

**An Board Plana**

**Oral Hearing**

**Senior Inspector Derek DALY**

**Application Reference PL 04. PA 0045**

**Carrigaline Court Hotel - 25<sup>th</sup> April 2016**

Submission by Peter Daly in support of a written objection by Peter Daly, Carmel Daly, Eoghan Allen and Margot Allen

Ard na Cree Lake Road Cobh County Cork

Written objection was acknowledged under the reference ADHOC/PA0045/12

I am the former Chief Emergency Management Officer of the HSE for this Region, a post I held for seven years. Prior to taking up this post I served as a Technical Officer in the Defence Forces, specifically in the Army Ordnance Corps. I specialised in Explosive Ordnance Disposal

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including Chemical, Biological Radiological and Nuclear Warfare. I was seconded to the UN as a member of UNSCOM as a Weapons inspector. In my service in the HSE I was responsible for and discharged the HSE's statutory responsibilities as a local competent authority for the Control of Major Accident Hazards involving Dangerous Substances.

I am currently involved in a number of EU research projects in the area of end user response to major accidents and also in the area of response to Public Health emergencies.

In my written objection, attached as Annex A to this submission (acknowledged under the reference ADHOC/PA0045/12) I outlined the grounds on which I wish to object to the proposed incinerator. In an attempt to follow your requests to be brief and not repeat what has been comprehensively advanced by others I propose to cover a limited number of these points.

### **Role of the HSE as a proscribed body.**

There is an acknowledged gap between the responsibilities of the various statutory bodies involved in this process in regard to the health of the population. It was pointed out in the submission by Mr. Joe Noonan, Solicitor of behalf of CHASE in his submission of the 21<sup>st</sup> April 2016 (on page 6) where he made particular reference in the context of the assumption to the question of how the board should address the risk to human health. He pointed out that the regulations are an effort and not a guarantor of the risk to human health.

The statutory body with **primary responsibility** for health is the Health Service Executive (HSE) - one presumes that that is why it is a proscribed body under the regulations.

The HSE was established under the HEALTH ACT 2004 and that Act sets out the statutory basis for the Establishment and Functions of the Health Service Executive.

It states in section 7.-(1) The object of the Executive is to use the resources available to it in the most beneficial, effective and efficient manner to improve, promote and protect the health and welfare of the public.

And it later states in section 7(5) [that] In performing its functions, the Executive shall have regard to—

(b) the need to co-operate with, and co-ordinate its activities with those of, other public authorities if the performance of their functions affects or could affect the health of the public.

It is my submission that this has not taken place and I would urge you inspector to appropriately notify ABP of this situation.

In the EIS a representative list of these stakeholders are listed in Sec 1.8 of Appendix 1.2 (Consultation), it states that Indaver has engaged with a numbers of listed bodies regarding its plans for the Ringaskiddy Resource Recovery Centre. It lists as number 25 the Health Service Executive. Elsewhere in the EIS it lists a series of dates implying that some form of pre-application consultation with the HSE took place on those dates.

It is my information that no such consultation has taken place. If it had taken place then suitable minutes would be available and could if need be sought under Freedom of Information. The HSE made a written submission to ABP which is available at Cork County Hall

and there are numerous references to those submissions by way of reply or rebuttal by the applicant. We have no idea whatsoever whether the HSE has accepted any or all of those points.

I also understand that a post-application meeting has now taken place between the HSE and the applicant at which neither you as ABP's Chief Inspector nor the public were present, nor are there any minutes available of what occurred at this alleged meeting. Now while it is perfectly permissible for the applicant to meet with whoever they wish and as often as they wish, the same is not true of a statutory body with such serious responsibilities. I would request that you would confirm with the HSE that such a meeting did or did not take place, what was discussed at the meeting, if any replies, explanations or rebuttals were made by the applicant to the HSE arising from the HSE submission and most significantly what was the HSE's response( if any).

### **HSE Submission**

The HSE's submission is a matter of public record and I have reviewed it in the light of my previous experience in the role of Chief Emergency Management Officer of the HSE for this Region. Given the statutory responsibilities of the HSE which I outlined earlier I find the current submission in no way reflects the seriousness that role. It is plain from a perusal of the submission that the EIS was not examined with the diligence required for such a significant application This is illustrated by simple errors in the submission example stating f that the quantity of ammonia was not listed where it is plainly listed in the EIS.

The most significant omission however is that it appears that the Public Health Department of the HSE did not make any contribution to the submission or more likely, in my opinion, were not consulted or the importance of this EIS was not highlighted among the many EIS application circulated for comment.

There are three HSE departments who have responsibility in this area:

- Public Health
- Environmental Health
- Emergency Management

All these are part of the Health and Wellbeing Division of the HSE. The work of the Health and Wellbeing Division is focused on helping people to stay healthy and well, reducing health inequalities and protecting people from threats to their health and wellbeing.

The omission of a public health element to the submission is nothing short of astonishing. I would urge you note the critical importance of Public Health and to ask the HSE to address this issue. Under the legislation outlined earlier the HSE has a statutory to co-operate with, and co-ordinate its activities with those of an ABP if the performance of their functions affects or could affect the health of the public. ABP has the right to rely on the advice it might receive from the Agency whose statutory responsibility it is to improve, promote and protect the health and welfare of the public.

Although it is clear that this is a *de novo* application there has been a significant amount of reference to previous applications.

It is worth noting that the HSE submission includes the following:

- All commitments to future actions including mitigation and further testing have been taken as read and all data results have been accepted as accurate.
- No additional investigations / measurements were undertaken.

This has been pointed out in other submissions but it is worth re-stating that this means they have taken the information supplied as if it was factual. This is almost akin to a disclaimer about which I have further comment later.

The following is also included in the HSE's submission:

The correspondence from Ove Arup and Partners Ireland Ltd. (trading as Arup), to Mr. Dave Molloy, Assistant National Director Environmental Health, Health Service Executive (HSE), dated 12th January 2016, .....seeks to infer that any observations and objections should be confined to the points raised in (b) (i), (ii) and (iii) of Arups's letter of notification. However, An Bord Pleanala has confirmed that this application is a new "standalone" application and should be treated without reference to any previous application.

However, the planning history has been at the core of this application so it is valid to see what previous HSE submissions were and to look at the consistency of the advice offered.

In the Addendum to the Inspector's report ref 04.PA0010 Volume V dated 7 June 2011. In Sec 3 on page 31 there is a recommendation from a Specialist in Public Health Medicine recommending that the report dated Oct 2009 by Health Protection Scotland on ' Incineration of waste and reported human health effects' be read in full. Why now in 2016 has this no relevance?

In Sec 3.2 the Health Promotion Manager recommended that Indaver take responsibility for funding a reputable, independent body to undertake appropriate public health surveillance and monitoring. Why now in 2016 has this no relevance?

Again in the HSE's submission it says; with regard to the explosion at the Indaver industrial waste treatment facility in Antwerp, Belgium, on 26th February 2016,[that] it would be prudent for An Bord Pleanala to seek and circulate a report as to the cause and impact of said explosion / incident, **from the appropriate Belgian municipal authorities and local fire / emergency services.** (emphasis added). This would greatly assist re: informing any decisions pertaining to specific accident prevention and response measures.

I note from you earlier comments that you have required further information as to risk from Indaver however I would like to point out and to which emphasis has been added that it is from the appropriate Belgian municipal authorities and local fire / emergency services from which it is recommended that the information would be sought and not from the applicant.

**The site being a cul-de-sac with a risk for responders and for those nearby in the event of an accident.**

My assertion in my written objection that site is a cul-de-sac with a risk for responders and for those nearby in the event of an accident is supported by the submission made by the Department of Defence and is also strongly supported by the HasID report.

Before identifying the points from the HAZID I have to point out that Byrne Ó Cléirigh make a firm a "DISCLAIMER" which I quote in full:

This report has been prepared by Byrne Ó Cléirigh Limited with all reasonable skill, care and diligence within the terms of the Contract with the Client, incorporating our Terms and Conditions and taking account of the resources devoted to it by agreement with the Client.

We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above.

This report is confidential to the Client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. **Any such party relies upon the report at their own risk** (emphasis added).

I find this disclaimer nothing short of bizarre as it seems to exonerate Byrne Ó Cléirigh Limited from any responsibility. It instructs among others ABP, the prescribed bodies and the public from placing any reliance on the contents of the report.

Notwithstanding the disclaimer the following information from the HazID report is noteworthy.

*The bunker will typically comprise c.4,000 tonnes of waste, based on a design calorific value of 9.6 MJ/kg, although it will have the capacity to accommodate up to 6,000 tonnes. The dimensions of the bunker are 18.2 m × 40.5 m. A fully developed fire - if the initial firefighting response fails to deal with the scenario the fire could escalate to become a fully developed scenario. In this case the full inventory of waste in the bunker area (between 4,000 and 6,000 tonnes) is consumed. In the event that the scenario escalates into a fully developed fire, the rate of burning will be determined by the properties of the waste and (in the worst case scenario) by the dimensions of the bunker. For a typical inventory of 4,000 tonnes these results indicate that a fully developed bunker fire could continue for c.6 days and in the event that the bunker was filled to capacity at 6,000 tonnes, it **could continue for over a week.**(emphasis added) In the event of a fully developed fire, it is assumed that the emergency response approach would be to evacuate the area in the vicinity. An upper figure of 4 hours has been selected as the maximum exposure time.*

The action of "shelter in place" has a time limit. That limit is of the order of six (6) hours because in that time the originally clear atmosphere of the structure (in which persons are sheltering) will become compromised and the toxic levels inside that structure will have increased. Paradoxically can often be the case that you are in greater danger in shelter over a prolonged period, greater than 6 hours, than being evacuated to a bus. Evacuation would then need to be considered. Trying to balance shelter in place with evacuation is a major challenge in an incident. This is exacerbated in the case of a vital installation which simply can't be evacuated - they would have to retain and presumably rotate and protect some security staff.

The decision to allow people (e.g. NS personnel or mourners at a funeral) to move through the plume will rest with the Fire Chief acting on the advice of the Director of Public Health.

In that instance the PRAs , the Principal Response Agencies would be very unlikely to permit non-emergency movement through a potentially contaminated area. They would have recourse to their training and the precautionary principle as detailed in Article 191 of the Treaty on the Functioning of the European Union (EU).

There is of course an alternative road route via the MNCI existing onto the road and may or may not be usable that would depend on the nature of the fire and the plume. The access to the site itself remain a single road so approaching from the West or the North makes no significant difference because ultimately only one side of the site is accessible.

It is not me that is claiming that a fire would continue for over a week. That is clearly stated in the report but I have to say that I agree with the applicant's claim that it would burn for more than a week.

## Modelling

There is a considerable amount of information supplied and submissions made on modelling. I don't propose to go into it in any great technical detail.

However, it is in my view unreliable and selective in its approach. More significantly an undue reliance has been placed on the AERMOD model which is of US origin with considering alternative used in other EU countries.

In the EEA Technical report No 8/2007 on a feasibility study: modelling environmental concentrations of chemicals from emission data it outlines Phase 1 of any modelling process as follows:

1. Identify available models.
2. Verify their status of validation and general acceptance.
3. Evaluate selected models for their ability to provide information on the spatial distribution of chemicals in the different environmental media in the geographical area of the EEA member country and participating states.

For regulatory purposes in New Zealand, there are two general types of dispersion models that can be used:

- Gaussian-plume models such as AUSPLUME, ISCST3 (EPA1), AERMOD (EPA2) and CTDMPPLUS (Perry et al., 1989)
- advanced models such as CALPUFF (Scire et al., 2000a) and The Air Pollution Model (TAPM) (Hurley, 2002).

The fooling is the New Zealand recommendation to get the best possible results from a dispersion modelling study, the modeller must:

- a) choose the most appropriate model for the intended purpose, and
- b) justify this choice in the methodology of the study

I also reference FAIRMODE European Commission Joint Research Center Science Hub

Forum for air quality modelling in Europe. This provides a Guide on modelling Nitrogen Dioxide (NO<sub>2</sub>) for air quality assessment and planning relevant to the European Air Quality Directive. ETC/ACM Technical Paper 2011/15

This is guidance on the use of models for the European Air Quality Directive and is a working document of the Forum for Air Quality Modelling in Europe. This document deals with the

application of air quality models. This document is intended for use by authorities, consultancies and research bodies involved in air quality assessment and mitigation planning that address the European Air Quality Directive.

IT needs to be included as it makes some very clear points:

- Models require extensive input data, particularly emissions and meteorology, which are not always reliable or easily acquired.
- Models remain uncertain in their predictions and extensive validation is required before models can be applied and believed.
- The ability of models to represent the real world is limited, e.g. spatial resolution and process descriptions. Models remain a representation of reality.

Now AERMOD is an approved model mentioned in the Air Dispersion Modelling Guidance Note provided by the EPA . This was prepared for the EPA by Dr. Edward Porter and Dr. Eoin Collins of AWN Consulting and contributions made by Messers Byrne Ó Cléirigh . The guidance note lists a very small number of models and particularly emphasises AERMOD. This now becomes a somewhat circular argument and is self-evident that alternatives were not considered.

This contrasts with the EU advice.

The AQ Directive does not provide any provisions for the actual models to be used. As long as the model complies with the quality objectives (Annex I) then it may be applied. The following general ‘fit for purpose’ criteria should however apply:

- The model has the appropriate spatial and temporal resolution for the intended application
- The model is adequately validated for the particular application and well documented
- The model contains the relevant physical and chemical processes suitable for the type of application, the scale and the pollutant for which it is applied
- The relevant emission sources for the application are adequately represented
- Suitable meteorological data is available

There are 142 model(s) available in the European Topic Centre on Air and Climate Change database and it provide a comparison method to judge between models. The Model Documentation System aims to provide guidance to any model user in the selection of the most appropriate air quality model for his application. The inclusion of an air quality model in the system is by no means associated with any form of endorsement for using the particular model: it helps select the most appropriate by using the specifications submitted by the modellers.

I would strongly recommend that ABP examine data derived from this model by way of comparison with an alternative model or ask the EPA to examine they data without recourse to any of the consultants currently on hire to the applicant.

#### **AERMOD DISADVANTAGES**

The Aermod model has many advantages not least of which is the fact that it is free to download and this makes it attractive.

It does have a number of limitations and pitfalls and in support of this view I reference MACTEC Federal Programs, Inc. Research Triangle Park, NC EPA R/S/L Modelers Workshop San Diego, California May 16, 2006. I won't list them all but it states that

AERMOD is a Steady-State, Straight-Line Plume Model - Assumes uniform atmosphere across domain for each hour

AERMOD Does Not Address Multi-pollutant Photochemical Transformations (e.g. Ozone)

AERMOD has Potential Pitfalls for

Small Urban Areas with Tall Stacks

Urban Option with Urban Meteorological Data

Surface Heterogeneity and Meteorological Data Representativeness

Model Clearinghouse Procedure for Capped/Horizontal Releases with PRIME

Area Sources in Terrain - Not Well-tested;

Bob Paine, AECOM Presented at the 10th EPA Modeling Conference, March 15, 2012 and presented the results of a study that tried to more carefully quantify a reasonable distance for applicability of these models (such as AERMOD or ISC). The basic findings of this study were:

- Plume travel is generally limited to within 20-30 km or less within an hour (more than 90% of the time)
- After several hours, the majority of air parcels can still be located within 50 km of the release point
- These air parcels can certainly follow non-straight Trajectories

The summary on modelling is that I would strongly recommend that ABP examine data derived from the model by way of comparison with an alternative model. I understand that Mr Michael Griew has specific observations on the results as presented which give rise to a false confidence in the accuracy of Indaver's air quality models. I agree with the points he makes and I recommend them to you attention.

One of the key points to be considered is that the terrain of the source of the metrological data should be the same as the terrain being modelled and that is not the case.

### **Health Impact Assessment**

Returning to my concerns on human health I would like to comment on the submission on Human Health issue specifically Appendix 6.2 which purports to be a Health Impact Assessment by EHA Occupational Health Hygiene Consultants (2015)



This states that *“Currently there is no legal requirement to perform a stand-alone Health Impact Assessment and as a result there is no “competent authority” in Ireland to assess these”*

I am sure it will come as a bit of a surprise to the Department of Health and the HSE that they are not regarded as competent. Later there is a more revealing statement: *“ In summary while it may be argued that this method might be appropriate for nationwide policy/ strategy decisions, but a standard Health Impact Assessment is neither legally required nor practical for a site specific project such as the proposed one for Ringakiddy.*

On the other hand the following extract is correct: *“One reason for this is that cancer often has a long latent period, that is, the time between the exposure and onset. One reason for this is that cancer often has a long latent period, that is, the time between the exposure, to whatever may have contributed to the cancer, and the first signs of cancer to whatever may have contributed to the cancer, and the first signs of cancer”*

It then makes a somewhat baffling statement: *When we consider the potential for emission, considering a worst case scenario we are therefore able to assess likely impact on the sensitive or most vulnerable of the population.* I would pose the question who exactly is “we”?

It makes another point as follows ; *The ash and other residues will not be disposed of into the environment in an uncontrolled way. The bottom ash is expected to be non-hazardous, under the transport regulations.*

Contrasting the section on Human Health and the HazID is instructive. Appendix 5: *Assessment of Flue Gas Residue and Boiler Ash Referring to the CLP Regulation, many of the heavy metals identified in flue gas and boiler ash residues are capable of forming compounds that are classed as H410 (very toxic to aquatic life with long lasting effects), i.e. Chronic Category 1.*

So now I wonder if each expert has actually read and understood the reports of the other experts in this SID.

## MONITORING

We have been thoroughly informed that the current pollution levels in the area are lower decreasing and that is comforting. However if this development goes ahead that will not be the case and this view is endorsed by the applicant in the EIS.

There are always other sources of pollution and the applicant is carefully laying the ground that it will not be possible in the future to apportion the increase that will occur to this incinerator as a “hotspot”

The EU recommends monitoring of a new installation. The UK suggest that the best point for such monitoring is 150m +/- 50m from the downwind direction. In the case of this site that would be hard to achieve in the down-wind direction since it is in the sea.

The applicant will no doubt claim that there will be continuous monitoring of the stack emissions and if that is so then in the interests of openness and transparency there is no reason what that cannot be shown in **real-time** ( not as later reported to the EPA) on a publicly available website.

## Summary

1. The HSE has not engaged with the EIS process and their silence cannot be interpreted as in favour of this application.
2. The HSE has failed in its statutory objective which is to use the resources available to it in the most beneficial, effective and efficient manner to improve, promote and protect the health and welfare of the public.
3. The site remains a form cul-de-sac with a risk for responders and for those nearby in the event of an accident and the site has only one accessible side.
4. The selection of the model used has more to do with the fact that it is free to download than that it is the most appropriate for a Europe application. The modelling is based on erroneous assumptions and should be peer -reviewed.
5. The Health Impact Assessment would not stand scrutiny from a forensic analysis by the appropriate department of the HSE.

There is a widespread view in the community and a constant nagging fear that this application is part of a deliberate plan to have a step by step approach to their true intentions to finally achieved what has been denied to them previously.

Taking a very simple example in regard to “district heating”. If it is the case that waste heat from this incinerator is to be sold why is no engineering provision been made now to achieve that in the future? The answer is they don’t need to because it is a fanciful fiction raised to answer the efficiency question.

The same question raised in regard to the raising of the western end of the site of the previous location of a waste transfer station.

The view expressed in the applicant’s correspondence to the effect that submissions should be confined to those issues on which they previously failed and should not address any other inconvenient truths. I have to say that some public bodies have been complicit in this regard. It is my hope that ABP will not facilitate this process by failing to treat this applied as a true *de novo* application and confine it’s considerations to “what they failed on last time!”

I would like to make just one final point. When a new drug is being introduced, part of the final process is to test it on humans. These human guinea pigs have to sign a disclaimer. The people of this region don’t get to sign any disclaimer. They are being signed up whether they like it or not in a life-long medical experiment. If this goes ahead they will be forced to take part in a cynical experiment to confirm what is emerging slowly but surely: this incinerator is good for no one except the applicant.

This proposed incinerator is old technology in an unsuitable location. It is unsafe, unnecessary and unacceptable. On these and the others ground advanced the application should in my judgement should be refused for the third and last time.