

STRATEGIC INFRASTRUCTURE DEVELOPMENT

APPLICATION TO AN BORD PLEANÁLA

(REG NO. PL04.PA0045)

ORAL HEARING

RESOURCE RECOVERY CENTRE, RINGASKIDDY, COUNTY CORK

WITNESS STATEMENT OF DR. MARTIN HOGAN

HUMAN HEALTH



## **1. Qualifications and Experience**

I Dr MARTIN GERARD HOGAN hold a primary medical degree from University College Cork Degree: MB. BCh BAO (1987).

I hold post graduate qualifications including an M.I.C.G.P 1991 and M.R.C.G.P 1991. I am a Fellow of the Royal College of Physicians of Ireland. I trained as a specialist in Occupational Medicine in the University of Manchester and hold the qualifications AFOM (RCP Lond) and MFOM (RCPI) 1995. I was made a Fellow of the Faculty of Occupational Medicine (FFOM) (RCPI) in 2001

I am a registered specialist in occupational medicine with the Irish Medical Council. I am currently a full time Consultant Occupational & Environmental Physician and director of Employment Health Advisers Ltd.

I am a past National Speciality Director for Occupational Medicine. I am a Lecturer in Toxicology and Occupational Medicine, University College Cork. I am a specialist trainer in occupational medicine since 1997. I am a past Dean of the Faculty of Occupational Medicine , Royal College of Physicians of Ireland.

## **2. Role in the Project**

My role in the project involved preparing the Human Health section, Appendix 6.2, of the EIS. I performed a Literature review of the peer-reviewed medical literature. I also reviewed other chapters in the EIS including the assessments on potential impacts on Air, Dioxin levels, Ground and Surface Water to assess the potential impact on Human Health of the predicted changes.

### **2.1 Conclusion of Health Appraisals**

The conclusions of Appendix 6.2 of the EIS may be summarised as follows:

- While there is some conflicting evidence on health effects from older generation,, more polluting incinerators, multiple studies in the Literature do not show adverse impact on Human Health of modern Incinerators.
- Multiple authoritative reviews have shown no evidence of health effects.
- Multiple respected bodies such as the WHO, Public Health England and others have made statements on the safety of modern Incinerators
- Emissions from the proposed development are predicted to have a negligible residual impact on Human Health within Cork Harbour.
- Vulnerable individuals living in the area will not be adversely affected. Standards such as Air Quality Standards are set to protect the vulnerable, not the resilient. The proposed facility will not breach any Standards
- Modelling for Particulate Matter PM10 and PM2.5 show minimal impact
- Dioxin emissions are extremely low as demonstrated in the EIS. Predictions in the EIS show that even MARI (Most At Risk Individual), with exposure higher than could occur in practice has low levels and therefore, for everybody else with lower exposures, there will be negligible impact on the environmental levels.
- We now have direct experience on a well-run Waste to Energy facility in this county.

### **3. Submissions and Responses**

In preparing this witness statement, I have considered each of the observations submitted to An Bord Pleanála by various parties in relation to the Human Health impact appraisal of the Ringaskiddy Resource Recovery Centre. I have addressed each of them below.

#### **3.1 Health Services Executive**

In its submission on the application, the HSE makes a number of submissions in relation to the Health appraisal set out in the EIS. Each of these submissions is set out below and the developer's response is made directly thereunder.

##### *Issue #1: Assessment of Emission Routes*

###### Submission:

The HSE has suggested that the assessment is not sufficiently detailed or specific in relation to the emissions to water.

###### Response:

There is no doubt that the emissions to air are the most important in relation to health. These have been extensively covered in several sections of the EIS. Other routes such as water were also considered in the EIS. As outlined in the EIS sections 4.14 and 4.15, there will be no emissions of process water. Only sewage and surface water will be discharged from the site. There will be no emission to ground or groundwater. In this event no human health impact is likely.

##### *Issue #2: Wider aspects of health*

###### Submission:

The HSE has stated that air emissions and their compliance with Limits was the main method of health assessment. They inquired were wider aspects of health considered

###### Response:

It is true that emissions to air were given great emphasis. In reality, if there could be an impact on health, it is only by emissions of some manner that this could occur. Nevertheless

it is not true that wider aspects of health have not been considered. The literature review searched the literature for impacts on health. This was not limited to impacts from emissions to air but all effects. The absence of documented effects in such widely studied area strongly suggest that there are none. The assessment did consider, for example, psychological impact but did state that this is a relatively subjective area. It is very common for psychological impacts to be predicted before the commencement of a projects as diverse as roads, wind farms and indeed incinerators. There is no evidence of such effects however in completed projects either in the literature or elsewhere.

I would also draw attention to the Hazard Identification and Risk Assessment, Appendix 6.1, and the dioxin in soils survey and the MARI study, Appendix 6.3 and 6.4

### Issue #3: Vulnerable Individuals

#### Submission

The submission suggest that the impacts on vulnerable individuals is not clearly identified.

#### Response

When one considers impacts on health it is only the vulnerable who are considered on the basis if the vulnerable are protected then all including the resilient are protected. Standards such as Air Quality Standards are there to protect the vulnerable including the very young, very old and other persons who are for whatever more vulnerable in society. Every population has its vulnerable so every study ever performed will include populations with these individuals. If there had been an effect it would have been documented in the studies. Therefore the approach taken was centred on these vulnerable individuals.

### Issue # 4 Occupational Exposures in addition to Environmental Exposures

#### Submission

The HSE considered whether cumulative exposure at work and somebody living in the area could have synergistic effects

#### Response

This simply will not be an issue.

Every person at work is also exposed to substances in the environment when not at work. As demonstrated there is minimal impact on environmental levels and Air Quality Standards will not be breached the additional exposure possible over and above occupational exposure

will be tiny and of no impact.

In the event of general air quality deteriorating such as in an event such as a large volcano , however unlikely, or other event it would be possible to determine at the time if additional measures such as PPE would be necessary to ensure that workers cumulative exposure continues to be safe. This of course would apply to all workers everywhere and not limited to this proposed facility

#### Issue #5 Clarification of EPA Limits

##### Submission

The HSE requested clarification of the term EPA Limits.

##### Response

The EPA stands for the Environmental Protection Agency which is the Statutory body responsible for ensuring compliance with Environmental issues such as air pollution and noise . Indaver would require an Industrial Emissions Licence from the EPA to operate the plant. In the licence, the EPA will impose emission limits on all emissions from the plant.

Issue #6 Evidence that Incineration is the best means of dealing with Waste

Submission

The HSE requested evidence for this statement.

Response

While this could be a matter of opinion there is considerable evidence to support it. For example the WHO in Fact Sheet 225 dated June 2014, referenced as number 18 in Appendix 6.2 stated

*Proper incineration of contaminated material is the best available method of preventing and controlling exposure to dioxins. It can also destroy PCB-based waste oils. The incineration process requires high temperatures, over 850°C. For the destruction of large amounts of contaminated material, even higher temperatures - 1000°C or more - are required.*

Issue #7 Clarification of Relatively Huge Levels of Dioxins

Submission

The HSE requested clarification of the term “relatively huge “levels

Response

The choice of words was my own and I would not claim it is a scientific term. My meaning was to contrast the predicted very low environmental levels of dioxins and the much larger doses associated with adverse health effects. I would also draw attention to the Hazard Identification and Risk Assessment, Appendix 6.1, and the dioxin in soils survey and the MARI study, Appendix 6.3 and 6.4 While there is evidence that dioxins have potential health effects, the effects demonstrated are at doses several orders of magnitude higher than those predicted to be emitted from the proposed facility

Issue #8 Industrial Emissions Directive and Air Quality Standards

Submission

The HSE requested clarification on the above

Response

The Industrial Emissions Directive covers actual emissions to air and water from facilities such as the one proposed. Emissions can not exceed those laid down in the Directive. This means that the emissions from the stack of the plant must comply with the limits set down in the Industrial Emissions Directive The Air Quality Standards refers to the actual air quality in the environment. In health terms this is the relevant measure as it reflects the air people are breathing. The concentrations of any pollutants must comply with the Air Quality Standards. Emissions obviously have the potential to impact on this but as described there will no significant impact as Air Quality Standards are not breached.

Issue #9 References

Submission

The HSE requested clarification on references indexed

Response

There was an errata in indexing. The 2008 "Italian Scare" should have indexed number 21 rather than 19. The comment on the German levels should have been indexed as 14 rather than 19.

**3.2 Kieran Flaherty, Vero O'Driscoll, Kay O'Neill, Murphy family, Andrew Browne Tadgh Moriarty, Pat Murphy, John Twomey, Ross Fitzgerald, Ringaskiddy Active Retired, East Cork for a Safe Environment, Mairead Roberts and Family, Mark O'Sullivan, Natasha Lahart and Others**

Issue : Proximity

Submission:

These submit that the site is too close to houses and centres of population with potential for toxins and other emissions to have an effect. The proximity of the National Marine College is also mentioned

Response:

Modelling has shown no residence, place of work or educational facility will be adversely affected and Air Quality Standards will not be breached. This protect everybody at home, at work and at college.

**Pat McCarthy and Others**

Issue : Dioxins

Submission

That there will be bio accumulation of dioxins

Response

This is primarily being addressed by my colleague Dr Fergal Callaghan. I would draw attention to the Hazard Identification and Risk Assessment, Appendix 6.1, and the dioxin in soils survey and the MARI study, Appendix 6.3 and 6.4 While there is evidence that dioxins have potential health effects, the effects demonstrates are at doses several orders of magnitude higher than those predicted to be emitted from the proposed facility

From a Human Health Perspective all this means Dioxins will have negligible impact .

**Pat McCarthy, Mark O Sullivan, Natasha Lahart,**

Issue Ultrafine Particles

Submission

That there will be excessive ultrafine particles released

Response

This is been primarily dealt with by my colleague Dr Edward Porter but in essence modelling show that PM10 and PM 2.5 will not breach Air Quality Standards. Indeed the evidence is

that with modern mitigation the ultrafine particle emissions is comparable with baseline levels and no significant increase over baseline is predicted. From a Human Health perspective we can therefore be confident that there will be no adverse effect on health

**Mary McCaffrey, Amy Ramsden**

Issue 4<sup>th</sup> “The 4th Report of the British Society for Ecological Medicine: The Health Effects of Waste Incinerators”

Submission

A number of submissions included the afore mentioned “Report”

Response

This has already been addressed in Appendix 6.2 of the EIS but to reiterate this Report has very little scientific merit.

I would quote the Health Protection Agency (UK) comments on the report

*“The BSEM report is not a systematic review of the literature and there is no critical analysis of the quality of the included studies. Consequently the report presents a selective and inaccurate review of the scientific literature. For example the report has not considered important reviews such as the Defra review of environmental and health effects of waste management, the Committee on Carcinogenicity (COC) statement on cancer incidence near municipal solid waste incinerators in Great Britain or the Royal Society critique of the Defra review. In addition, several statements regarding health risks are not supported by appropriate scientific references, for example ‘...increased ischaemic heart disease has been reported in incinerator workers’ is taken from a study regarding cement kilns ‘They are therefore capable of extremely serious health consequences’.*

*The authors have also failed to acknowledge the impact of the current legislative changes which minimises the potential for public exposure to emissions. The Waste Incineration Directive for example has strengthened the regulatory regime and provides for strict operating robust monitoring programmes.*

*There are misleading statements on health issues such as carcinogenicity and it misinterprets the 'precautionary principle'. The precautionary principle should be invoked if there is good reason to believe that harmful effects may occur and the level of scientific uncertainty regarding the consequences or likelihood of the risk is such, that the best available scientific methods to assess the risk with sufficient confidence is not completed, to inform decision making.*

*As there is a body of evidence strongly indicating that contemporary waste management practices of modern incinerators have at most, a minor effect on human health and the environment, there are no reasons for adopting the 'precautionary principle' to restrict the introduction of new incinerators.*

*Submission CHASE (Anthony Staines)*

The submission maintains that it was necessary to perform a stand-alone Health Impact Assessment.

*Response*

The methodology of the assessment performed and the reasons behind this has been outlined in the EIS Appendix 6.2. I do not propose restating that but would make the following points.

The method taken in the EIS is a valid method of assessment and in my opinion not only meets the needs of a project like this and is best practice.

The predicted environmental impact of the proposed development in terms of emissions is relatively slight. Based on the predicted impacts on air quality for example there will not be an adverse effect on human health and one does not need a stand alone Health Impact Assessment to show this.

## **5. Conclusion**

In summary, I wish to emphasise that, from all the evidence available from the Literature, from experience with similar facilities and most importantly from extensive modelling and other predictions of the Environmental impact of the proposed facility we can be confident that there will be negligible impact on Human Health of the proposed facility.