

Environmental Protection  
Agency  
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~~Initials~~  
~~SUBMISSION TO EPA Re-Reg. No. 738~~

7<sup>th</sup> February, 2005.

### Introduction

The opening sections of the IPPC Application breeze through the vital statistics of the overall operation emphasising the optimistic and cloaking over the questionable elements. This is a long-standing pattern of the Applicant's approach to obtaining permissions and has undermined trust in the assurances and undertakings, which were initially accepted at face value by the public generally.

For instance, in A1 paragraph 2, they have consistently referred to the operation at Ballinaboy as a gas terminal whereas it is primarily designed to be a gas refinery and as such has implications that are far more complex than the label 'terminal' implies. They have turned the process of public accountability into a game of hide-and-seek in which they employ armies of consultants (16 firms, 40+ individuals at the Oral Hearing) to dress up or camouflage the facts so as to appear innocuous or even attractive. We appellants, on the other hand, necessarily rely on personal individual effort and, despite severe time and resource constraints, have repeatedly shown how shallow and shabby the subterfuges of this colossal corporation very often are. Terminal as misnomer for gas refinery is but the start.

We do not intend to painstakingly catalogue the whole spectrum of such misrepresentations and omissions, but there are key examples in these opening Sections of the Application which reveal how insidious the practice is in terms of underlying assumptions. For example: A1.4 purports to describe the essential features of the site yet it fails to note that it is located astride a ridge which separates the SAC of Sruth Fada Con estuary from the SAC-cum-SPA of Carrowmore Lake by distances of circa 2km in either case. Also, the footprint is on the Carrowmore Lake SAC side of the watershed so that a worst-case-scenario would deluge this **Natura 2000** ecosystem-cum-regional water supply with unquantifiable surface runoff pollutants.

Likewise, **paragraph 5** notes the transport of 450,000 cu.m. of peat from Ballinaboy to Srahmore but fails to note that it is intended to run 400, 10 cu.m. loads i.e. 800 HGV journeys per day, along an 11km road with an average 5.5m. width. These 2.5m. wide trucks will have 160 encounters per hour with only 0.5m. clearance between them – and that only if they skim soft margins on either side of this bog-based road. Also, this road runs the length of Carrowmore Lake SAC and is overlooked by the Sliabh Fyagh SAC.

In **paragraph 6** the 24/7(365) industrial regime with 50 workers spread over 3 shifts, is essentially a skeleton staff, yet the early hype painted a picture of hundreds of jobs and the attraction of a major energy source for the Mayo region. None of this is now even pretended to. The only certainty is an incongruously disproportionate industrial complex within a cluster of seven SAC'S which, if given time and tourist development would have reflected the real resource and character of the area.

In **paragraph 7** we have a most hypocritical misrepresentation of the intended process. The term BAT is bandied about like a mantra intended to confuse the issue and mislead the naïve. The truth is that the Applicant has not given consideration to BAT other than to stretch the limits of umbilical technology and raw gas transmission to its very limits (see footnote). The slugs of water/condensate which will inevitably build up over a 90km 'import' pipeline are close to the limit of what can be managed, as the Oral Hearing was left in no doubt. When frequent ramping-up and down of supply (as needed to accommodate the differing needs of the 3 consortium partners) is factored in to the picture, there is every reason for grave concern. In fact, if ramping-up-and-down of supply were not a certainty, the field would be exhausted in less than seven years [i.e. the processing capability is 350 million cu.ft. per day and the total resource is c. 900 billion.cu.ft] So much for honesty and openness – and for BAT.

Even more ironically in regard to BAT, Shell has developed a break-through technology based on using gasfield pressure to accelerate the raw gas to supersonic speed within relatively simple and compact dimensions (see [www.twister.bv](http://www.twister.bv) for technical illustration and explanation). This technology was developed in several countries (Netherlands, primarily) in the 1990's and field tested with exceptionally trouble-free success in Nigeria by 2002. So great were the expectations of success that it was sold to gasfields in the Pacific area even before validating tests were completed. It is ideally suited to unmanned off-shore operation requiring minimal footprint (6m x 6m), yet Shell E & P Ireland Ltd. did not even consider use of this - **their own** – technology in regard to Corrib. [Shell, of course, comprises up to 200 subsidiary companies and SEPIL is clearly not one of their more progressive members. For that matter the industry as a whole is viewed by its own more technologically advanced leaders as being extremely conservative regarding change (see website above).]

However, given a government so bedazzled by the prospect of securing a "strategic objective" in respect to developing a national energy resource, Shell grasped the opportunity to establish a land-based raw-gas refinery, at an **unprecedented** 9km inland. Field-based, off-shore processing has been the international norm (i.e. Kinsale etc.) and Shell did not allow considerations of BAT to interfere with this opportunity to open up a whole new internationally valuable precedent. On-shore siting has only more recently been permitted, and **only** on remote island-based sites as at the immense **Troll** field in the North Sea or the best practice **Snohvit** model in the Barent Sea. Thus taking a raw-gas pipeline with 90km of slug build-up in through an unsuspecting community for 9 km was a 'prize' for Shell which they undoubtedly will use as an "accepted standard" to replicate elsewhere, especially in Third World situations. What on earth are we condoning? What moral, ethical, and technical standards do our protective agencies espouse when a type of operation which has not been attempted in so-called underdeveloped regions is given red-carpet treatment in 'Celtic Tiger' Ireland? – the law of the jungle, it would appear.

### **Emissions to Atmosphere**

Throughout their EIS and Application documentation to the EPA, Shell repeatedly refer to emissions to air, to ground, to sea and to watercourses as being within **AQS**, **EQS** and **TA Luft** guidelines as though these are acceptable norms in all situations. What we have at Bellanaboy is not a normal situation. It is a gas refinery sited within a cluster of

seven designated areas of conservation. These areas would not have qualified as SAC's, SPA's and NHA's if such industrial levels of pollution were present in the area in the first instance. Furthermore, Shell has not carried out the baseline studies which would prove the pristine quality of our environment as Posford Haskoning, make very clear in their report as consultants to the **Marine Licence Vetting Committee**. The NWRFB submission to the EPA also makes this point forcefully.

Typical of Shell's approach, and an abuse of the EIA process, is the inclusion of Table 14 on p.92 of the Application since it is admitted in small print on the following page that:

*"Levels of CO were not measured during the ambient air quality surveys and therefore the PEC for CO is not calculated. Taking into account good ambient air quality measured in the area, ambient levels of CO are unlikely to be high and should be well below the AQS limit value."*

To say that "*ambient levels of CO are unlikely to be high*" is quite simply a dishonest understatement.

<u>Source of Emission</u>	<u>cu.mts./day</u>	<u>Temp.</u> <u>°C</u>	<u>Periods of Emission</u>
Heating Medium Heater	309,600	248	<u>24hr.day/365 day/yr.</u>
Gas Turbine A	5,813,520	530	<u>24hr.day/365 day/yr.</u>
Gas Turbine B	5,813,520	530	<u>24hr.day/365 day/yr.</u>
Power Generator A	388,368	500	<u>24hr.day/365 day/yr.</u>
Power Generator B	388,368	500	<u>24hr.day/365 day/yr.</u>

In total these amount to **13 million cu.mts. every day** of the year, at circa **500°C** average temperature. Think of it: high temperature emissions into the atmosphere every day will be **30 times greater** than the volume of peat being transported from the site at a rate of 400 truck loads per day over a **6 month period**.

Additionally, there will be pure gas releases to the atmosphere through 'cold venting':-  
**238,080 kg.** per year of methane (inc. **6,700kg. monthly** at compressor start-up)  
**118,918 kg.** per year of "fugitive emissions from predicted leaks"  
**215 kg.** per year VOC working losses from tank breathing.

These undiluted gases need to be multiplied by up to **100-fold** or more to give 'normal' emissions equivalence. Carbon dioxide for instance goes into the atmosphere normally in a highly diluted form but the methane to be cold-vented into the atmosphere will be undiluted, and has 10-times the 'hot-house gas' effect of carbon dioxide. And does the Agency intend to make independent enquiry re the likely presence of **H<sub>2</sub>S** in Corrib gas?

Also this new decision to cold vent gas poses increased risk to three of the closest and most vulnerable villages downwind of this refinery. They were not named in the EIS (as acknowledged by Inspector Johnson in his ABP report): The HAS outlined at the Oral Hearing, that vapour clouds will travel downwind and should there be an ignition source (this could be a spark from any chimney or a lighted cigarette), the result would be a vapour cloud explosion. Mr. David Ball, consultant hydrogeologist to ABP states that:

*"Vapour cloud explosions have created some of the largest man made explosions with the exception of nuclear explosions. A vapour cloud*

*explosion, depending upon the ignition source, creates and implosion and an explosion in succession over a large area."*

Furthermore, there will be emissions from the Flare System (which can occur frequently):

**HP Flare**  
CO 2,225 kg. Per hour  
Nox 409kg. per hour

**LP Flare**  
CO 150 kg. Per hour  
Nox 28kg. per hour

Finally, there will be potential emissions from:

- Maintenance Ground Flare
- Emergency Generator
- Firewater pump Engine A
- Firewater Pump Engine B
- Firewater Pump Engine C

The cumulative significance of these emissions to air statistics was highlighted graphically in the course of the Oral Hearing. John and James Healy from Ballinaboy showed a video demonstrating the fact that smoke from chimneys does not lift from the basin formed by the encircling (circa 1,000 ft.) hills of the Glenamoy (glen of the plain) area in calm weather. The above cocktail of emissions would have the potential to overwhelm this area with huge implications for the health of people and the environment, alike. From a personal point of view, our residence is 2 km. downwind of the prevailing wind and will undoubtedly experience the full brunt of these emissions. Consequently we feel duped that the EIS seriously misrepresented the extent of emissions as now revealed in the Application. This in turn raises the question as to whether *even now* the true picture is being given. There is good reason to believe that it is not.

For instance, we are aware from Oral Hearing expert submissions and exchanges that there will be overpressure problems with the high-pressure Upstream Pipeline due to the build-up of massive 'slugs' over its 92 km length. The occurrence of these 'slugs' will be greatly increased both in frequency and size by the ramping-up and down of supply to meet the varying and very different needs of the three consortium partners (Shell, Statoil and Marathon). The fact that the field is expected to last 15-20 years, instead of the 7 years maximum (i.e. 900 billion cu ft @ 350 million cu ft per day) which full-flow processing would entail, highlights the anticipated extent of ramping. This has immense implications for the HP flare System frequency of use and consequent unquantifiable emissions. The fudge regarding 'cold-venting' of raw gas in such circumstances suggests a rather desperate attempt at subterfuge and denial re frequency of flaring on the part of Shell. Their worry in this regard will end with your grant of permissions, residents will continue to endure the effects over the life of the field.

In this context it is especially galling to note such changing of the goalposts at this advanced stage in respect to the cold-venting of potentially large and frequent volumes of raw undiluted gas into the atmosphere: this is new. It was not included in the EIS and was not, therefore, included in the assessment by the H.S.A. which saw fit to quote **Art. 137 (1) (a) of the 2001 Regulations** as follows:

***“should there be any proposed amendment to the permitted scheme which relates to the control or impact of major accident hazards, (as defined by Seveso II Directive) then that amendment shall not proceed until the agreement of the H.S.A. has been obtained”.***

This is a clear example of the insidiousness of ‘**project-splitting**’ whereby essential statutorily required information is omitted at one stage of the permissions process, thereby avoiding possible refusal, and is then included at another stage where it has the appearance of already having been approved. The **EU Reasoned Opinion** of August 2002 highlights the abuse of such practice in Ireland but unfortunately the process of remedial action is bureaucratically slow.

A further subterfuge relates to the **3,604 tonnes** of condensate is to be burned each year as fuel in the Heating Medium Heater. Condensate is a waste oil by-product of inconsistent composition, with consequent unquantifiable pollutant emissions. Considering that there is an unlimited supply of clean gas available as a fuel, there can be no excuse for incinerating 3,604 tonnes of pollutants in such an environmentally sensitive area - or any area for that matter. The norm is to transport condensate off-site to an oil refinery for profitable disposal as at the **Troll** and **Shnovit** fields.

Not so here, despite our dense cluster of seven SAC & SPA sites - which are so closely compacted that they rightly should be recognised as one. At any one time there will be **1,089 tonnes** of condensate on site as well as **3,629 tonnes** of methanol stored in five 30 ft high and up to 40 ft diameter tanks – altogether amounting to circa **100,000 barrels**. These unwarranted risks to local residents and to the unique environment underscore the disregard of Shell and the consequent need for protective agencies to combat ‘project-splitting’ by pro-active use of the powers already available to them. However our experience shows that while business interests are aggressively pro-active, protective agencies are at best belatedly re-active - and frequently submissive.

### **Emissions to sea**

The ‘produced water’ will have annual concentrations of:

- 5,782 kg TOC including methanol
- 723 kg. Benzene
- 144,454 kg COD
- 9,251 kg. Suspended solids
- 2,367,565 kg. Total dissolved solids
- Plus unquantified amounts of heavy metals, etc.

These are to be **treated** with the following;

- 110 tonnes Hydrated Lime
- 20 tonnes Trimercapto-s-triazine
- 62.4 tonnes Sulphuric Acid
- 5.8 tonnes Milifloc EA900 Polyelectrolyte
- 7.7 tonnes Sodium Hydroxide
- 2.7 tonnes Ferric Chloride Solution
- 6.2 tonnes Hydrochloric Acid

on an **annual** basis and dumped at sea through the Outfall Pipe. The NWRFB submission to the EPA highlights the effects of these but it is nevertheless chastening to see them listed as above in a concentrated format.



For instance, in regard to methanol, Shell states that ***"it will be recovered, stored and re-injected"***. This implies that none is lost/wasted/discarded. However, as shown above, there will be 5,782 kg. TOC including methanol in the 'produced water' which will be dumped at sea each year. Shell has chosen to use methanol as a hydrate inhibitor despite it being highly dangerous with a flashpoint of 11° C, and highly toxic with particular implications for eye-sight and blindness. Glycol by contrast is a much safer hydrate inhibitor widely used in the industry as commented on by Senior Planning Inspector, Mr. Kevin Moore, recorded in An Bord Pleanala's Report:

***"I note from the details received from the applicant on existing subsea tie-backs that in the case of Mensa glycol, not methanol, is used to combat hydrate formation ... in the case of Snohvit monoethylene glycol, not methanol, would be used to combat hydrate formation"... "I note from the EIS that the cost of methanol and methanol regeneration facilities is significantly lower than that of glycol."***

Shell intend to store **3,629 tonnes** of methanol on site with **1,825 tonnes** being lost to the environment annually. This use of methanol is not BAT despite the fact that Shell have obtained an asset worth circa **E5billion** (i.e. 1 TCF of gas = 150 million barrels of oil @ say \$35) on which **no royalties, share of profits or foreseeable tax** (because of extraordinarily generous write-offs) are payable. Such BAT, in a nut shell, is **Best After Tax** profit.

#### **Emissions to Waterways**

An Bord Pleanala Senior Planning Inspector, Mr. Des Johnson, is recorded in his Report as stating:

***"I am concerned that, in the event of excess solids being discharged to the Bellanaboy River, Carrowmore Lake could effectively become a giant settlement pond. It is critical that this does not occur as deposition of peat particles on the floor of the lake would have a seriously detrimental impact and would be difficult, if not impossible, to remove."***

Likewise, Dr. Trevor Orr, consultant to An Bord Pleanala, was notably critical of Shell's procedures for stabilisation of peat in his first report and stated, among other harsh criticisms, that:

***"each hazard has been treated in isolation so that the probability of several hazards occurring simultaneously or sequentially, ... does not appear to have been addressed."*** Also ***"Cement may contain small amounts of chromium vi, amines and formaldehyde, all three of which are classified as carcinogenic. These substances dissolve easily in water and could therefore be a threat to the groundwater. I have not seen this aspect considered in the EIS reports."***

Yet he concludes (possibly in exasperation) towards the end of his Report:

***"it is an essential part of the design process to introduce contingency measures should the stabilised peat not achieve the required strength ... (these) range from re-doing the strengthening process..."***

which would mean adding up to **another 36,000 tonnes** of cement into the peat, regardless of carcinogens, groundwater and Carrowmore Lake SAC which supplies domestic water to a wide region of Erris. In the light of such attitude we would respectfully remind the EPA of the impact of emissions from this refinery on Designated Areas with particular regard to:

- Section 83(5)(a)(ii) of the EPA Act's 1992 and 2003 and

- Section 5(3)(a) of the EPA Act's 1992 and 2003  
And contend that this application for a licence to pollute should be rejected.

Also we note, worryingly, that to date there has been no submission from the NPWS and draw the attention of the EPA to Section 5.12.5 of ABP Inspector Johnson's report where he states that:

***"The remit of the HSA means that a short section of the incoming pipeline within the application site falls within the 'establishment', but that a significantly longer stretch within the application site does not. The operation of the activity at the terminal is IPPC licensable. It is reasonable to conclude that the health and safety aspects of the activity would be addressed by the Agency."***

Has the EPA sought information from the HSA in regard to this?

**Footnote:**

- [It has been acknowledged repeatedly by Shell that that the Bellanaboy site is effectively at the limit of the umbilical technology which makes possible long distance tie-backs from the gas field to the refining location. In fact this was essentially the main pillar of their rationale for not giving the full and detailed evaluation required by EIA legislation to the three other sites (Rathlee, Killala, and Buntraher) which were only superficially considered. A shallow-water platform would shorten the length of the tie-back, reduce the potential for slugging and removes limitation on the distance for transporting cleaned gas. This alternative was rejected by Shell on cost grounds.]

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