07  
16 excellent idea of what to expect, because they are  
17 adjacent to the site. If we can get those figures from  
18 the Fisheries Board we would be happy to.

19 **MR. GOOD:** Just on that point as well:  
20 you mentioned in your 16:07  
21 presentation about the reference from Mayhew *et al*,  
22 LaJeone and Monzingo and the Central Fisheries Board  
23 report, I couldn't find any of those in the EIS, would  
24 it be possible to supply those.

25 **MR. CREAVER:** It would be, yes. These 16:08  
26 are additional to -- these  
27 are to support the witness statement.

28 **MR. GOOD:** Are they in the witness  
29 statement, the actual

1 references?

2 **MR. CREAVER:** I can furnish you with  
3 copies, yes.

4 **MR. GOOD:** If you could that would  
5 be great, thank you. 16:08

6 **MR. CREAVER:** Yes, could I also have a  
7 copy of your reference to  
8 look at the intake volumes?

9 **MR. GOOD:** You can, of course, yes.

10 **MR. J. McELLI GOTT:** Mr. Inspector, there is 16:08  
11 another way to heat the  
12 gas, which would not use any of the water of the  
13 Shannon Estuary, and it would be to use some of the gas  
14 itself to reheat the Liquefied Natural Gas. That would  
15 have absolutely no effect on the Shannon Estuary then. 16:08  
16 Because I think the fish, I don't think they are not  
17 going like this, what's happening, and if they are not  
18 going to be affected at all it is obvious there is  
19 another way. But there is an economic cost of the  
20 that, which is about 2% of a cargo, from what I read in 16:08  
21 the literature.

22 **MR. O'NEILL:** The various options  
23 available in relation to  
24 the regasification were dealt with by Mr. Bowdoin in  
25 his report and having, and indeed there is an 16:09  
26 obligation to assess all the possibilities, and that  
27 exercise was undertaken and the conclusion reached was  
28 that that facility, the regasification process  
29 identified, and the subject of the planning application

1 was the most appropriate.

2 **INSPECTOR:** Mr. Fitzsimons?

3 **MR. FITZSIMONS:** Mr. Inspector, just in  
4 relation to the report from  
5 the Central Fisheries Board and the screens that were 16:09  
6 looked at, at that time. I have not read this report  
7 or really studied it in any great detail at all, it  
8 didn't particularly concern me, but I understood that  
9 the thrust of the screening arrangement and the purpose  
10 of the study was to estimate whether a finer type of 16:09  
11 screen was required for the dissent of smolts to the  
12 Shannon to prevent their intake. That was the reason  
13 why there was a statutory requirement for the intake of  
14 screens for juvenile salmon and I think it is a 10mm  
15 bar screen on most of these intakes, and I think they 16:10  
16 didn't find very significant amounts of smolts  
17 appearing at the power station and that's why there  
18 wasn't a necessity to put in the 50mm bar screens from  
19 the point of view of salmonids. But that doesn't  
20 change the position that quite a lot of other fish 16:10  
21 species native to the estuary are being affected by the  
22 power intakes. There is significant quantities of fish  
23 being found killed at these screens. So, looking at it  
24 from the non-salmonid point of view, the finer mesh  
25 screen would definitely be required, even for the 16:10  
26 existing power stations.

27 **MR. CREAVEN:** As far as I was aware, I  
28 think the report, the 2006,  
29 covered macrocrustaceans and smolts. I think.

1           **MR. FITZSIMONS:**           I can't remember now.  
2   I don't recall it, so.  
3           **MR. CREAVEN:**           All right, okay.  
4           **INSPECTOR:**           Okay.  
5           **MR. O' DONOVAN:**       Yes, Mr. Inspector, just to 16:11  
6   follow up on that. It is  
7           my experience, having coast fished, in my youth, on the  
8           Shannon Estuary, on the Tarbert side, it is my  
9           experience that all the fish, pretty much all the fish  
10          are shore fish. In other words, they hug the shore. 16:11  
11          Especially on warm days, which I think we are going to  
12          see plenty of them this summer again, is that they even  
13          come up within a couple of feet of the shore, to the  
14          warmer waters, from the main drag of the Shannon. So,  
15          the thing is, in fairness, I think in order to save as 16:12  
16          many fish as we can I think those screens, or whatever,  
17          I don't know what facility they can come up with in  
18          order to save them, because it is possible that there  
19          could be a whole generation of fish facing extinction  
20          with this massive intake of water, 100 million gallons 16:12  
21          a day, which is absolutely phenomenal. I don't think  
22          we can even imagine it. Thank you, Mr. Inspector.  
23          **INSPECTOR:**           Thank you. Anybody else?  
24          **MR. J. McELLI GOTT:**    Mr. Inspector, I was asked  
25   to read another statement. 16:12  
26          The pipeline seems to be raising its head even more.  
27          **INSPECTOR:**           Hold on, let's keep on the  
28   ecology issue.  
29          **MR. J. McELLI GOTT:**    They say it is effecting

1 the ecology issue and this  
2 is the only place where they can make the statement.  
3 Is only about ten lines.

4 **INSPECTOR:** Okay.

5 **MR. J. McELLI GOTT:**

16: 13

6 "Carhoona, Tarbert, Co. Kerry to  
7 Shannon LNG. For the attention of  
8 Mr. Brendan Mangan and Mr. Biggane.

9 We, the residents of the road entering  
10 our farm and residence at Carhoona  
11 strictly object to any gas line going  
12 through our private road. This is our  
13 private road and by no means are we  
14 agreeing to allow any gas line pass  
15 through it. We need our road for our  
16 own private use. By no means are we in  
17 favour of this gas line coming to  
18 Tarbert. We have lived here all our  
19 lives without a gas line and we  
20 sincerely hope to continue to do so."

16: 13

16: 13

21 This is signed by Dan O'Connell, Nora O'Connell  
22 Josephine O'Connell, Thomas O'Connell, Sheila  
23 O'Connell, Catlin O'Connell, Bartley O'Connell, Ailish  
24 O'Connell and Joanne O'Connell. Thank you.

25 It just means what Mr. McElligott said there, that  
26 there are actually a lot of people that are very  
27 worried about this pipeline. Thank you.

16: 13

28 **INSPECTOR:** Okay. Any further  
29 questions on ecology?

Okay, Ms. Griffin?

16: 14

30 **MS. GRIFFIN:** Catriona Griffin. Karl  
31 Dixon's statement, page 13,  
32 second paragraph, second line, it says:

"Where possible vegetation will be

1 removed outside the peak breeding  
2 season (March to June) to avoid  
3 disturbance to nesting birds."

4 On the next paragraph, second line, it says:

5 "where possible artificial sets will be  
6 constructed for badgers."

16: 14

7  
8 And on the next paragraph it says:

9 "bat boxes or similar will be put into  
10 place to provide alternative roosting  
11 sites for these bats."

16: 14

12 In relation to comments where you have started the  
13 sentence with "where possible", what about when it  
14 isn't possible?

15 **MR. DIXON:**

In relation to threshill

16: 14

16 birds, where obviously we  
17 will make every effort to remove the vegetation outside  
18 the peak breeding season. There will be some localised  
19 loss of habitat, I think that's accepted in the EIS,  
20 and there would be an impact on some common countryside  
21 birds. I think we accepted that during the EIS, that  
22 there will be some localised impacts.

16: 15

23 **MS. GRIFFIN:**

The second paragraph, the  
24 badger sets?

25 **MR. DIXON:**

Yes, it is quite difficult  
26 at this stage to be very,

16: 15

27 very precise about the distribution of badger social  
28 groups. We will be doing more surveys and, having just  
29 discussed this with Jervis, we are committed to

1 providing alternative sets for these groups.

2 **MS. GRIFFIN:** Can you just explain to me  
3 what is a bat box? Does it  
4 hang out in the open, or?

5 **MR. DIXON:** There is a variety of 16: 15  
6 different structures you  
7 can use to provide alternative roosts for bats.  
8 Sometimes they are built into structures, sometimes  
9 they are just wooden boxes that are placed on poles or  
10 tall structures. 16: 15

11 **MS. GRIFFIN:** My understanding of bats,  
12 bats prefer old buildings,  
13 dark place, caves.

14 **MR. DIXON:** Common Pipistrelle have  
15 different requirements, 16: 16  
16 during the winter they need hibernation sites, and they  
17 are often cellars. During the summer they will  
18 actually use a variety of different habitats, including  
19 bat box structures.

20 **MS. GRIFFIN:** Page 12 then, second last 16: 16  
21 paragraph, your response is  
22 to my submission. You say:

23 "The operational area will not occupy  
24 the entire development site and  
25 following construction large areas will  
be planted with trees and shrubs." 16: 16

26  
27 How long will the trees and shrubs take to grow?

28 **MR. DIXON:** I don't have a very precise  
29 answer for that. I think

1           there is about 8 hectares of replacement planting is  
2           planned.

3           **MS. GRIFFIN:**                                So you are talking  
4    years?

5           **MR. DIXON:**                                 Yes, you would be talking a 16:16  
6    couple of years, certainly,  
7           before it starts to reach a reasonable size.

8           **MS. GRIFFIN:**                                So what do the animals do  
9    in the meantime?

10          **MR. DIXON:**                                The habitats removed are 16:16  
11    generally common in the  
12          area, there is nothing that makes them stand out from  
13          the surrounding areas and for a lot of the species they  
14          will just distribute to the surrounding landscape.

15          **MR. J. McELLI GOTT:**                    Mr. Dixon, I also noticed 16:17  
16    in the EIS you say that  
17          there are frogs on the site and they are just going to  
18          be removed before construction commences. I am just  
19          wondering did you ever try to catch a frog?

20          **MR. DIXON:**                                Yeah, I used to cut turf as 16:17  
21    a child.

22          **MR. J. McELLI GOTT:**                    280 acres, how are you  
23    going to go around catching  
24          all these frogs?

25          **MR. DIXON:**                                The frogs are restricted to 16:17  
26    relatively small areas of  
27          wet grassland so it won't be too difficult.

28          **MR. J. McELLI GOTT:**                    So how do you propose to  
29    catch them? Alive or dead,



1 is it. Or is it with a bulldozer?

2 **MR. DIXON:** Essentially I would  
3 envisage a certain amount  
4 of people with small hand nets and transferring them to  
5 buckets and then transferring them to other wet 16:17  
6 grassland habitat.

7 **MR. GOOD:** If I could just make a  
8 comment there on the  
9 previous question about bat boxes. A licence will be  
10 required from the National Parks and Wildlife Service 16:17  
11 to remove any bats and I doubt if bat boxes would be  
12 sufficient for that, it may require some other form  
13 of -- it depends on what species and how many are  
14 there. But it may not be a traditional bat box in the  
15 sense of a roost. So, that will be covered by licence 16:18  
16 conditions independent of the planning.

17 **MR. J. McELLI GOTT:** That house is my  
18 grandmother's house and I  
19 still have not got an answer to the question: Why if  
20 there are bats in that house would they want to knock 16:18  
21 and it, and it so close to the road? And I have asked  
22 that several times. If they could answer why they want  
23 to knock or? Or if they are not going to knock it that  
24 would obviate all those other issues. Could somebody  
25 please tell me why they want to knock my grandmother's 16:18  
26 house? Okay, I will put it more simply. What is the  
27 reason you have put in that you are destroying the  
28 house? There must be a physical reason for it.

29 **MR. O'NEILL:** We will deal with that

1 issue. We are dealing with  
2 ecology at the moment and therefore the appropriate  
3 personnel are not here at the moment to specifically  
4 deal with Mr. McElligott's issue.

5 **MR. McELLI GOTT:** No, the bats are in the 16:19  
6 house.

7 **MR. O' NEI LL:** I thought the question was  
8 why are we demolishing your  
9 former family's house?

10 **MR. J. McELLI GOTT:** Yes, but it is why are you 16:19  
11 recreating a new bat  
12 habitat when there is one that is there already? Every  
13 time I ask this question about my grandmother's house,  
14 Lord have mercy on her, nobody seems to be able to  
15 answer it. Now I am asking specifically for the bats. 16:19  
16 The bats are in my grandmother's house and they are  
17 upsetting no-one and why are they knocking the house?

18 **MR. O' NEI LL:** The reason for knocking the  
19 house will be dealt with.

20 **I NSPECTOR:** It will be dealt with. 16:19

21 **MR. J. McELLI GOTT:** When? Which module?

22 **MR. O' NEI LL:** It will be dealt with  
23 either later today or  
24 tomorrow.

25 **MR. J. McELLI GOTT:** This is ecology. After 16:19  
26 this what module can we  
27 deal with it in, Mr. Inspector?

28 **I NSPECTOR:** We will be going back to  
29 the module that we left off

1 on, on Friday, after this ecology module.

2 **MR. J. McELLI GOTT:** The vibrations; is it?

3 **INSPECTOR:** It is really the catch all

4 module, it covers a wide

5 variety of issues. 16: 20

6 **MR. J. McELLI GOTT:** Okay. Because I think this

7 issue of my grandmother's

8 house is getting swung around from one module to

9 another, and it has a lot of impacts on all the

10 different modules. 16: 20

11 **INSPECTOR:** Well, it may come under

12 etc.

13 **MR. J. McELLI GOTT:** Right.

14 **INSPECTOR:** Do we have anymore

15 observations or questions 16: 20

16 on ecology? Okay, Ms. Griffi n.

17 **MS. GRI FFIN:** Hi, I am Catri ona Gri ffi n

18 again. Mr. Di xon, page 19

19 of your statement, the second last paragraph, in

20 relation to the birds you said: 16: 20

21 "After an initial period of

22 disturbance, it is expected that birds

23 in the area would become habituated to

24 noise from the site."

25 Well, I know how they feel. But what if they don't get 16: 20

26 used to the noise on the site? I mean, you are

27 expecting it, but.

28 **MR. DI XON:** Well, the noise report

29 shows that the noise, the

1 operational noise, would be very low. There is  
2 numerous examples of birds habituating to that noise.  
3 This site isn't particularly important for birds, there  
4 is not huge concentrations of birds close to the  
5 operational area, so all the evidence would suggest 16:21  
6 they will habituate the noise.

7 **INSPECTOR:** Okay. I think we will just  
8 take a break at this stage  
9 for about five minutes and then we will come back.

10 **MR. GOOD:** I would like to make one 16:21  
11 comment again, to stir the  
12 pot a little bit I suppose, as regards your question  
13 about the house and the need for demolition. A licence  
14 for removal of the bat will have to state that there is  
15 no satisfactory alternative. So just to make that 16:22  
16 clear, that's a requirement. So that needs to be  
17 explained in the context of the legislative process for  
18 licence.

19 **MR. J. McELLI GOTT:** So that means the bats will  
20 save my grandmother's 16:22  
21 house, which is there since the 1820's.

22 **MR. GOOD:** If there is no satisfactory  
23 alternative.

24 **MR. J. McELLI GOTT:** Thank you very much.

25 **INSPECTOR:** Okay, I was saying that we 16:22  
26 will adjourn for about 5  
27 minutes.

28  
29 **SHORT ADJOURNMENT**

1 THE HEARING RESUMED, AS FOLLOWS, AFTER A SHORT  
2 ADJOURNMENT

3  
4 **INSPECTOR:** I think we have had five  
5 minutes, or a brief break 16: 40  
6 anyway, so if you could resume your seats please. I  
7 think our ecologist John Brophy may have a few  
8 questions in relation to this module so I am going to  
9 hand over to him for a moment.

10  
11 MR. JOHN BROPHY QUESTIONED THE APPLICANTS ON ECOLOGY AS  
12 FOLLOWS:

13  
14 **MR. BROPHY:** Good afternoon. If I could  
15 just start with a question 16: 41  
16 for Dr. Berrow. It is referred to in the EIS that  
17 there is possibility for monitoring of the dolphin  
18 population in the course of the construction period,  
19 but there is no reference to any post construction  
20 monitoring. Do you think it would be of use if you 16: 41  
21 have baseline information from pre-construction to  
22 compare, if they do return, if there is any impact  
23 during construction?

24 **DR. BERROW:** Yes, indeed. I think  
25 Shannon LNG have committed 16: 41  
26 to continue the acoustic monitoring that we have  
27 started so we have a baseline certainly during  
28 construction. I am sure that we can carry it on  
29 afterwards. There is a possibility that we might

1 actually enhance that site, because there is an  
2 artificial reef affect. But anyway, we have only had  
3 one years data and as you know, really, especially a  
4 large mobile species like a dolphin, you do really need  
5 to have a few more years data, because, obviously, in 16: 41  
6 some years they might use the site quite a lot. So,  
7 maybe it is not explicitly stated, the time scale of  
8 the acoustic, monitoring but, yes, I am sure that will  
9 carry on.

10 **MR. BROPHY:** Okay. Just a couple of 16: 42  
11 questions for Mr. Dixon. Just to begin, there were a  
12 number of additional surveys that were carried out and  
13 were submitted after the submission of the EIS, is  
14 there a reason why these surveys weren't carried out  
15 and presented with the EIS information? 16: 42

16 **MR. DIXON:** Yes, I suppose as the  
17 project evolved I suppose  
18 the requirements changed a little bit. I think the  
19 embankment pond concept came in after some of the  
20 initial surveys had been done and because of that and 16: 42  
21 further meetings with the NPWS we came up with some new  
22 surveys that were required. That is why they weren't  
23 completed for the initial EIS.

24 **MR. BROPHY:** So it came out later on in  
25 the planning? 16: 43

26 **MR. DIXON:** Yes. As it was developing  
27 and, I suppose, the design  
28 was changing around a little bit we just felt that we  
29 were, perhaps, slightly under covered in certain areas

1 and so we just did some additional surveys. Just to  
2 clarify, there was also seasonal aspects to some of  
3 them as well, particularly the lagoon survey.

4 **MR. BROPHY:** In relation to the badger  
5 set that it is just outside 16: 43  
6 of the development site: As I understand it, there is  
7 going to be blasting carried out at the sites of the  
8 tanks but there is no reference to the impact that that  
9 blasting may have on the badger set there, and it is  
10 referred to in the NRA guidelines for badger set 16: 43  
11 treatment that blasting shouldn't be carried out within  
12 150m.

13 **MR. DIXON:** 150m, yes. I think what  
14 happened with the badger  
15 surveys is that we started our bait marking survey to 16: 44  
16 determine the social groupings and there was quite a  
17 lot of disturbance then on the site, as a large section  
18 of the site was cleared. So, we will do more surveying  
19 looking specifically at how the social groups are  
20 divided and around the site. The set that's outside 16: 44  
21 the boundary, there are some holes quite close to the  
22 eastern boundary, but there is also a lot of tracks  
23 leading into the coniferous forestry further up. So,  
24 there is potential there. Now, we will have to  
25 re-survey that area to determine exactly how we are 16: 44  
26 going to accomplish it. And, obviously, it will all be  
27 done under licence from the NPWA anyway. But there may  
28 be scope to displace some of the badgers from the holes  
29 immediately outside the eastern boundary back further

1 into the coniferous forestry. But because it was  
2 outside the sites boundary it wasn't surveyed in quite  
3 as much detail as the holes within the site boundary.  
4 But we do intend to do more work on it.

5 **MR. BROPHY:** Is it likely that the 16: 45  
6 timing of the blasting will  
7 agree with the NRA guidelines that it should be outside  
8 the breeding period?

9 **MR. DIXON:** Well, December to June is 16: 45  
10 the breeding period so it  
11 will either be a question of timing the blasting or  
12 displacing the badgers to one of the other sets that  
13 are more than 150m away.

14 **MR. BROPHY:** There was reference made to 16: 45  
15 sand martin nests in the  
16 cliffs along the site boundary and it states that if  
17 any of those are lost during construction that the sand  
18 martins can return and build other nests. Is that not  
19 restricted to certain types of soil or sediment? I  
20 mean, I noticed that they were mostly in between the 16: 46  
21 boundary of the brown soil and grey till.

22 **MR. DIXON:** Yes. I suppose the thing 16: 46  
23 with sand martin colonies  
24 is that they are fairly mobile anyway because by their  
25 nature they exist in sort of unvegetated cliff faces 16: 46  
26 that are tending to erode anyway. I suppose the reason  
27 they are unvegetated is that they are actively eroding.  
28 There is other habitat within that cliff face that they  
29 can utilise. There may well be other habitat within



1 the surrounding area. I suppose ideally we would hope  
2 that they would displace along that cliff face, but  
3 there are certainly other habitats that they can find  
4 in the area. I know they are included in the Amber  
5 List but they are not a very uncommon bird in the  
6 countryside by any means. 16: 46

7 **MR. BROPHY:** Would there be any  
8 advantage in creating  
9 artificial nesting burrows?

10 **MR. DIXON:** It is a possibility we 16: 47  
11 could consider, certainly. We could look at putting  
12 pipes into the cliff face. But my own feeling at the  
13 moment is there is probably enough eroding cliff face  
14 for them to develop their own holes at the moment.

15 **MR. BROPHY:** If I might just go back to 16: 47  
16 Mr. Berrow for a moment.  
17 Just in relation to the piling and also the onshore  
18 blasting. Is it proposed that there will be Marine  
19 Mammal Observers for both of those operations, or just  
20 the piling operation? 16: 48

21 **DR. BERROW:** At the minute it is purely  
22 for the drilling and piling  
23 and with consultation with the Wildlife Service, if  
24 they requested, you know, it is not a problem. But the  
25 intensity of blast into the marine environment is what 16: 48  
26 the figures are. It is quite loud, 150, 160 decibels,  
27 but is very low frequency, 10, 100Hz, and that's within  
28 50m and that's going to, obviously, attenuate quickly  
29 with distance. So, I would probably argue that it is

1 probably not necessary. But, again, if it is requested  
2 by the Wildlife Service then no problem.

3 **MR. BROPHY:** Finally some questions for  
4 Dr. Doyle. You have  
5 mentioned a number of times the Money Point discharge 16: 48  
6 further up the estuary, do you know of any assessment  
7 of the impact that that has had? Has there been any  
8 studies carried out since its operation?

9 **DR. DOYLE:** No. Well, not that I am  
10 aware of. But the reason 16: 49  
11 that I used Money Point as a reference was because the  
12 EPA issued an IPPC licence for Money Point to specify a  
13 certain mixing zone given the chlorine concentrations  
14 and the volume discharged there. So, the EPA were  
15 satisfied that Money Point met the required conditions 16: 49  
16 and the fact that the discharge is so much greater  
17 there I thought it was relevant to reference that in my  
18 submission.

19 **MR. BROPHY:** Just finally. You do a lot  
20 of work on the chlorine 16: 49  
21 concentrations but have you done any work on the  
22 degradation products of chlorine once it starts to  
23 break down in the environment and any impacts that  
24 might have?

25 **DR. DOYLE:** Well, again, we were just 16: 50  
26 using the EPA guidelines  
27 for residual chlorine, which is exactly what comes out  
28 of the pipe. They set the guidelines, if you like, so  
29 they are the ones that we have to meet so that's what

1 we looked at.

2 **MR. BROPHY:** That's all. Thank you very  
3 much.

4

5 END OF QUESTIONING BY MR. BROPHY 16:50

6

7 **INSPECTOR:** Thank you, John. Just to  
8 come back to the badgers,  
9 the ones at the eastern boundary of the site. Do you  
10 have the necessary agreement of the landowner to 16:50  
11 relocate those?

12 **MR. DIXON:** No, not at this stage. It  
13 would have to be discussed  
14 with them I suppose.

15 **MR. INSPECTOR:** But you are confident that 16:51  
16 it can be achieved.

17 **MR. DIXON:** The answer is I don't know  
18 at this stage. I just  
19 don't know.

20 **INSPECTOR:** Okay. Mr. Brophy has just 16:51  
21 remembered something here.

22 **MR. BROPHY:** This pretty much covers all  
23 the ecology sections, in  
24 that there seems to be very limited details on any  
25 plans for monitoring the construction for any of the 16:51  
26 ecological elements. While the impacts have been  
27 assessed there is no post construction monitoring to  
28 see if those assessments are correct and if any changes  
29 need to be made.

1           **MR. DIXON:**                               Yes, I suppose for some of  
2   the ecology aspects we will  
3           be meeting various guidelines, for instance NRA  
4           guidelines, for badgers and bats, and I know that they  
5           specify post construction monitoring. I suppose I have 16:52  
6           not specifically said it, but I am expecting that in  
7           line with those guidelines there will be some post  
8           construction monitoring, particularly for those two  
9           species. There will be ongoing hydrological work in  
10          relation to the wetland habitats and then there may be 16:52  
11          some agreement with NPWS on how the flow is regulated  
12          and how that maintains those habitats. So, the NPWS  
13          they may have requirements in terms of monitoring of  
14          those.

15  
16          The remaining habitats, again the bats are dealt with  
17          in NRA guidelines specified, that you have. And I  
18          believe that the bat mitigation measures produced by  
19          Conor Kelliher also specify post construction  
20          monitoring. The rest of the habitats were sort of 16:52  
21          common and there didn't seem to be a great need to  
22          monitor them post construction.

23          **MR. BROPHY:**                               Okay.

24          **INSPECTOR:**                               Okay, just one other point  
25   that didn't really come up 16:52  
26          in the submissions. What about the risk of pollution  
27          from the ships if there is an oil leak? Is it still  
28          the case that most of the LNG ships are steam turbines  
29          fed by boil off gas?



1 don't have a lot of smells associated with them.

2 **MR. J. McELLI GOTT:** I am just also thinking of  
3 the contaminant gases. Can  
4 Shannon LNG guarantee that there will be no smells at  
5 all from the plant? 16: 55

6 **MR. SHEARER:** I don't know what  
7 contaminant gases  
8 Mr. McElligott is referring to. The Fisheries Board  
9 this morning, Dr. Fitzsimons, raised some questions  
10 around a UK report on pollution. We will have a 16: 55  
11 response to that along with the other issues he raised.  
12 But I am not aware of any contaminant gases within the  
13 LNG that would result in any kind of odours. If  
14 Mr. McElligott knows specifically what the issues are I  
15 would be happy to answer it. 16: 55

16 **MR. J. McELLI GOTT:** No, it is just a question.  
17 **INSPECTOR:** Are you concerned about  
18 propane, butane?  
19 **MR. J. McELLI GOTT:** I am just concerned about  
20 the smells and just to ask 16: 56  
21 them can they guarantee there will be no smells from  
22 the plant? Because I don't know what else they are  
23 going to put inside there, so. It is just a general  
24 question, that they can guarantee that there are no  
25 smells coming from the plant. 16: 56

26 **INSPECTOR:** I think that's really what  
27 he has said.  
28 **MR. J. McELLI GOTT:** Yeah, okay.  
29 **MR. SHEARER:** We have found

1 Mr. MacIntyre.

2 **INSPECTOR:** Okay.

3 **MR. O'NEILL:** Will you ask the question  
4 rather than me paraphrasing  
5 it, sir? 16:56

6 **INSPECTOR:** Mr. MacIntyre, I was asking  
7 about the risk of pollution  
8 from the LNG carrying ships, and I was thinking  
9 particularly of oil pollution. I was asking whether it  
10 is still the case that most of these ships are steam 16:57  
11 turbines fed by boil off LNG so that there would be a  
12 low amount of bunker oil?

13 **MR. MacINTYRE:** Yes, Mr. Inspector, the  
14 majority of ships in the  
15 world are, indeed, steam propelled and are driven 16:57  
16 principally by the boil off from the cargo and,  
17 therefore, generally carry low levels of fuel oil on  
18 board. Also, the newer ships being built in the last  
19 few years all have double-hulled shells extending  
20 around the bunker tanks. So, in addition to the double 16:57  
21 shell in way of the cargo tanks all of the bunker fuel  
22 oil tanks also have a double shell protecting them.  
23 Now, there are some new ships just being delivered, the  
24 new large ships, which are in fact diesel powered ships  
25 with reliquefaction on board, and they run on fuel oil. 16:58  
26 But being newer ships, exclusively they all have double  
27 hull in way of the bunker tanks so there should be  
28 minimal risk of any oil pollution from them.  
29 In addition, we are not providing any bunkering

1 facilities and do not propose to do any bunker transfer  
2 in the estuary.

3 **INSPECTOR:** Thank you, Mr. MacIntyre, I  
4 think that answers that. I  
5 think at this stage -- sorry, we have just one question 16:59  
6 there.

7 **MR. O' DONOVAN:** Thank you, Mr. Inspector.  
8 I would just like to ask  
9 the panel: In their estimation, it doesn't have to be  
10 an exact science, but -- just two parts of one question 16:59  
11 here -- what other parts of the extraction, the 100  
12 million gallons of water, will be used to cool or heat,  
13 whatever, what mix of chlorine would be in that? What  
14 parts per million for instance? And is there a  
15 guarantee that there would be no other chemical or 16:59  
16 additive to that effluent from the cooling process?  
17 Could anybody just give me even a ballpark figure?

18 **MR. CREAVEN:** I think that might have  
19 been covered in my witness  
20 statement earlier on. 17:00

21 **INSPECTOR:** Can you find it again?

22 **MR. CREAVEN:** Yes, I think. Okay. Page  
23 16, just putting the levels  
24 of chlorine into perspective, the second paragraph and  
25 the third paragraph. Then just the following page, 17:00  
26 page 17, just detailing, again, the levels and the  
27 purpose for adding the chlorine.

28  
29 On page 16, first of all, the fourth line down,



1 beginning on the third line:  
2  
3 "Whereas the figure at the outfall for  
4 the proposed LNG facility is 0.2mg per  
5 litre...."  
6  
7 And then kind of putting that into context. I think it 17:01  
8 is detailed in the EIS as well.  
9  
10 MR. O' DONOVAN: Thank you.  
11 INSPECTOR: And there will be no other  
12 chemicals introduced? He  
13 asked whether there would be any other chemicals 17:01  
14 introduced.  
15 MR. CREAVEN: Introduced?  
16 INSPECTOR: Into the water flow?  
17 MR. CREAVEN: According to EIS specs, no.  
18 MR. O' DONOVAN: Of course in your 17:01  
19 experience, maybe, with  
20 other facilities of this sort are you fully confident  
21 that no other chemicals have been added to the  
22 effluent?  
23 MR. CREAVEN: I can only really go by the 17:02  
24 detailed specs given in the  
25 EIS.  
26 MR. J. McELLI GOTT: I think maybe he means you  
27 create the sodium  
28 hypochlorites by electrolysis, isn't it, and also when 17:02  
29 there is not enough you can inject your own sodium  
hypochlorites, isn't it?  
MR. CREAVEN: I can pass this question on  
and probably Tighe

1 O'Flaherty probably might be the best person.

2 **MR. McELLI GOTT:** You are creating sodium  
3 hypochlorites for the  
4 anti-fouling.

5 **MR. CREAVEN:** Sodium hypochlorite is 17:02  
6 created from the intake  
7 water itself, you are not adding anything.

8 **MR. J. McELLI GOTT:** But then you have also said  
9 then when you don't have  
10 enough you will actually import your own chlorine and 17:02  
11 inject that into the water. Maybe that's what he is  
12 referring to; is it?

13 **MR. CREAVEN:** Yes, but it is the same  
14 chemical.

15 **MR. J. McELLI GOTT:** Okay. But it is an 17:02  
16 importation of a chemical  
17 into the plant; isn't it?

18 **MR. CREAVEN:** I think the question might  
19 have been were other  
20 chemicals involved. 17:03

21 **MR. J. McELLI GOTT:** Okay.

22 **MR. O' DONOVAN:** Thank you, Mr. Inspector.

23 **INSPECTOR:** I think we will call it a  
24 day on ecology at this  
25 stage and we will go back to the multi-titled issues. 17:03  
26 We were doing the module on roads, traffic, noise,  
27 vibration, dust, etc. So, I think you presented a  
28 number of papers on that.

29 **MR. O' NEILL:** Yes, sir. Before I ask the

1 next speaker to present his  
2 paper if I can just deal with the issue that  
3 Mr. McElligott raised in relation to his family home.  
4 The position is there are a number of structures,  
5 buildings, houses, former houses on the site, all of 17:03  
6 which are in a derelict condition and are dangerous or  
7 potentially dangerous. Shannon LNG doesn't have any  
8 plans to reinstate those buildings, they serve no  
9 purpose in the context of the proposed development, and  
10 nor do they accord with the landscaping proposals that 17:04  
11 are the subject matter of the planning application. In  
12 those circumstances, and having regard to their  
13 derelict state and dangerous, or potentially dangerous,  
14 nature it is proposed to demolish those buildings.

15 17:04  
16 We have heard what Mr. Good has said from the  
17 Department, that if no justification for demolition can  
18 be put forward in circumstances where there is a bat  
19 presence within the structure in question, whether it  
20 be Mr. McElligott's former family home or any other 17:04  
21 building, well then the appropriate licence to move the  
22 bats and remove the structure will not be forthcoming.

23  
24 So, I think the answer to the question is that if there  
25 is a bat presence in any particular structure and the 17:05  
26 Department is not satisfied that the removal of that  
27 structure is required, the appropriate licence will be  
28 refused, with the consequence that, presumably, the  
29 structure will remain in situ.

1           **INSPECTOR:**                               Mr. Good, do you have any  
2   comment on that? You have  
3           heard that essentially keeping those derelict buildings  
4           doesn't really accord with the applicant's plans, or in  
5           particular the landscaping plans, they are derelict and 17:05  
6           possibly dangerous, would that be a sufficient reason  
7           to have them demolished?

8           **MR. GOOD:**                                       I think it is envisaged in  
9   the EIS that there would be  
10          a further survey of bat use. So, I would suggest that 17:06  
11          in the first instance. If they wish to apply for a  
12          license then we will process it in the normal manner.  
13          If the case for an alternative, no alternative  
14          existing, is not adequate then we can revisit the  
15          situation. 17:06

16          **MR. J. McELLI GOTT:**                       Mr. Inspector, those houses  
17   also have a historical  
18          significance, as outlined by Dr. Declan Downey.

19          **MR. O'NEILL:**                                       Not the houses on that  
20   site. 17:06

21          **MR. J. McELLI GOTT:**                       It is an old farmhouse,  
22   typical farmhouse of North  
23          Kerry of the 1820's and that does have some  
24          significance and bearing as well. In his whole speech  
25          he was saying that the whole area has a history. I 17:06  
26          would just like you to take that on board as well.

27          **MR. O'NEILL:**                                       I think that's maybe  
28   pushing it a little bit  
29          far. I understand that there may have been planning

1 permission -- I am not sure about this -- there may  
2 have been planning permission, in fact, already granted  
3 for the demolition of those houses. I am not  
4 suggesting that's a planning permission that has been  
5 implemented. But in any event, in response to 17:07  
6 Mr. Good, yes, the position is he is correct that the  
7 EIS does envisage that a survey will be carried out  
8 before works commence and, obviously, the results of  
9 those surveys will be forwarded to the Department and  
10 appropriate steps then. And if there are bats present 17:07  
11 well then, obviously, a licence is required and the  
12 appropriate criteria has been identified by the  
13 Department and will have to be, obviously, satisfied  
14 before that licence is granted.

15 **MR. J. McELLI GOTT:** Mr. Inspector, I would also 17:07  
16 point out that the  
17 presentation was given in about the Landscapes and it  
18 is a duty of the planners to take into account and to  
19 try and keep the landscape as it was for as much as  
20 possible. So, if there is no valid reason really other 17:07  
21 than just being too mean to actually do up a house,  
22 which they have left go into a dilapidated state in the  
23 first place, I think that that's not a reasonable  
24 excuse to just demolish a house.

25 **INSPECTOR:** Okay, Mr. McElligott, I 17:08  
26 take the point. Now, we  
27 are going to go on to the module that we were on  
28 yesterday and just to recap on what I had included in  
29 it: Roads, traffic, noise, vibrations, dust etc.

1 MR. O'NEILL: Yes, I am now going to deal  
2 with traffic, if I may, and  
3 I am going to ask Mr. Tony Lynch to present a paper.  
4

5 MR. LYNCH PRESENTED HIS SUBMISSION AS FOLLOWS:

17:08

6  
7 MR. LYNCH: My name is Tony Lynch. I  
8 am a chartered civil  
9 engineer. I am an Associate Director with Arup  
10 Consulting Engineers and work as a Project Leader in 17:08  
11 the transportation division of Arup. I have ten years  
12 experience in the production of Traffic Impact  
13 Assessments for various types of developments,  
14 including major industrial and infrastructural  
15 projects. I have a Masters Degree in Transportation 17:09  
16 from University College Cork and I am a member of  
17 Engineers Ireland and a member of the Institute of  
18 Highways and Transportation from the United Kingdom.

19  
20 Arup Consulting Engineers prepared the Traffic Impact 17:09  
21 Assessment included in the EIS for the proposed  
22 development of the Shannon LNG terminal in the  
23 townlands of Kilcolgan Lower and Ralappane between  
24 Ballylongford and Tarbert, Co. Kerry.

17:09

25  
26 The Traffic Impact Assessment was based on traffic  
27 counts carried out on the local road network in  
28 February 2007. The traffic counts identified Bridewell  
29 Street in Tarbert as being the busiest roadway in the

1 vicinity of the site, with recorded flows of around 300  
2 vehicles per hour (reference section 6.2.2 in the EIS)

3  
4 To ensure a robust assessment of the traffic counts  
5 occurred in February they were increased to represent 17:09  
6 traffic flows during the summer period months. The  
7 expansion factors were determined by comparing the  
8 recorded traffic flows during the month of February  
9 with recorded traffic flows during the month of August  
10 at the National Roads Authority Permanent Traffic 17:10  
11 Counter at Leitrim Bridge on the N69, 6km south of  
12 Tarbert. The above method of assessment produced  
13 acceptable summertime flows.

14  
15 Additional traffic counts were carried out in August 17:10  
16 2007 and were compared with those used in the  
17 assessment. The findings from the calibration exercise  
18 showed that the traffic flow data used in the  
19 assessment were consistent compared with the actual  
20 recorded traffic flows in that August 2007 count. 17:10

21  
22 The morning peak hour flows used in the assessment were  
23 higher than those recorded in August and the evening  
24 peak flows used in the assessment were equal to those  
25 flows recorded in August. The table in my brief of 17:10  
26 evidence illustrates the assessment flows versus the  
27 recorded flows. Do you wish me to read them all out?  
28 Or will I continue on?

29 **INSPECTOR:** No, just continue please.

1 MR. LYNCH: Thank you. The traffic  
2 generated by the  
3 development was calculated for both the peak  
4 construction period and the peak operational period.  
5 For the purposes of the Traffic Impact Assessment it 17:11  
6 was assumed that two tanks will be constructed  
7 simultaneously in the initial construction phase. If  
8 only one tank is constructed in the initial phase the  
9 traffic generated would be slightly less than for two  
10 tanks. Mr. Leon Bowdoin has explained the above in his 17:11  
11 evidence. When later tanks are constructed the tanks  
12 will be less than the initial phase.

13  
14 The traffic generated by the construction phase of the  
15 development has been based on the peak number of 17:11  
16 personnel employed on-site (650 workers) and the  
17 quantity of construction vehicles needed to service the  
18 construction site. The estimated peak hour traffic  
19 generated by the proposed development during  
20 construction is approximately 500 vehicles per hour. 17:11  
21 It is referenced in the EIS at section 6.3.2.1.

22  
23 In operational phase: The traffic generated by the  
24 operational phase of the development has been based on  
25 the number of personnel employed within the facility - 17:12  
26 64 workers, including contractors. The estimated peak  
27 hour traffic generated by the proposed development when  
28 complete is approximately 50 vehicles per hour.

29



1 The examination of the potential traffic generation as  
2 shown in the construction phase is considered a period  
3 which would have the greatest impact on the surrounding  
4 road network.

17: 12

5  
6 The traffic assignment: It is expected that the  
7 proposed development will increase traffic by up to 370  
8 vehicles per hour on Bridewell Street in Tarbert during  
9 the peak construction period. However, this number  
10 will reduce to approx. 40 vehicles when the plant  
11 construction is complete.

17: 12

12  
13 Junction assessment: The analysis of the neighbouring  
14 junctions was carried out using software developed by  
15 the UK Department of Transport. The following  
16 junctions were analysed as part of the Traffic Impact  
17 Assessment: The R51, the Ballylongford to Ballybunion  
18 Road; and the R552, which is the Ballylongford to  
19 Listowel Road; the R51, Ballylongford to Tarbert Road  
20 and the junction with Coast Road; the N67 which is the  
21 Ferry Port Road, with its junction with Bridewell  
22 Street in Tarbert; the N69 Listowel to Tarbert Road  
23 with its junction with Bridewell Street, also in  
24 Tarbert.

17: 12

17: 13

25  
26 The analysis of the junctions indicate that they would  
27 all operate within capacity during the construction  
28 phase of the development. The construction phase is  
29 considered to be the period which would have the

17: 13

1 greatest impact on the surrounding road network and it  
2 should be noted that the construction period is  
3 temporary. It is expected to take a total of four  
4 years, with approximately half of this time in full  
5 construction employment.

17: 13

6  
7 The mitigation measures - the upgrade to the Coast Road  
8 between the terminal and Tarbert: It is proposed in  
9 conjunction with Kerry County Council to upgrade the  
10 Coast Road connection of the proposed site with  
11 Tarbert. The upgrading of this roadway will ensure  
12 that construction traffic can pass without delay and  
13 will allow for the safe construction of the proposed  
14 terminal.

17: 13

15  
16 The local school on the Coast Road: It is proposed  
17 that no HGV (heavy goods vehicles) traffic will be  
18 allowed to pass the existing school on the Coast Road  
19 at Tarbert for 20 minutes before and ten minutes after  
20 the opening and closing of the school. The elimination  
21 of passing HGV traffic during these time periods will  
22 ensure the continued safe delivery and collection of  
23 children at the school. This mitigation measure will  
24 be a requirement of the construction contracts.

17: 13

17: 14

25  
26 The shift start and end times: It is proposed to  
27 stagger the various shift starting and end times within  
28 the construction complex. This small stagger in shift  
29 start and end time will lessen the impact of traffic

17: 14

1 peaking within the peak period itself and allow for a  
2 greater spread of traffic flow over the peak periods.

3  
4 Traffic Management Improvements on Bridewell Street:

5 It is suggested, with the agreement of Kerry County 17: 14

6 Council and An Garda Síochána, to introduce some

7 additional traffic management measures along Bridewell

8 Street if necessary. The measures will primarily

9 consist of double-yellow lines at the junction of the

10 N67, the Ferry Port Road, with Bridewell Street, and 17: 15

11 also the N69, which is the Listowel to Tarbert Road,

12 and its junction with Bridewell Street. At the

13 junction of the R551, which is the Ballylongford to

14 Tarbert Road and the Coast Road, it is suggested, again

15 with the agreement of Kerry County Council and An Garda 17: 15

16 Síochána, to develop a small build-out on the Coast

17 Road which would assist in defining the priority of the

18 junction and this build-out would be consolidated with

19 a yield sign to ensure all drivers understand the

20 correct right of way. 17: 15

21  
22 Finally on the mitigation measures, the Construction

23 Traffic Management Plan. A detailed Construction

24 Traffic Management Plan will be produced as part of the

25 contractual agreements for the construction of the 17: 15

26 terminal. This Traffic Management Plan will be agreed

27 with Kerry County Council before the implementation and

28 will have regard of local requirements.

29

1 The next section then deals with the various  
2 observations made on the proposal.

3 From Kathleen Kelly and Patrick Griffin: There will be  
4 a significant increase in traffic volumes on the Coast  
5 Road

17:16

6  
7 **Response:** the construction of the proposed facility  
8 will increase traffic on the Coast Road. However, this  
9 increase will be temporary and will be mitigated  
10 through the upgrade of the Coast Road between the site  
11 and Tarbert. On completion of the proposed facility  
12 the level of operation traffic will be quite light and  
13 will have little impact on traffic conditions in the  
14 vicinity of the proposed site.

17:16

15  
16 From Susan Foley, Noel Lynch and Joan Murphy from the  
17 Tarbert Ballylongford Working Group, and Noel Lynch  
18 from the Ballylongford Enterprise Association. This  
19 submission was regarding the upgrade of the proposed  
20 road between the proposed development site and  
21 Ballylongford should also be included in the upgrade  
22 works.

17:16

17:16

23  
24 The upgrade works on the Coast Road have concentrated  
25 on the section of the roadway connecting the proposed  
26 site with Tarbert. Tarbert is served by the national  
27 road network which is designed to cater for long  
28 distance movement of goods and passengers, including  
29 the movement of heavy goods vehicles. Kerry County

17:16

1 council's assessment of the alternative road  
2 improvement options indicated that improving the Coast  
3 Road from the proposed site to Tarbert offer the best  
4 solution in terms of access to the site. Upgrading the  
5 roadway as far as Ballylongford was not considered 17: 17  
6 appropriate as it would encourage greater traffic flows  
7 through the village of Ballylongford which it was not  
8 designed to accommodate.

9  
10 Noel Lynch from the Ballylongford Enterprise 17: 17  
11 Association. The submission was: The pedestrian  
12 network within Ballylongford should be upgraded within  
13 Ballylongford to cater for the projected increase in  
14 traffic.

15 17: 17  
16 The traffic generated by the proposed development  
17 through Ballylongford is to expected to be light as all  
18 HGV traffic will have to access the site via Tarbert  
19 along the upgraded Coast Road. In addition, the  
20 majority of staff traffic accessing the development 17: 17  
21 will arrive via Tarbert as it is served by the national  
22 road network.

23  
24 Eamonn McElligott - submission: Access should be  
25 retained for heavy goods vehicles along the Coast Road 17: 18  
26 between Ballylongford and the proposed site.

27  
28 The current roadway is not suitable to support the  
29 movement of a significant number of heavy goods

1 vehicles and Shannon LNG do not support its use as an  
2 access route to the proposed development site. The  
3 section of the Coast Road between the development site  
4 and Tarbert is proposed to be upgraded and this will be  
5 the designated access point to the development site for 17: 18  
6 HGV traffic.

7  
8 Catherine McMullin from An Taisce, the Kerry  
9 Association and the Kilcolgan Residents Association:  
10 The increase in traffic in Ballylongford will cause 17: 18  
11 traffic problems.

12  
13 The traffic generated by the proposed development  
14 through Ballylongford is expected to be light as all  
15 heavy goods vehicle traffic will have to access the 17: 18  
16 site via Tarbert along the upgraded road and the  
17 majority of staff traffic will arrive via Tarbert from  
18 the national road network.

19  
20 Catriona Griffin, Joan Murphy of the Tarbert 17: 19  
21 Development Association, John Fox, Ken Murphy of Ken's  
22 Hackney Service, Thomas and Mary O'Connell and Eamonn  
23 O'Connell: Concern regarding the impact of the  
24 increased traffic associated with the development on a  
25 management of traffic in Tarbert. 17: 19

26  
27 A detailed Traffic Impact Assessment was produced as  
28 part of the Environmental Impact Assessment. The  
29 Traffic Impact Assessment has shown that the existing

1 road network in Tarbert is capable of accommodating the  
2 projecting increase in traffic associated with  
3 development during both its construction and  
4 operational phases. The Traffic Impact Assessment  
5 noted that some mitigation measures to control on 17: 19  
6 street parking may be necessary to improve traffic  
7 flows in around the junctions within the village in  
8 peak construction periods during the summer months.  
9

10 Kilcolgan Residents Association: No construction 17: 19  
11 traffic should be allowed to travel to the site for  
12 five minutes before or after the arrival of the ferry  
13 in Tarbert.  
14

15 It is recognised that some delays are experienced by 17: 20  
16 ferry traffic within Tarbert after its arrival. These  
17 delays are generally short in duration and dispersion  
18 into the general flow of traffic. The submitted  
19 traffic impact assessment concluded that the junction  
20 of the Ferry Port Road and Bridewell Street have 17: 20  
21 sufficient capacity to accommodate the projected  
22 traffic flows and the additional mitigation measures to  
23 restrict additional traffic movements at this location  
24 are not required.  
25

26 Joan Murphy, The Tarbert Development Association, and 17: 20  
27 Mai réad Ní Scannail, the Scoil Náisiúnta Tarbert.  
28 Submission: Similar traffic restrictions as proposed  
29 for the comprehensive schools should also be applied to

1 the national school on the Llistowel Road.

2  
3 Tarbert National School is located on the N69, which is  
4 part of the national road network. The national road  
5 network is designed to cater for long distance movement 17: 20  
6 of goods and passengers, including the movement of  
7 heavy goods vehicles. During the school opening period  
8 the percentage increase in traffic is relatively modest  
9 at 15% and will not impact significantly on prevailing  
10 traffic conditions. In any event, the restrictions 17: 21  
11 proposed for the Coast Road (opposite the comprehensive  
12 school) will also act to reduce the volume of trucks  
13 entering the general Tarbert area as no access to and  
14 from the site will be possible during the start and end  
15 times of school. 17: 21

16  
17 Tom Moore, Tarbert comprehensive School, John Fox,  
18 Thomas and Mary O'Connell and Eamonn O'Connell.

19 Submission: The management of traffic opposite Tarbert  
20 comprehensive school on the Coast Road needs to be 17: 21  
21 considered.

22  
23 As part of the upgrade works to the Coast Road it is  
24 proposed to restrict heavy goods vehicle movements to  
25 the proposed facility opposite the Tarbert 17: 21  
26 comprehensive school during opening and closing times  
27 of the school.

28  
29 The implementation measures for the school will be



1 agreed in the Construction Traffic Management Plan with  
2 Kerry County Council and will be enforced during school  
3 term. The details of the plan will include  
4 consultation with the management of the school.

17: 21

5  
6 Raymond and Margaret O'Mahony - submission: (1) the  
7 main entrance to the LNG facility is opposite my  
8 entrance and my visibility exiting my property is  
9 restricted. (2) the current bus stop is on the Coast  
10 Road and will become more dangerous for his children to  
11 wait for the bus.

17: 22

12 Response: The proposed entrance to the Shannon LNG  
13 facility will not impact on the sight lines exiting the  
14 above property. The Coast Road between the site's  
15 entrance and Tarbert is to be upgraded as part of the  
16 development works. The upgrade works will generally  
17 improve exit visibility from all site entrances along  
18 the roadway. The upgrade works will improve general  
19 safety along the roadway as visibility will be improved  
20 along the length of the roadway. Currently bus  
21 passengers have to wait on a narrow country road,  
22 following the road widening works the road will be  
23 widened to include a margin space where it will be  
24 safer for bus passengers to wait.

17: 22

17: 22

17: 22

25  
26 Kerry County Council submission: Kerry County Council  
27 require the following measures to be included as part  
28 of the proposed development to mitigate against the  
29 potential impact of the construction traffic on the

1 Local road network. Upgrade of the Coast Road between  
2 Tarbert and the proposed development site. Traffic  
3 calming measures opposite the comprehensive school on  
4 the Coast Road. Staggering of shift times of the  
5 construction workers. Provide finance to support the 17: 23  
6 implementation of the street improvement works proposed  
7 for Bridewell Street in Tarbert. Upgrade the junction  
8 of the R551 and the Coast Road junction to include  
9 provision of a mini roundabout. And agree the  
10 Construction Management Plan with Kerry County Council 17: 23  
11 before commencement of construction.

12  
13  
14 Response: The implementation of the above measures  
15 will assist in reducing the impact of the proposed 17: 23  
16 development and agree with all the points raised above  
17 by Kerry County Council.

18  
19 Submission: Kerry County Council, as part of the  
20 suggested planned conditions, proposes that 17: 23  
21 construction traffic access to the site should be only  
22 via Tarbert.

23  
24 Response: We support the above restriction to  
25 construction traffic and this restriction will be 17: 23  
26 incorporated into the contract documents and the  
27 Construction Traffic Management Plan for the facility.

28  
29 Kerry County council, as part of their suggest planning

1 conditions, propose that the Construction Traffic  
2 Management Plan be agreed with them prior to the  
3 commencement of the development.

4  
5 We support the production of the above documentation 17: 24  
6 and will actively monitor the plan and address any  
7 issues which may materialise over the course of the  
8 construction period.

9  
10 Finally, in conclusion, the proposed development will 17: 24  
11 have little or no impact on prevailing traffic flows  
12 after the construction phase of the development.

13 During the construction phase of the development there  
14 will be a temporary impact on traffic flows,  
15 particularly during the start and end of shifts at the 17: 24  
16 facility. The following mitigation measures listed  
17 below have been proposed to limit the extent of the  
18 impact of construction traffic on the surrounding  
19 environment:

- 20 17: 24
- 21 - The upgrade of the Coast Road between the terminal  
22 and Tarbert.
  - 23 - Traffic calming at the local school and Coast Road
  - 24 - Staggering of the shift start and end times
  - 25 - The traffic management improvements on Bridewell 17: 24  
26 Street.
  - 27 - The Junction improvement on the R511 Ballylongford  
28 to Tarbert Road and the Coast Road and the  
29 production of a Construction Traffic Management

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28  
29

Plan.

In summary, the proposed development will impact traffic flow during the construction phase, however these will be mitigated through the implementation of the above measures. Following the completion of the Shannon LNG facility the impact on prevailing traffic conditions will be low. Thank you. 17: 25

**END OF SUBMISSION** 17: 25

**INSPECTOR:** Thank you. Can you just bear with me for a moment. Okay, do you wish to present your next speaker after Mr. Lynch? 17: 25

**MR. O'NEILL:** I was going suggest, if it is convenient to you, Mr. Inspector, that if issues are to be raised with Mr. Lynch they might be done now. It is a discreet aspect of this presentation and, perhaps more importantly, Mr. Lynch is in some difficulties tomorrow. 17: 26

**INSPECTOR:** Right. Okay, questions for Mr. Lynch. 17: 26

1 MR. LYNCH WAS THEN QUESTIONED, AS FOLLOWS, BY THE THIRD  
2 PARTIES:

3  
4 **MRS. O' MAHONY:** I note there, Mr. Lynch,  
5 that your surveys were done 17:26  
6 between 8:00 and 9:00 in the morning and 5:00 and 6:00  
7 in the evening. If you would refer there to page 5 of  
8 14 it says "local school on Coast Road". Have you  
9 forgot than we have a national school in Tarbert, too?  
10 Now, it is proposed that the HGV traffic will be 17:26  
11 allowed to pass the existing school on the Coast  
12 Road -- that's not our national school -- 20 minutes  
13 before and 10 minutes after the opening times and  
14 closing. I refer to my statement there on Monday which  
15 I made and there are four buses passing my house. Now, 17:26  
16 the first bus could pass my house, could pass my house,  
17 at 8:15 in the morning and the last bus could pass my  
18 house in the morning at about 9:00, as national school  
19 doesn't start until 9:20. The first bus in the evening  
20 could pass my house at 3:20 and the last one could be 17:27  
21 at 4:30. So, how do you take that into account,  
22 please? Thank you.

23 **MR. LYNCH:** Well, on reading The  
24 Traffic Management Plan  
25 proposed to manage the construction traffic for the 17:27  
26 facility, it is proposed to regulate the movement of  
27 HGV traffic opposite the comprehensive school, which is  
28 on the Coast Road, which is, I suppose, on the direct  
29 route to the facility. I suppose one of the knock on

1 effects of controlling the HGV traffic passing this  
2 school for that half an hour period at opening and  
3 closing time of the school is that in general HGV  
4 traffic won't enter into the general Tarbert area which  
5 will have a knock on benefit for the traffic passing 17: 28  
6 the Tarbert National School, which is on the national  
7 road network, on the N69. So, as part of the  
8 Constructi on Traffic Management Plan we will be  
9 actively managing the HGV traffic on the Coast Road,  
10 opposite the comprehensive school, and it will have a 17: 28  
11 knock on effect in terms of limiting the amount of HGV  
12 traffic associated with this proposed development by  
13 the national school. But the national road network is  
14 designed to carry interurban traffic and has a certain  
15 level of HGV traffic and, you know, it isn't as part of 17: 28  
16 Shannon LNG's remit to prevent that traffic from  
17 passing the school at the moment.

18 **MRS. O' MAHONY:** What I am saying to you,  
19 sir, is that the half an  
20 hour before, or 20 minutes or half an hour before, is 17: 28  
21 not nearly enough of time, when they start out at 8: 15  
22 and they are still continuing on the road at 9: 20. I  
23 mean that's an hour. Because two of those buses would  
24 pass my house, they take children to the national  
25 school. They have to start after passing the 17: 29  
26 comprehensive school, picking them up and taking them  
27 to the national school and it goes all around. It is  
28 not a straight direct, it doesn't go into Tarbert from  
29 my house, it goes out and away from back Pool een and up

1 there and then gets into Tarbert. So, I mean, you are  
2 talking about an hour from the time they got on to they  
3 get off.

4 **MR. LYNCH:** I think the details of how  
5 the time frame and the 17: 29  
6 actual mechanism of controlling HGV traffic will be  
7 done in consultation with Kerry County Council and,  
8 obviously, there is going to be a discussions with the  
9 Board of Management of the schools as well. The time  
10 frame, if it needs to be extended and there is a 17: 29  
11 logical to that extension, I think that would be fine.  
12 But it is about ensuring that both access to the  
13 facility and the safe passage of kids to the school can  
14 be accommodated on the upgraded Coast Road.

15 **MRS. O' MAHONY:** I am just getting back to 17: 30  
16 that when you made your statement and you read it out  
17 there you never even mentioned the national school.

18 **MR. LYNCH:** I will just refer to my  
19 statement and see what  
20 response. 17: 30

21 **MRS. O' MAHONY:** It is on page 5 of 14. You  
22 referred to the school on  
23 the Coast Road, you never mentioned the national school  
24 at all.

25 **MR. LYNCH:** In regards to the national 17: 30  
26 school, there was  
27 submissions made by Joan Murphy of the Tarbert  
28 Development Association and Mairéad Ní Scannail from  
29 Scoil Náisiúnta Tarbert which basically addresses that

1 issue regarding the national school on the N69.

2 **MRS. O' MAHONY:** You never mentioned it.

3 **MR. LYNCH:** I will refer again to page

4 10 of 14 of the my brief of

5 evidence, in response to Joan Murphy of the Tarbert 17: 30

6 Development Association and Mairéad Ní Scannail who

7 raised the issue regarding HGV traffic on the national

8 school. We have made a response in that section.

9 **MRS. O' MAHONY:** I must have been writing at

10 that stage. Thank you. 17: 31

11 **MR. LYNCH:** That's okay.

12 **INSPECTOR:** Ms. Griffin?

13 **MS. GRIFFIN:** Mr. Lynch, have you ever

14 stood in Tarbert at 3

15 o'clock if the ferry has just come in and the children 17: 31

16 are just coming out of the school?

17 **MR. LYNCH:** I have been in Tarbert on

18 a number of occasions. As

19 part of the production of the Traffic Impact Assessment

20 it would be necessary to carry out site visits. 17: 31

21 **MS. GRIFFIN:** Have you stood when the

22 school buses are all on the

23 road and the ferry has just unloaded?

24 **MR. LYNCH:** I must have missed that

25 occasion. 17: 31

26 **MS. GRIFFIN:** Yes, you must have, because

27 if you had seen it you

28 wouldn't be writing this.

29 **MR. LYNCH:** I suppose what we tried to



1 get across in the Traffic  
2 Impact Assessment is we try and investigate the peak  
3 ordinary conditions, not to find the extreme occasion.  
4 And, I think, as a point made by... (INTERJECTION)

5 **MS. GRIFFIN:** Ten times a week is not 17: 32  
6 extreme?

7 **MR. LYNCH:** Again when we are  
8 developing the mitigation  
9 measures as part of the Construction Traffic Management  
10 Plan I think we have identified the starting and end of 17: 32  
11 the school time as being a critical period in terms of  
12 the movement of HGV traffic and also the movement of  
13 the kids to the school. So, we have prepared a  
14 response to that condition.

15 **MS. GRIFFIN:** I am on the primary school 17: 32  
16 Board of Management -- or  
17 Parents Association. I have been on the Parents  
18 Association for five years and every single year it  
19 comes up about the traffic outside the national school.  
20 It is an absolute nightmare in the morning and in the 17: 32  
21 evening and I can't see how you think this is going to  
22 fix. This is going to increase the volume of traffic.

23 **MR. LYNCH:** Well, I suppose one of the  
24 critical design decisions  
25 running through the management of traffic entering the 17: 33  
26 facility was, I suppose, structuring the arrival and  
27 the departure time of the construction traffic to, I  
28 suppose, maybe, to miss out what is perceived the  
29 busiest time within Tarbert, which is relating to the

1 schools. So, the start time for the construction  
2 workers is going to be centred around 8 o'clock, with  
3 some traffic arriving slightly before and that some  
4 arriving slightly after it, which basically misses the  
5 peak with the school traffic. And, also, in the 17: 33  
6 evening time as well, the schools finish before the  
7 traditional construction workers will finish, between  
8 5:00 and 6:00. They will be picked up between 3:00 and  
9 4:00. So, in terms of the larger stock of traffic, we  
10 have removed that conflict by organising our shifts 17: 33  
11 away from those peak areas.

12 **MS. GRIFFIN:** You have mentioned that you  
13 will restrict HGVs 20  
14 minutes before school and ten minutes into school time.  
15 But you were talking about the secondary school, which 17: 34  
16 starts at 9:00. So, 9:10 all the HGVs are going to  
17 start going again and our national school doesn't start  
18 until 9:20. So, that's when all the parents and all  
19 the school buses are on the road.

20 **MR. LYNCH:** There is going to be some 17: 34  
21 synergy between the  
22 controls we put on the comprehensive school and their  
23 knock on benefit towards the national school, in terms  
24 of that window of a half an hour that we have  
25 indicated, which will require agreement in the 17: 34  
26 Construction Traffic Management Plan. I think it is  
27 through the details of the Construction Traffic  
28 Management Plan, if there needs to be a stretch on this  
29 window by 5, 10 minutes, or whatever needs to happen, I

1 think Shannon LNG are, I suppose, trying to provide a  
2 proactive way of managing the traffic. They have  
3 agreed to upgrade the road, staggering the shift time  
4 to control this traffic, they are interested in  
5 ensuring there is a consistent movement of traffic 17: 35  
6 within Tarbert. They won't benefit from traffic delays  
7 either.

8 **MS. GRIFFIN:** To my knowledge, neither  
9 Shannon LNG nor Kerry  
10 County Council have ever been in contact with the 17: 35  
11 primary school about this issue. And I think if you  
12 had two small children waiting on the side of the road  
13 every morning for a bus, like Lily has beside me, you  
14 would feel very differently. I mean, peak hour traffic  
15 here is 500 vehicles per hour. The amount of HGVs 17: 35  
16 going to go passed my house is one every four minutes.

17 **INSPECTOR:** Ms. Griffin, could you just  
18 clarify the opening and  
19 closing times of both the national school and the  
20 comprehensive school? 17: 36

21 **MS. GRIFFIN:** The comprehensive school  
22 opens at 9 a.m. and I think  
23 the official closing time is 3:55, or 15:55 rather.

24 **UNKNOWN SPEAKER:** No, it is 3:50.

25 **MS. GRIFFIN:** Sorry, 3:50. The primary 17: 36  
26 school opens at 9:20. The  
27 smaller children, junior infant and senior infant  
28 classes, go home at 2 o'clock and from 1st class up to  
29 6th class go home at 3 o'clock.



1 dangerous. I am Mairéad Ní Scannail will tell you  
2 herself that it is just luck that they haven't already  
3 had an accident. So, national road it may be but at  
4 the moment it is not adequate and you are throwing more  
5 traffic into the town. 17: 38

6 **MR. LYNCH:** Again, I will go back to  
7 the point I made about the  
8 staggering. The peak traffic associated with the  
9 construction activity is going to be between 7:00 and  
10 8:00 and 5:00 and 6:00, and that's important when you 17: 38  
11 consider the opening times of the schools. There will  
12 be some residual traffic passing the national school  
13 during its opening time but it is a much lower sense of  
14 volume. Even to notice a 15% increase in traffic, it  
15 is a vehicle every 3 seconds versus a vehicle every 3.2 17: 39  
16 seconds. So, it is a marginal change in the issues.  
17 All the traffic that is going to arrive to the site  
18 will have to obey by what other regulations are out by  
19 the school. If there is school wardens, if there are  
20 any controls like that, they will have to obey the same 17: 39  
21 regulations basically.

22 **MS. GRIFFIN:** Mr. Inspector, when you  
23 asked me for school opening  
24 and closing times I forgot that the secondary school  
25 has a half day on Wednesday, they close at 2 o'clock on 17: 39  
26 Wednesday.

27 **INSPECTOR:** For everybody?

28 **MS. GRIFFIN:** Yes.

29 **MRS. O' MAHONY:** Mr. Inspector, there is

1 over 160 children going to  
2 the national school and there is in excess of 600 going  
3 to the comprehensive school. Thank you.

4 **MR. J. McELLI GOTT:** Mr. Inspector, I don't know  
5 if it was already 17: 40  
6 mentioned, but it might be a national road coming in  
7 from Listowel into Tarbert but the national road, the  
8 N69, it comes to a complete stop, so if there is any  
9 build back in traffic at all it creates a big backlog.  
10 They say it is a main road as if it is continuing on 17: 40  
11 without a stop, but there is a stop right in the middle  
12 of the town. And that is a big problem for a domino  
13 effect for everything else. The N69 can take the  
14 traffic until you get into the village, but once you  
15 get into the village it comes to a complete stop and 17: 40  
16 then you are facing all the main road from Tarbert to  
17 Limerick.

18 **INSPECTOR:** Mr. Lynch, this traffic  
19 management that you intend,  
20 does that work in practice? There is no question of a 17: 40  
21 queue of lorries waiting until the off, if you want, at  
22 whatever time, 9:10, and coming through the village as  
23 a convey?

24 **MR. LYNCH:** Well, again, the details of  
25 how to manage the movement 17: 41  
26 of the trucks. But, I suppose, the point you made is  
27 you would be holding back the traffic from that period.  
28 During the normal course of a construction you probably  
29 will get some peaking on either side of that, where the

1 trucks will have gathered together. But it won't be a  
2 convoy of 40 trucks, but it might be two or three in  
3 the row. But that will be the extent of it. Because  
4 you are not going to get that amount of material  
5 flowing through in the half an hour period. 17: 41

6 **INSPECTOR:** Okay.

7 **MS. GRIFFIN:** Mr. Lynch, have you ever  
8 stopped a truck driver and  
9 told him that he shouldn't be on the road, that he'd  
10 have to wait for ten minutes? 17: 41

11 **MR. LYNCH:** I haven't,  
12 but... (INTERJECTION)

13 **MS. GRIFFIN:** So I cannot  
14 see... (INTERJECTION)

15 **MR. LYNCH:** Sorry, can I answer that 17: 42  
16 question?

17 **MS. GRIFFIN:** Okay.

18 **MR. LYNCH:** Again, it is down to  
19 Shannon LNG's contractual  
20 agreement with the hauliers and with the different 17: 42  
21 construction companies that are going to be involved in  
22 this development and they will be contractually obliged  
23 to obey with the routing they assign to them to arrive  
24 to the site, but also the times they can deliver. And  
25 Shannon LNG will have the right to penalise these 17: 42  
26 delivers by either sending back the goods or through  
27 other penalties. So, there is a mechanism, in terms of  
28 controlling the movement of trucks, and that's done  
29 through a contractual process. Also with the

1 Construction Traffic Management Plan, it is an  
2 agreement with Kerry County Council so Kerry County  
3 Council are in partnership in ensuring that whatever  
4 impacts materialise on the street regarding  
5 construction that they have some influence in modifying 17: 42  
6 that plan as it moves through the stages.

7 **INSPECTOR:** This sort of thing works on  
8 other construction sites;  
9 is that true?

10 **MR. LYNCH:** Construction Traffic 17: 43  
11 Management Plans are  
12 typical of all major developments nowadays and  
13 restricting access onto certain routes and not having  
14 deliveries before certain times is becoming more and  
15 more the norm. 17: 43

16  
17 **MRS. B. MAHONEY:** Mr. Inspector, can I ask  
18 a question? My name is  
19 Beatrice Mahoney, Kilcolgan. I just want to ask  
20 Mr. Lynch is he aware that there are two cemeteries on 17: 43  
21 that particular road?

22 **MR. LYNCH:** I wasn't aware of the  
23 cemeteries.

24 **MRS. B. MAHONEY:** There are two. So what  
25 would happen? 17: 43

26 **MR. LYNCH:** I suppose I would have  
27 to examine in detail. The  
28 days I visited I didn't see any parking related to the  
29 cemeteries. But, again, it is about we are widening a



1 section of the roadway between the development site and  
2 Tarbert itself so there is an opportunity to, I  
3 suppose, through that process, if the cemeteries are  
4 located along that section of roadway, to allow for  
5 lay-by's that people can park in and to visit the 17: 44  
6 cemetery. If the cemetery is located on the section of  
7 the Coast Road between the development site and  
8 Ballylongford, well we are not proposing to put any  
9 significant additional traffic on that section so there  
10 should be no change in condition there 17: 44

11 **MRS. B. MAHONEY:** I am speaking on the volume  
12 of traffic coming from  
13 Tarbert out to the cemetery. Believe you me, there is  
14 some traffic.

15 **MR. LYNCH:** Can you locate the cemetery 17: 44  
16  
17  
18 for me.

19 **MRS. B. MAHONEY:** Yes, one is Kilknockton  
20 and the other one is 17: 44  
21 Lislaughtin.

22 **MRS. O' MAHONY:** And we are living in  
23 between the two of them.

24 **MRS. B. MAHONEY:** We live in between both.

25 **MR. LYNCH:** Would it be possible to 17: 44  
26 point on the map over here?

27 **MRS. B. MAHONEY:** Thank you.

28 **MRS. O' MAHONY:** Mr. Inspector, while they  
29 are trying to find that may

1 I just say to you that my sister works in a company  
2 that deliver concrete and gravel and sand, and all  
3 that, and she tells me that the majority of the lorries  
4 that they have delivering are driver owned and it is a  
5 case of quick, quick, quick get me out of here, the 17: 45  
6 more I deliver the more I make. And I think it is the  
7 same in most places, a lot of the lorries are owned by  
8 the drivers and the more they deliver the more they  
9 make. You try telling one of them to stop. You know  
10 the answer you will get. 17: 45

11 **MR. LYNCH:** The hauliers will be  
12 subject to the same  
13 contractual agreements and, as you said, it is a  
14 commercial business for the hauliers and if they get  
15 penalised with time penalties, if they arrive at the 17: 46  
16 wrong time or the wrong direction, then that's money in  
17 their back pocket which they don't want to lose. So,  
18 they will be wise enough to agree with or to obey the  
19 Construction Traffic Management Plan that will be laid  
20 out as part of the Shannon LNG terminal. And it is a 17: 46  
21 big project and I am sure they would be interested in  
22 keeping in.

23 **MS. GRIFFIN:** Mr. Lynch, if I were to  
24 believe Shannon LNG -- I  
25 don't -- but if I were to believe what they were 17: 46  
26 saying, that they can control the traffic at these peak  
27 times, I can't see how it would physically be possible.

28 **MR. LYNCH:** Again, we go back to the  
29 contractual issue, which is

1 where Shannon LNG's greatest strength is with regards  
2 to the delivery of goods. You specify you cannot  
3 deliver between this time period and goods that are  
4 delivered at that time period are sent away or else  
5 there is a time penalty or there is some mechanism to 17: 47  
6 penalise them on a financial basis. If the hauliers or  
7 the construction company will know of these issues when  
8 they are pricing the job and putting it together. So,  
9 it can be managed and is managed in numerous city  
10 centre projects, where they have a lot of these time 17: 47  
11 penalties to do with residences, with noise at  
12 nighttime and stuff like that, so it is not an uncommon  
13 process.

14 **MS. GRIFFIN:** I am just going to leave it  
15 Mr. Inspector, I think. 17: 47  
16 Thank you.

17 **MR. O' MAHONY:** I have a question in  
18 response to the submission  
19 I made myself, Raymond and Margaret O' Mahony. A  
20 question, maybe it is a stupid question: Do you 17: 47  
21 actually respond personally to these submissions or did  
22 someone else write it?

23 **MR. LYNCH:** No, I wrote those.

24 **MR. O' MAHONY:** You wrote those. So you  
25 are saying that the 17: 48  
26 proposed entrance at the Shannon LNG facility will not  
27 impact in the slightest exiting my above property?

28 **MR. LYNCH:** Yes.

29 **MR. O' MAHONY:** Did you ever stand outside

1 my gate?  
2 MR. LYNCH: I have. Well, I have been  
3 in that roadway, yes.  
4 MR. O' MAHONY: Did Shannon LNG not tell  
5 you that there was a 17: 48  
6 problem with it already?  
7 MR. LYNCH: From my understanding, yes,  
8 you have an existing  
9 visibility issue. You can't see to right, I believe,  
10 when you come out. 17: 48  
11 MR. O' MAHONY: Yes. What is your  
12 response?  
13 MR. LYNCH: Basically, you have an  
14 existing issue with regard  
15 to your own visibility and through the process of 17: 48  
16 upgrading the roadway there is an opportunity, I think,  
17 to remedy that issue in terms of improving the sight  
18 line to the right to facilitate Mr. O' Mahony's  
19 visibility. I suppose the point I was making is that  
20 the construction of an entrance across the way from his 17: 49  
21 site does not materially impact on him, in terms of  
22 further reducing his visibility. But I suppose the  
23 point to make is that, and I think Kerry County Council  
24 will probably, you know, if there is an opportunity to  
25 improve the visibility from Mr. O' Mahony's property as 17: 49  
26 part of the road works I am can't see any reason why it  
27 shouldn't be done.  
28 MR. O' MAHONY: LNG have already sated that  
29 it was a problem. The way

1 I read it is that you are saying that there is no  
2 problem. You are saying there is no impact in the  
3 slightest. Maybe I have a different form of English  
4 than you.

5 **MR. LYNCH:** No. I suppose if I could 17: 49  
6 try and clarify it. I  
7 agree that the visibility leaving Mr. O'Mahony's  
8 property is deficient. The point I was making was that  
9 by constructing a new entrance across the road to serve  
10 the facility doesn't actually change that process, it 17: 49  
11 is still deficient. But the most critical point is  
12 that there is an opportunity through the road upgrade  
13 works that are going to be carried out in conjunction  
14 with Kerry County Council to Shannon LNG to improve  
15 that visibility. 17: 50

16 **INSPECTOR:** Mr. O'Mahony, have you  
17 finished the questioning?

18 **MR. O' MAHONY:** Yes, thank you.

19 **INSPECTOR:** Any other questions in  
20 relation to roads and 17: 50  
21 traffic. This lady here?

22 **MS. MURPHY:** Joan Murphy, Tarbert  
23 Development Association. I  
24 have almost forgotten what it is I wanted to start  
25 with, but I would have some concern, in fact I was one 17: 50  
26 of the people who put in a submission, in relation to  
27 the national school in Tarbert. My problem with it is  
28 I know it is a national secondary road but the facility  
29 for parking in front of the national school is quite

1 limited. There is far more parking in the  
2 comprehensive, where the buses do actually get off the  
3 road completely into the schoolyard, and there is also  
4 a lot more car parking spaces, I believe almost double  
5 the amount of car parking spaces in front of the 17: 51  
6 comprehensive school on the Coast Road. So, I would  
7 have some concern about the volume of traffic that will  
8 be passing the school, the national school that is,  
9 which is on the Listowel Road. In fact, we are talking  
10 about a movement of something like 299 between the 17: 51  
11 hours of 8:00 and 9:00 o'clock, which is more than  
12 almost triple what will actually be passing the  
13 comprehensive school by your own figures, which is 129  
14 in the same period, according to the EIS. So, I would  
15 like that you would take into account that there is a 17: 51  
16 deficit of car parking and bus parking spaces at the  
17 national school, which does mean that there is a bit of  
18 congestion there in the mornings, and again when they  
19 are leaving. Though I do believe that the time at  
20 which school breaks up won't be affected that much by 17: 52  
21 construction traffic. That was one of the issues.

22  
23 In relation to monitoring the truck traffic. Could I  
24 ask Mr. Lynch would you consider putting some kind of  
25 camera or something to monitor the trucks, maybe at the 17: 52  
26 junction or beyond it, just to make sure that they  
27 weren't actually breaching the agreement that they  
28 would have? Could that be a possibility?

29 **MR. LYNCH:** Just to respond to your

1 first point about the  
2 national school. Again, I think I addressed a lot of  
3 those issues previously. I think you made a point  
4 about the volume of traffic that's going to be passing  
5 the school and you quoted a particular figure of 200 17: 52  
6 odd vehicles. I want to reiterate the point again  
7 about the start and end times of the shifts associated  
8 with construction traffic. It has been quite a  
9 deliberate point on Shannon LNG to ensure that the  
10 majority of the construction traffic doesn't arrive at 17: 53  
11 the same time as these schools and I think it is a  
12 point that needs to be explained again.

13  
14 The majority of the construction traffic in the morning  
15 is going to arrive between 7:00 and 8:00, which is well 17: 53  
16 before the schools are going to be in activity. Again  
17 in the evening time it is going to be finishing after  
18 5:00, again when all the schools are closed. So, in  
19 terms of the quantum of traffic that's going to be  
20 passing these schools it is not within the peak period. 17: 53

21  
22 The second point about the traffic management and the  
23 construction traffic management. It had already been  
24 suggested by Kerry County Council, in their suggested  
25 planning conditions, that cameras would be used to 17: 53  
26 monitor the movement of HGV traffics. Again, I think  
27 the details of how best to manage and achieve the goal  
28 of assuring the safe passage of kids to school and the  
29 operation of the plant will be agreed and signed off

1 between Shannon LNG and Kerry County Council. There  
2 will be negotiation with the various impacted bodies,  
3 particularly the school and the comprehensive school,  
4 in terms of how that is managed. And if cameras were  
5 necessary that would be a possibility, yes.

17: 54

6 **MS. MURPHY:** Thank you. Mr. Inspector,  
7 I would like to state for  
8 the record that Tarbert Development Association have  
9 hired a consultant, who has done some urban design  
10 plans for us. In those plans he has made  
11 recommendation in relation to traffic, parking and  
12 traffic flow within Tarbert and we will be going into  
13 consultation with Kerry County Council in the near  
14 future to ensure that our ideas in relation to the  
15 traffic management in Tarbert, which could be a big  
16 benefit before this process begins, that they would  
17 actually be put in place and we would be a lot more  
18 happy about it. Because at the moment we do have a  
19 huge volume of traffic during the peak summer months  
20 and we do need to ensure that this is, in fact,  
21 rectified, if at all possible, or at least plans put  
22 into place that will ensure the free movement of  
23 traffic through, particularly, Bridewell Street. Thank  
24 you.

17: 54

17: 54

17: 55

25 **MR. E. LYNCH:** Excuse me, Mr. Inspector.  
26 Eoghan Lynch. May I  
27 clarify a point that was raised by Mr. O'Mahony  
28 earlier, with your permission? I met with Mr. O'Mahony  
29 outside his house to discuss his entrance and the

17: 55



1 proposed entrance for the Shannon LNG facility and it  
2 was agreed that if it was required by Mr. O'Mahony we  
3 could move the entrance a number of metres to the east.  
4 The reason it is located where it is currently on the  
5 application was to facilitate a right turning lane and 17:55  
6 to allow enough distance for the right turning lane.  
7 But we entered into discussions with Kerry County  
8 Council in their road upgrade works and they agreed  
9 that sufficient land take could be taken to the east to  
10 accommodate that right turning lane, thereby allowing 17:56  
11 the entrance to be moved, if that was considered to be  
12 desirable. Secondly, we discussed with Kerry County  
13 Council the possibility of removing the section of  
14 ditch which is jutting out into the sight line, I  
15 suppose, on the south side of the road as part of the 17:56  
16 road upgrade works and they were agreeable to doing  
17 that, again if that was desirable. Shannon LNG stand  
18 by that position. That doesn't in anyway take away  
19 from the statement that Mr. Lynch made earlier on, I  
20 think he was approaching it from a purely traffic and 17:56  
21 road design point of view. But I just wanted to  
22 clarify that point, that those discussions were held  
23 with Mr. O'Mahony and Shannon LNG stand by that  
24 position.

25 **MR. O' MAHONY:** If I may respond to that, 17:57  
26 please. I spoke to Michael  
27 Biggane and Noel Lynch on that issue and they had  
28 stated to me that it was a bit late for them to make  
29 the decisions and it was up to An Bord Pleanála. They

1 said that the submission would have to be put into An  
2 Bord Pleanála. So, I really think what Eoghan Lynch is  
3 saying, where he came out and met me and said that they  
4 would move it, I don't think it is actually up to them,  
5 I think it is up to the Board. Thank you. 17:57

6 **INSPECTOR:** Okay, just one moment. I  
7 think I would like to hear  
8 from the planning authority on that. I would like to  
9 see a drawing, if anything.

10 **MR. HARTNETT:** Mr. Inspector, Frank 17:57  
11 Hartnett, Senior Executive  
12 Engineer in the Kerry County Council. Just to clarify  
13 that the upgrade of the road is currently under the  
14 Part 8 process and it went on display on 16th January  
15 and submissions will be taken up until 29th February. 17:58  
16 So, if anyone has any other issues in relation to the  
17 upgrade of the road from Tarbert all the way out to the  
18 gate into this development, you know, they can make the  
19 submission directly to Kerry County Council.

20 **INSPECTOR:** Yes. Is there a drawing of 17:58  
21 this particular part of the  
22 road that you can bring along, or?

23 **MR. HARTNETT:** Yes, I will just make that  
24 available to you.

25 **MR. E. LYNCH:** Yes, Mr. Inspector, a 17:58  
26 sketch was drawn up to show  
27 the alternative proposal for the entrance. Just to  
28 pick up on Mr. O'Mahony's point. We did say to him  
29 that we didn't want to presume in front of An Bord

1 Pleanála, we merely said it is possible, if it meets  
2 with the approval of An Bord Pleanála, that it could be  
3 done. So, the possibilities is there and Shannon LNG  
4 are agreeable to doing it, if necessary.

5 **MR. O' MAHONY:** But, Eoghan, did you not 17:59  
6 state that I had to put in  
7 a submission to An Bord Pleanála, that you really  
8 couldn't do anything about it?

9 **MR. E. LYNCH:** Yes, Mr. Inspector, I  
10 suggested that it would be 17:59  
11 better that he would put in a submission in that regard  
12 and that we could respond.

13 **MR. O' MAHONY:** And is it not true that on  
14 the same day that you  
15 stated that you actually didn't think that the entrance 17:59  
16 was that close to my house?

17 **MR. E. LYNCH:** I think that I would have  
18 said, Mr. Inspector, that I  
19 wasn't sure where the entrance was and we actually  
20 paced it out, using a drawing, from the boundary of the 17:59  
21 site, yes. And we actually -- well, I think it was  
22 Raymond or one of Raymond's colleagues marked the  
23 position on the road, just for clarity, just to make  
24 sure that everybody was clear where the entrance would  
25 be. 17:59

26 **INSPECTOR:** Okay. Can I just ask the  
27 planning authority if it  
28 was decided to grant permission for the LNG proposal  
29 and we were to put in a condition in relation to that

1 entrance, could that cut across the Part 8 process?

2 **MR. SHEEHY:** Mr. Inspector, just clarify  
3 first. It is part of the  
4 Part 8 process, our drawings on display and part of the  
5 works specified, to remove the ditch in question to 18:00  
6 improve Mr. O'Mahony's visibility.

7 **MR. O' MAHONY:** Can I state something else  
8 now please? It was  
9 actually last week, during the hearing, that one of the  
10 counselors actually stated to me that the part of the 18:00  
11 ditch that you want to take, we will give you what you  
12 want out there. And all along there was nothing. I  
13 got no response from no one until last week.

14 **MS. GRIFFIN:** I just wanted to ask Kerry  
15 County Council is the road 18:00  
16 going to be upgraded regardless of whether the Shannon  
17 LNG project goes ahead or not?

18 **MR. SHEEHY:** No. It is an objective of  
19 the Council to facilitate  
20 infrastructure servicing the industrial lands. We 18:01  
21 don't have the money to upgrade that road if we don't  
22 feel we can recover it from the development of the  
23 industrial lands.

24 **MS. GRIFFIN:** So, if the project doesn't  
25 go ahead then the road 18:01  
26 won't be done?

27 **MR. SHEEHY:** That's correct.

28 **MS. GRIFFIN:** So Shannon LNG are paying  
29 for the road then?



1 traffic. Especially by the schools. I do believe that  
2 even though its status is a village it has moved on  
3 from there to a busy, a very, very busy intersection  
4 and, unfortunately, most of the traffic do not abide by  
5 the 30 mile limit. Including trucks, they just fly 18:03  
6 through there. So, I do believe that that would be  
7 something that Kerry County Council would do now rather  
8 than wait for it. Thank you, Mr. Inspector.

9 **INSPECTOR:** Can you just clarify where  
10 the zebra crossing would 18:03  
11 be?

12 **MR. O' DONOVAN:** Well, you know, personally  
13 I would say one would be  
14 down by -- you know, as you come up from the Island,  
15 with the traffic coming up from the ferry and, also, 18:03  
16 traffic coming down the hill from the village of  
17 Tarbert town to the two roads, the Coast Road and the  
18 Ballylongford Road, those are tremendously busy roads.  
19 And I have seen people waiting there to cross the road,  
20 especially older people. They are retired and they 18:03  
21 can't move as fast as younger people. I think it would  
22 be even now, rather than contingent on LNG coming in at  
23 all. Thank you Mr. Inspector.

24 **INSPECTOR:** Mr. Lynch, do you have a  
25 comment on that. 18:04

26 **MR. LYNCH:** No particular issue. You  
27 know, if the town of  
28 Tarbert needs pedestrian crossings, you know, Shannon  
29 LNG don't have any particular issue with whether they

1 are in or not.

2 **MR. SHEEHY:** Mr. Inspector, the  
3 provision of the pedestrian  
4 crossings is an item included in the upgrading of  
5 Bridewell Street and the costings of Kerry County  
6 Council recommend it, the due levy. 18:04

7 **INSPECTOR:** Is that part of the Part 8  
8 process?

9 **MR. SHEEHY:** Not is not part of the Part  
10 8 process, no. It is a 18:04  
11 separate contribution that we would require for the  
12 upgrading of Bridewell Street.

13 **INSPECTOR:** It is now 6:05, I see quite  
14 a number of hands there.

15 **MR. M. McELLI GOTT:** I think everybody from 18:05  
16 Tarbert that is here will agree that the traffic in  
17 Tarbert is a mess and has been for numerous years. You  
18 have the ferry traffic and you have the school traffic.  
19 We are on the main N69.

20 18:05

21 However, if we look at the positive side of it. The  
22 fact that the Tarbert community have an open forum here  
23 to get a Traffic Management Flow Plan in place and we  
24 have Kerry County Council's roads people here is a  
25 massive achievement. Because for years we have been 18:05  
26 writing to Kerry County Council telling them about the  
27 traffic, so because LNG are coming to Tarbert we now  
28 have an opportunity to finally get a traffic flow  
29 system in place. Tarbert Development have put plans

1 out there with Kerry County Council, I think with all  
2 the groups working together and with LNG when all the  
3 construction is over Tarbert will be left, finally,  
4 with a proper traffic flow management plan, which we  
5 have been requesting for a years. I think that is a 18:06  
6 great achievement and we should look at the positive  
7 side of it and not at all the negative sides. This is  
8 a positive for Tarbert, that we are in this room  
9 discussing a management flow plan. Thank you.

10 **INSPECTOR:** Okay. Ms. Murphy? 18:06

11 **MS. MURPHY:** Joan Murphy, Tarbert  
12 Development. I just wanted  
13 to say again, Mr. Inspector, that in the Urban Design  
14 Framework which has been prepared for us by Nicholas  
15 DeJohn, we do envisage a big improvement in traffic 18:06  
16 flow through Tarbert through improved park parking  
17 facilities, the possibility of a relief road and the  
18 upgrading of the existing streets with suitable  
19 pedestrian crossings. Thank you, Mr. Inspector.

20 **INSPECTOR:** Now, the Framework Plan you 18:06  
21 are talking about is your  
22 own private proposal?

23 **MS. MURPHY:** Yes, it is Tarbert  
24 Development Association  
25 have commissioned the Nicholas DeJohn to do this for 18:07  
26 us. We have the blessing of Kerry County Council and  
27 they are giving us support in that manner. So, we will  
28 be discussing the finer details of it within the next  
29 few weeks and how we can actually go about implementing



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i t.

**INSPECTOR:** 6:05, can we break for this evening and meet again tomorrow morning at 10 o'clock. Okay, thank you everybody.

18:07

**MR. O'NEILL:** Can Mr. Lynch, I wonder, be excused?

**INSPECTOR:** I think so, I think we have exhausted this one.

18:07

THE HEARING WAS THEN ADJOURNED TO TUESDAY, 29TH  
JANUARY, 2008 AT 10:00 A.M.

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