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W0232-01
Sub No 1

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W aste Licensing Division
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To whom it may concern:

Re: Waste Licence Application W0232-01

Please find enclosed the submission of the Dublin South East Labour Party on the licence application for a proposed incinerator at Pigeon House Road, Poolbeg Peninsula, Dublin 4.

I would appreciate it if you could include me in your notification of the proposed decision when this becomes available.

Yours sincerely,

Ruairi Quinn TD
3rd November 2006

Submission to
Environmental Protection Agency
Objecting to the application for a licence to operate an Incinerator at
Pigeon House Road,
Poolbeg Peninsula, Dublin 4

Labour
Dublin South-East

November 2006

Case No: W0232-01

Applicant Name: Dublin City Council

Facility Name: Dublin Waste to Energy Project

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INTRODUCTION

There is a broad consensus that Ireland is facing a waste management 'crisis'. A 2006 benchmarking report from Forfas found that not only did Ireland produce more municipal waste per capita than any other state in the survey (777kg per capita) but also that waste treatment and recycling costs were higher than for most countries.

While recycling levels for municipal waste have increased from 13% in 2001 to 33% in 2004,[1] we still rely too much on landfill and export too much waste (currently we export 30% of municipal waste and 70% of hazardous waste).[2] Volumes of household, commercial and industrial waste generated in the Dublin region are expected to continue to increase due to increased population, employment and economic activity.

There is however, no consensus when it comes to proposals as to how to resolve this crisis. The incineration of waste is one of central issues where this consensus breaks down. Nonetheless a number of incinerators for both hazardous and non-hazardous waste have been proposed as part of the solution to this crisis.

It is the contention of this submission that Elsam's planning application for proposed development of a waste incinerator on the Poolbeg Peninsula based

[1] Forfas 2006, p. 3.
[2] Forfas, 2006, p. 3.

on the content of its Environmental Impact Statement (EIS) is contrary to the proper planning and sustainable development of the area. As a result the appropriate decision of the planning authority is to refuse planning permission for the proposed development.

The structure of this submission closely mirrors that of the EIS. The Elsam EIS consists of almost 2,000 pages (a summary, main document and 21 appendices).

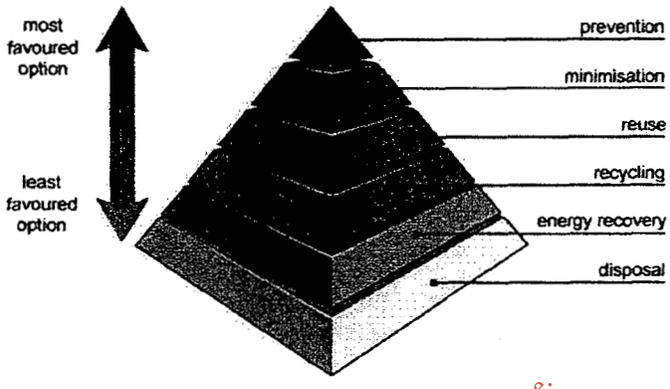
The preparation of this document is underpinned by a number of principles, some of which relate directly to the issue of waste and some of which are broader in application but nonetheless relevant to the issue at hand. They are:

- The Polluter Pays Principle - incineration generates significant (although unquantifiable) costs which are borne not by the polluter (i.e. the incinerator operator) but by the local community.

- The Proximity Principle - waste should be treated as close to its generation point as possible.

- The EU Waste Hierarchy Principles - the issue of waste should be dealt with on the basis of the following prioritisation: prevention, minimisation, re-use, recycling, energy recovery and disposal. Particular emphasis

should be placed on the preventative principle - it is better to prevent waste rather than manage it.



- The Democratic Principle - those affected by a decision must have an input into it and access to all relevant information.

- The Precautionary Principle - Precaution should be practiced in the face of scientific uncertainty, particularly where the likelihood of harm is unclear. In practical terms, 'The precautionary principle requires that the burden of proof should not be laid upon the protectors of the environment to demonstrate conclusive harm, but rather on the prospective polluter to demonstrate no likelihood of harm.'[3] If in doubt leave it out.

Taking these principles into account combined with the practical planning shortcomings of the EIS outlined in this document, it is our submission that the

[3] Greenpeace, 2001, p. 12.

only appropriate decision by the Environmental Protection Agency is to refuse a licence to operate an incinerator at the proposed location.

On behalf of the Dublin South-East Labour Party,

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Cllr Kevin Humphreys (14 O'Connell Gardens, Bath Avenue, Dublin 4)

Cllr Dermot Lacey (66 Beechill Drive, Donnybrook, Dublin 4)

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SUMMARY

The Dublin South-East Labour Party believe that the request for a licence for the operation of an incinerator on the Poolbeg Peninsula should be subject to an oral hearing. The reasons for this are:

- That the issue is of local and national concern;
- To maintain confidence in the licensing process;
- Precedent;
- The size and location of the project.

This document sets out in a rational manner a number of practical environmental issues raised by the EIS proposed by Elsam and Dublin City Council. The Dublin South East Labour Party believes that the EIS fails to adequately address these issues and that the proposed development is contrary to the proper planning and sustainable development of the area. Therefore planning permission should be refused.

Specifically:

- The proposed development not only appears to conflict with the waste hierarchy, in many respects it turns it on its head in that it seems to place greater priority on disposal (landfill and incineration) than prevention. It also risks undermining the region's recycling objectives.
- The presumption that incineration is safe is misplaced.

- Newer cleaner alternative technology is available.
- The proposed incinerator is being placed in an uncertain development context insofar as the future development of the area is unclear.
- The section of the EIS dealing with the visual environmental impact of proposed incinerator is unclear and contradictory.
- The impact of the incinerator on soils, groundwater and geology are unclear from the EIS. However, it acknowledges that, during construction and operation of the incinerator, 'potential impacts include the loss of habitats and species, sedimentation and pollution and or contamination of water, sediment and biota.'[4]
- The level of detail given on the potential consequences of onsite accidents is minimal.
- The Heavy Goods Vehicle impact of the development will be increasingly negative and does not appear to have been thought out or adequately planned for. The traffic disruptions caused by the proposed development not only during its construction but also during its operation have not been fully quantified.
- Monitoring of emissions is based on what can be monitored rather than what is a safe level of emissions and not all monitoring is continuous.
- Breaches are a possibility especially given the weak regulatory environment in Ireland.
- Taking the incineration route could undermine Ireland's green image.
- Incineration is an inefficient producer of jobs and energy.

[4] Elsam, 2006, p. 423.

- Concrete proposals on district heating have yet to be developed.
- Research indicates that waste treatment facilities can have a negative impact on property values.
- The EIS acknowledges that the output of "cooling water" will have a significant effect on aquatic life in the River Liffey, the Liffey estuary and Dublin Bay. These areas are home to many important aquatic species, in particular the Atlantic Salmon.

THE NEED FOR A FULL ORAL HEARING ON THIS ISSUE

The Dublin South-East Labour Party believes that it is vital that the Environmental Protection Agency hold a full oral hearing into the proposed licensing of an incinerator on Poolbeg Peninsula. We believe this for four reasons: that the issue is of sufficient public concern as to warrant a full hearing of the licensing case for and against the development; that the maintenance of confidence in the licensing process requires it; that precedent exists for it; and that the scale of the project demands it.

Addressing an issue of local and national public concern:

While there are currently no municipal waste incinerators located in Ireland, it is planned to develop a number across the country with the one proposed for the Poolbeg Peninsula being the largest. Given the potential impact that this proposed development will have on local health, the environment and the economy, not to mention the implications it will have for regional environmental and planning policy, it is vital that the licensing rationale for this development be subjected to a rigorous examination and that the concerns of the relevant parties be addressed in as public a manner as possible.

The Dublin City Manager's Report on the Submissions and Observations to the Draft Southbank/Poolbeg Framework Plan[5] listed 165 submissions and observations that were received on a related but in many respects less controversial issue and the level of interest in the public information events that have been organised indicate that there is sufficient interest among the public to warrant such a public hearing.

Maintaining (and restoring where necessary) confidence in the licensing process:

While it is unlikely that consensus on the issue of incineration will be achieved, a full, open and transparent hearing is more likely to increase the confidence of interested parties and the public in general in the licensing process and to address the widely held perception that the proposal is being 'railroaded' through to licensing & development.

Furthermore this proposal has raised a number of local and national licensing issues that require clarification;

- The role of the City Manager and how planning and licensing policy disputes with City Councillors are resolved.
- The resolution of conflicts in licensing policy.
- The scope allowed to regional development planning in the context of national and EU direction.

[5] Dublin City Council, 2005.

- The need for full and proper public consultation and at the same time prompt delivery of infrastructure.

If the development were to be given the go-ahead without a full oral hearing into its licensing aspects, public confidence in the licensing process would reach a new low and alternative means of articulating public disquiet over such developments would gain credibility.

Precedent:

Proposals to build two Incinerators (in Meath and Cork) were both subject of full oral hearings; precedent requires a similar treatment of the proposal for the proposed development of an incinerator on Poolbeg Peninsula.

Size and location of project:

Given that the proposed capacity for the facility on the Poolbeg Peninsula is four times the size of either of the Cork or Meath facilities and its urban location, there is an additional impetus for holding such a hearing. In 2001, the average unit capacity for incinerators in Europe was 177,000 tonnes per annum[6]. In a European context, the proposed Poolbeg Peninsula Incinerator is at the very large end of the Incinerator scale.

[6] ASSURRE, factsheet 6.

If such a major development does not warrant a full public hearing into how it fits with the national and regional planning framework, then what does?

OBSERVATIONS ON EIS FOR PROPOSED DEVELOPMENT OF INCINERATOR ON POOLBEG PENINSULA

Need for the Project (3)

This section of the EIS seeks to place the proposed development in a policy context. The EIS argues that incineration is a critical element of any strategy to reduce reliance on landfill arguing for a strategy of 'maximum recycling levels with thermal treatment of the remaining waste'.[7] It contends that higher recycling and lower levels of landfill usage than set out in government and regional waste management plans are unrealistic.

A number of issues arise under this heading:

The wrong strategic approach to waste has been adopted.

The 1998 Government policy statement describes waste prevention and minimisation as 'more desirable solutions'[8] to the waste issue and called on Local Authorities to address it 'with vision and vigour.'[9] However these aspirations seem to have degenerated into a stark choice between landfill and

[7] EIS summary p. 7
[8] DOE, 1998, p. 1
[9] DOE, 1998, p. 2

incineration. The approach to handling the waste issue seems to be focused on the base of the EU Waste Hierarchy with the issue of waste being dealt with on the basis of energy recovery and disposal rather than prevention and minimisation, with nods to re-use and recycling.

In the context of the Waste Management Plan for the Dublin Region while it also bases its goals on the EU Waste Hierarchy of prevention, minimisation, reuse, recycling, recovery of energy and disposal, it appears to be driven more by a concern to avoid disposal (i.e. landfill) than address the broader issue with vision. The EU Landfill Directive dictates that Ireland must restrict itself to landfilling 75 percent of its 1995 levels of municipal biodegradable waste by 2010, or faces fines. The Waste Management Plan for the Dublin Region acknowledges this objective explicitly: "By using this facility (the incinerator) the region can ensure that the obligations of the EU Landfill Directive and the Draft National Biodegradable Waste Strategy to reduce landfilling of biodegradable waste are met.'[10] This approach appears to be driven by economic rather than environmental concerns.

Addressing the issue with vision and vigour would place far greater emphasis (and resources) on the prevention and minimisation of waste rather than recovery of energy and disposal. As Forfas acknowledge 'Waste Prevention represents the most favourable waste management option. By not generating waste, we can eliminate the need to handle, transport, treat and dispose of waste... investing resources in waste prevention and minimisation offers potential

long-term benefits to competitiveness for business and industry of all types.'[11] A view echoed in government policy: 'Prevention is the most desirable method of waste management since the absence of waste totally eliminates the need for handling, transportation and treatment of discarded materials. Prevention of waste provides the highest level of environmental protection, optimises the use of available resources and removes a potential source of pollution.'[12] This approach is encapsulated in the 'Zero Waste' objective that is defined as aiming to eliminate rather than manage waste. While such an approach may be seen as unrealistic, it is pointed out that 'Zero waste is a goal - like the manufacturing goals of Zero Emissions, Zero Accidents and Zero Defects - or like the 'Smoke Free' and 'Nuclear Free' campaign goals. All of these were adopted as 'impossible targets at the beginning but have since proved their worth by dramatically changing industry and society. It is important not to get hung up on the zero. No system is 100% efficient. But we know we can get 'darn close'. By establishing a goal of zero, public and private organisations can focus creativity and resources on getting closer and closer to zero in a journey of continuous improvement that will completely change the way we think about waste.' [13]

- New Zealand has adopted a 'zero waste by 2020' goal.
- Canberra adopted a 'zero waste by 2010' goal in 1996.
- Seattle adopted a 'zero waste' goal in 1998.
- Toronto adopted a 'zero waste by 2010' goal in 2001.

[10] Waste Management Plan for the Dublin Region, Summary, p. xvii.
[11] Forfas Waste Management Benchmarking Study, 2006, p.15.
[12] Delivering Change, 2002, p. 10.
[13] The End of Waste, 2001, p. 5.

This goal-driven approach has also been adopted by a number of businesses including: Ricoh, Toyota, Kimberley Clark, DuPont, Hewlett-Packard, Honda and Xerox.

In contrast, the waste management approach adopted not only in the Waste Management Plan for the Dublin Region, but also at national and EU level restricts itself to managing the issue rather than eliminating it. The EU Commission acknowledges that 'although waste prevention has been the paramount objective of both national and Community waste management policies for many years, limited progress has been made so far to turn the objective of waste prevention into practice'.[14] There are no targets backed up with a system of fines to drive waste prevention, indeed, as Friends of the Earth (2006) point out, the latest Waste Framework Directive does not include a definition of waste prevention. The Communication from the Commission on developing a strategy on waste prevention talks about initiating 'a discussion on waste prevention targets and the instruments needed to achieve them.' (EU Commission, 2003, p.7). In 2004, the Irish Government recognised that this lack of progress on waste prevention 'can be partly explained by the absence of a sufficiently well developed strategy to underpin the process'[15], yet it not only failed to develop and fund such a strategy, but persists with a focus on the lower end of the waste hierarchy, pursuing incineration as the only alternative to landfill. The 2004 Government policy document 'Taking Stock and Moving

[14] Quoted in Department of Environment and Local Government, 2004, p. 29.
[15] Department of Environment and Local Government, 2004, p. 29.

Forward' challenges the realism and achievability of the 'Zero Waste' approach.[16] It contends that even after such an approach, there will be waste remaining which 'must be managed in the most environmentally appropriate way'[17] and falls back on the false choice of landfill versus incineration.

This lack of vision in addressing the issue has serious practical implications in terms of the policies adopted to tackle waste. A minimalist 'realistic' approach is adopted which may achieve its stated goals but at a cost of a number of less than ideal outcomes in terms not only of the environment, but also health, well being and economic competitiveness. In short, even before examining the best means of achieving the objectives of the strategy, the strategy adopted sells the region short. A process that starts with 'waste management' has gone too far down a road that limits results. The process needs to start with 'materials management'. Waste generation must be addressed.

'Zero Waste as a policy is proving to be the most effective driver in achieving waste diversion beyond what used to be imagined as maximum limits. Those implementing Zero Waste policies are showing that the only real limits are those imposed by lack of imagination and lack of political will.'[18]

[16] Department of Environment and Local Government, 2004, p. 22.
[17] Department of Environment and Local Government, 2004, p. 22.

[18] Greenpeace, 2001c, p. 25.

There is a significant risk that the commercial imperatives of this project will undermine it's limited environmental objectives.

The proposed Incinerator is being run on a public private partnership basis. Revenues will result from electricity and hot water produced by the Incinerator. Elsam describes itself as an 'energy provider' on its website. There is a danger arising from the conflict between the environmental objectives on the one hand and the commercial objective of energy generation on the other undermining environmental objectives as the incinerator is being run on a commercial basis. It is our contention that there is a potential conflict at the heart of the existing strategy in that while the Waste Management Plan for the Dublin Region 2005-2010 has an objective of minimising reliance on landfill and is based on a strategy of 'maximum realistic recycling', this is combined with an approach based on 'thermal treatment of the remaining waste'.[19] Minimising reliance on incineration is not an objective. Indeed the policy in relation to incineration is quite different: 'The policy of the Plan is to make the best use of residual waste - that is waste collected by the grey/black bin collection or otherwise not suitable for recycling - by extracting thermal energy'.[20] There is a very real danger that in order to meet incineration volume targets, not only will non-recycled waste be incinerated, but that recycling objectives will be undermined and potentially recyclable waste will end up feeding the incinerator.

This issue was highlighted in the UK Waste Strategy 2000 which states that 'care must be taken to ensure that contracts are sensitively designed to avoid

[19] EIS Summary, p. 7.

'crowding out' recycling'.[21] Similar concerns were expressed by the Irish Government - 'care is necessary, however to ensure that the development of WTE capacity does not militate against long-term investment in materials recycling'[22].

However, there are already a number of indications that this may occur in the context of the Poolbeg incinerator:

- The Waste Management Plan for the Dublin Region 2005-2010 Executive Summary states that 'The Dublin Local Authorities will be receptive to treating waste from outside the Dublin region if it is in accordance with the Waste Management Plan of the area in question.'[23]

- In a letter to the Minister in March 2006, Dublin Council's Assistant City Manager quoted in the Irish Times wrote that 'the city council would seek extra waste to burn 'from the areas immediately adjoining Co. Dublin' if the 600,000 tonnes target was not met by the capital.'[24] In a direct quote from the letter, he is reported as stating 'It is only in the event of waste not being available in Dublin that waste from outside the Dublin area would be sought for processing in the plant.'[25]

[20] The Waste Management Plan for the Dublin Region 2005-2010, p. xvii.
[21] UK Parliamentary Research Paper, 2002, p. 31.
[22] DOE. 1998, p.15.
[23] Waste Management Plan for the Dublin Region 2005-2010 Executive Summary, p. xvii.
[24] Irish Times, 24/07/2006.
[25] Irish Times, 24/07/2006.

- A reading of the National Overview of Waste Management Plans (2004) indicates that both the Kildare and Wicklow regions envisage meeting their requirements for thermal treatment of waste by sending it to the Dublin facility rather than develop thermal treatment facilities within their regions. In the case of Kildare, it is stated that 'the county would progress this issue in co-operation with neighbouring local authorities.'[26] As for Wicklow, 'the policy adopted was to pursue co-operative arrangements with neighbouring regions or other local authorities in relation to gaining access to thermal treatment facilities in such areas.'[27] Projections in the National Overview of Waste Management Plans suggest that Wicklow alone will require the thermal treatment of 40,000 tonnes of municipal waste per annum by 2013.[28] The EIS acknowledges this insofar as it accepts the regional approach to waste management elaborated in the 2004 Regional Planning Guidelines for the Greater Dublin Area.[29] The area covered by these guidelines not only incorporates the four Dublin Local Authorities, but also takes in counties Meath, Kildare and Wicklow. Amongst the recommendations cited from this document are: 'new integrated waste management facilities in the GDA in the short term'[30] and 'the inter-regional transfer of waste to give appropriate economies of scale to new waste management facilities'.[31] The EIS goes on to state that the

[26] National Overview of Waste Management Plans, 2004, p. 45.
[27] National Overview of Waste Management Plans, 2004, p. 50.
[28] National Overview of Waste Management Plans, 2004, p. 47.
[29] Elsam, 2006, p. 110.
[30] Elsam, 2006, p. 110.
[31] Elsam, 2006, p. 110.

proposed Incinerator 'is appropriately sized to give an economy of scale and sufficient capacity to serve the region'[32].

- Given that 'the only substantial progress which has been made towards the provision of thermal treatment capacity in a neighbouring region has been in Dublin'[33], there is a danger that, by being first built, the Poolbeg development will absorb the thermal treatment requirements of regions further afield which have been slower to develop such facilities. Connaught, Clare/Kerry/Limerick, South-East and Midlands[34] have made little progress in building thermal treatment facilities. This will create additional pressures to expand the capacity of the Poolbeg Peninsula facility.

- Given the capacity of the Poolbeg Peninsula incinerator (600,000 tonnes per annum), even if the thermal treatment facility in Meath absorbs some of this waste the Poolbeg facility will be under pressure to accept additional volumes, as the thermal treatment requirements for the Dublin area are only 410,000 tonnes per annum.[35]

- The Managing Director of Indaver Ireland has already publicly argued that Ireland needs seven municipal waste incinerators by 2010 to deal with growing levels of municipal waste. Already Indaver (who are building the

[32] Elsam, 2006, p. 111.
[33] National Overview of Waste Management Plans, 2004, p. 45.
[34] National Overview of Waste Management Plans, 2004, p. 56.
[35] National Overview of Waste Management Plans, 2004, p. 5.

incinerator in Meath) have sought to expand the facility by a third, before it is even built. Once an incinerator is up and running there is a strong possibility of momentum for expansion.

- That it has been made a condition of the granting of planning permission for waste management facilities that they restrict the facilities to deal with waste from within certain areas is seen as an 'issue' in the 2004 Government policy document 'Taking Stock and Moving Forward'[36]. The document goes on to state that 'it is not an automatic implication of waste management plans that waste facilities provided in the region have to be used exclusively for the region/county concerned.'[37]

This conflict between environmental and economic objectives arises not only because of the commercial nature and energy recovery focus of the process, but also due to the size of the incinerator. The larger the incinerator, the greater the costs (see UK Parliamentary Research Paper, 2002, p. 46). The need to guarantee minimum levels of waste being available to feed the incinerator increases with the size of the incinerator. The UK Waste Strategy 2000 argues that 'care should be taken to ensure that energy recovery plants are appropriately sized to avoid crowding out recycling.'[38]

The proposed Poolbeg Incinerator is at the larger end of the scale in terms of capacity (600,000 tonnes of waste per annum). To put it in context, all of the 22

[36] Department of Environment and Local Government, 2004, p. 25.
[37] Department of Environment and Local Government, 2004b, p. 25.

incinerators under construction, planned or in the process of planning permission in England and Wales as at April 2002 had a smaller capacity.[39] In fact in 2002, only one of the Municipal Waste Incinerators in England and Wales had a similar capacity.[40] Its capacity is almost three times the size of the UK average as at 2000 - 600,000 tonnes pa versus 230,000 tonnes pa.[41]This large capacity increases the likelihood that more waste will be required to feed it, undermining recycling efforts and ultimately the environmental objectives of the project.

So, spare capacity, lack of such facilities in other regions, the stated intentions of the Council officials, the commercial focus of the facility, and its size all suggest a momentum for expansion of the Poolbeg Peninsula incinerator once it is operational.

Are there financial incentives to address this issue incorporated into the current process?

Who pays if the waste capacity is not met? The EPA itself, in an overview of waste management strategy, points out that 'Waste incineration investments presume a steady fixed stream of waste to ensure financial viability.'[42] They point out that financial penalties could be levied to maintain the incentive to recycle waste. Alternatively, various incinerator projects have been supported with clauses whereby the relevant Local Authority is contractually committed to

[38] UK Parliamentary Research Paper, 2002, p. 44.
[39] UK Parliamentary Research Paper, 2002, p. 51-52.
[40] UK Parliamentary Research Paper, 2002, p. 9-10.
[41] UK Parliamentary Research Paper, 2002, p. 13.
[42] EPA, 2004b, p. 9.

meeting certain volume targets. In the current case, the financial arrangements which underpin the development of the incinerator are unclear from the EIS. These will have significant implications for its development and should be clear and transparent upfront.

Alternatives Considered (4)

The EIS contends that thermal treatment is 'a safe, tried and tested technology... capable of meeting stringent EU environmental standards'.[43]

The certainty that modern incineration is safe is misplaced

The proponents of 'modern' incineration have arrived at a cosy consensus that the application of the latest technology in the field has addressed many, if not all, of the health and environmental concerns regarding incineration. However, a detailed examination of the research undermines this view. Elsam views thermal treatment as 'a safe, clean technology'[44] and the EIS states that their technology is 'safe, tried and tested.'[45] This is a view echoed by the Government which cites research that it claims holds that 'no conclusive evidence could be found of a link between specific health outcomes and proximity to thermal treatment or landfill facilities'. [46] It also holds the view that 'Comparisons between thermal treatment facilities being put in place now and facilities which may have operated historically in other countries without stringent controls are not soundly based.'[47] Even the EU Commission contends that 'some of the problems of highest concern associated with waste treatment installations, such as emissions of dioxins from municipal waste incinerators will be largely solved through the implementation of the incineration directive.'[48]

[43] Elsam, 2006, p. 8.
[44] www.dublinwastetoenergy.ie
[45] Elsam, 2006, p. 8.
[46] Department of Environment and Local Government, 2004b, p. 35.
[47] Department of Environment and Local Government, 2004b, p. 35.

While even opponents of incineration accept that the industry has made great strides in the last thirty years in reducing toxic emissions (see Connett, 1998 for example), a 2003 review of the literature on the subject concluded that 'There is a paucity of literature relating to modern landfill and incineration sites'[49] and that the estimation of the likely effects of incineration are subject 'to some degree of uncertainty.'[50] The EPA again, in an overview of the health effects of municipal waste incineration, states 'Research studies of possible health outcomes in populations living close to incinerators have not given clear indications of the presence or absence of an effect.'[51] So the confidence of proponents of incineration is unjustified by reputable research. Nonetheless, the authors of the review were able to conclude that the research that exists actually leads to the view that 'Municipal solid waste incineration produces a range of volatile and gaseous emissions, which if released to the atmosphere, can compromise environmental quality'[52] and that there is 'some evidence that incinerator emissions may be associated with respiratory morbidity. Acute and chronic respiratory symptoms are associated with incinerator emissions'.[53] That this uncertainty applies to the effects of incineration is acknowledged by a wide variety of reputable sources:

- This view is supported by a UK Parliamentary paper on the incineration of Household Waste (2000) stated that 'It is unclear whether there is a

[48] EU Commission, 2003, p. 14.
[49] HRB Executive Summary, p. 5.
[50] HRB Executive Summary, p. 4.
[51] EPA, 2004b, p. 7.
[52] HRB Executive Summary, p. 4.
[53] HRB Executive Summary, p. 6.

threshold below which exposure to dioxins will have no effect...current levels of exposure may be sufficient to cause some adverse impacts in the general population, although research has found no clear evidence of this.

- Both the US EPA and the WHO acknowledge that such effects may be occurring, but are not observable because they are 'masked' by the background of 'normal' disease.[54]

- A 2006 UK Parliamentary Research paper found that while 'Incineration is undoubtedly getting safer... how safe is difficult to say.'[55]

- The Food Safety Authority of Ireland (2003) acknowledges that 'For many cancers the causes are not fully understood. It is widely accepted that long periods of time are often required between triggering an exposure (to dioxins) and the development of the disease clinically. This increases the difficulties associated with attempting to pinpoint specific causes.'[56]

- A 2001 European Commission strategy document acknowledges that the toxic properties of dioxins 'seem to have been underestimated' and that new data has emerged 'which indicate that dioxins and some PCBs have

[54] UK Parliamentary Paper, 2000, p. 3.
[55] UK Parliamentary Research Paper, 2002, p. 21.
[56] FSAI, 2003, p. 6.

a broader impact on health than previously assumed, even in very low doses'.[57]

- The US National Research Council (2000) 'expressed 'substantial' concern about the impacts of incinerator-derived dioxin releases on the health and well-being of broader populations, regardless of maximum achievable control technology.'[58]

- 'Combustion is an extremely complex process, and it is still not known precisely what substances are produced and released through the incineration of wastes. This is particularly true when the waste in question is highly variegated, as in the case of municipal or health care waste. Without knowing the pollutants produced, their quantities, environmental fate, or health effects, it is impossible to assure the safety of such a process.'[59]

- 'Incineration is undoubtedly getting safer, as more stringent emission controls have been put in place, but how safe is difficult to say.'[60]

- 'Although some results are conflicting in this area, other well-designed studies indicate a possible link between cancer risk and residence near incinerator sites. The influence of other sources of pollutants continues to

[57] quoted in FSAI, 2003, p. 7.
[58] Greenpeace, 2001b, p. 59.
[59] GAIA, 2003, p. 75.
[60] UK Parliamentary Research Paper, 2002, p. 20.

prove difficult to separate and, as a result. Evidence cannot be described as conclusive.'[61]

This uncertainty should lead to a more precautionary approach to the adoption of incineration.

There is a strong possibility that the latest technology has superceded incineration.

The examination of alternatives in the EIS took place in 1999 and again in 2004. They only examined alternative thermal treatments. Composting options (e.g. Bedminister international composting process) are not examined despite government policy looking favourably on such options:

- 'Given that organic materials constitute up to 40% of household waste, composting is a potentially significant technology which merits detailed consideration in any waste management planning process.'[62]
- 'In general composting or materials recovery are preferable to incineration.'[63]

A false choice between landfill and incineration is being offered. While incineration will reduce waste volumes ending up in landfill, they neither eliminate the need for landfill nor the fact that toxic pollutants will end up in

[61] HRB, 2003, p. 186.
[62] DOE, Changing Our Ways,1998, p. 14.
[63] DOE, Changing Our Ways, 1998, p. 15.

landfill.[64] The EIS fails to acknowledge that there are alternative methods of minimising landfill content than incineration, examining only gasification and pyrolysis (both alternative forms of incineration). By narrowing the choice to incineration versus landfill, the EIS ignores the latest composting technology. This technology has shown itself to be capable of reducing waste volumes to such an extent that the targets in the EU Landfill Directive can be met without a reliance on incineration: 'Current state-of-the-art mechanical screening and composting systems exceed the reductions in mass and volume [of waste] achieved by incinerators.[65]' Edmonton in Canada has diverted over 70% of residential waste from landfill without having to use incineration,[66] while Halifax has achieved a 65% diversion rate.[67]

Furthermore, once the incineration route has been taken, the long-term financial commitments involved (especially given that this project is based on a public-private partnership) not only create disincentives for improving environmental behaviour (as discussed earlier) but also inhibits the adoption of cleaner technologies as they come on stream. By limiting the alternatives to landfill to incineration, Dublin will be locked in to an environmentally unfriendly and outdated technology. While EU targets may be met by such an approach, it has to be asked if this is the best approach for Dublin in the context of environmental best practice.

[64] 'typically over 80-85% of the dioxins in waste are destroyed during combustion. the remainder are stabilised and bound up into the ashes... In fact the better an EFW (Energy From Waste) system is at reducing emissions, the more likely it is that pollutants end up in the ash - Assurre, 2001, Fact Sheet 3.
[65] Greenpeace, 2001c, p. 5.
[66] Greenpeace, 2001c, p. 6.
[67] Greenpeace, 2001c, p. 15.

Site Selection (5)

Elsam argue that the three alternative sites were less advantageous due to increased traffic and residential/commercial development. The proximity of the port, waste water treatment works and power plant were also considered to be advantageous. Site selection appears to be driven by factors determining where best to put an incinerator in terms of its commercial operation, rather than health, environmental or planning considerations.

An unclear development context.

While issues relating to transport, housing, flooding, port development, industrial development, amenities and the environment are all addressed in various local and regional plans on both a short- and long-term basis, these diverse strands have not been brought together to create a coherent long term plan for the area. Instead a number of parallel plans addressing different issues have been advanced. The EIS is symptomatic of this approach insofar as it gives token acknowledgement of the diverse development possibilities and issues facing the Poolbeg Peninsula, but it fails to address them in a coherent long-term manner.

A closely related point is that the Poolbeg Framework Plan mentions 'a number of uncertainties for the future development of large parts of the site',[68] yet none of the numerous plans that address various aspects of these uncertainties definitively resolve them. Will there be a coastal defence plan? Is the Heavy Goods Vehicle Strategy for the city centre definitive? What are the long-term

plans for the port? What are the public (and private) transport plans for the city centre? What bridges and tunnels will ultimately be built? Against this background, the EIS has to be seen as a plan in an unclear development context. The lack of a definitive long-term vision for development of the peninsula that addresses all the potential issues likely to arise over the medium- to long-term and the wider uncertain development context for the city-centre, renders the development of such a major piece of infrastructure on such a site premature in planning and development terms, and the licensing of an incinerator in such a location equally premature. Definitive answers are required to questions relating to the transport, housing, flooding, port development, industrial development, amenity and environmental development objectives for the peninsula and indeed city centre before such an environmentally significant facility should be sited there.

While the Draft Poolbeg Framework Plan seeks to resolve this dilemma by dividing the peninsula into three distinct zones with separate developmental objectives, it is undermined by the lack of definitive answers to many of these broader planning and development questions, and is still only in draft format. To base a licensing decision on this document alone as a vision of the future of Poolbeg would be short-sighted.

[68] DEGW, 2003, p. 5.

Site selection conflicts with existing Council policy

While 'It is the policy of Dublin City Council to recycle all sludge produced at Ringsend Treatment Works as a fertiliser product for beneficial re-use as an agricultural fertiliser'.[69] The EIS states that 'In the event that land spreading of sludge will no longer be an option due to environmental constraints, it will be possible to pump the sludge directly to the proposed Dublin WtE facility for thermal treatment.'[70] A potential future scenario that conflicts with existing Dublin City Council policy should not form the basis for site selection. Such a scenario will also result in an outcome that is lower down the waste hierarchy with an approach based on reuse and recycling being replaced by one based on recovery of energy and disposal.

Other issues with site selection

The Health Research Board describes site selection for waste management facilities as 'a complex and difficult task.'[71] They cite a number of factors which imply that certain locations should not be considered for the siting of hazardous waste management facilities. While the proposed site at Poolbeg may not be a hazardous waste facility, a number of these factors are applicable:

- Floodplains. The WHO is cited - 'coastal or riverine areas with a history of flooding every 100 years or less' should not be considered appropriate sites. The Manager's Report on the submissions and observations to the draft Southbank/Poolbeg Framework Plan states that flood works for the

[69] Dublin City Development Plan, p. 95.
[70] EIS Summary, p. 9.
[71] HRB, 2003, p. 60.

area would 'raise the defence standards to acceptable levels of Risk.'[72] While the EIS contends that the 'site is not prone to flooding'[73] this is an overconfident assertion on the part of Elsam, and clearly not in keeping with the Manager's opinion. The OPW in their examination of flood policy state that it is an area where there is a 'lack of research and data'[74], and that historic and predictive information on flooding is generally not available. Having said that, there is evidence that, under certain circumstances, high tides and onshore winds can lead to flooding. For example, the Marine Institute warned of the 'unusual' possibility of tides '4.58 metres above the baseline' in Dublin on 10th September 2006.[75] In other words, flooding is a possibility that must be addressed.

- Land Use – the local area has a high incidence of sensitive populations; specifically the elderly, children and stationary populations (such as hospitals).
- Unfavourable weather conditions - air contaminants may not be easily dispersed and may in fact be concentrated due to 'inversion' atmospheric conditions. 'Installations should avoid areas prone to atmospheric inversions or similar unfavourable dispersion conditions.'[76]
- The World Bank (1999) also recommends that incinerators should be located near a landfill.[77] The nearest active landfills to Poolbeg are at Dunsink and Naas Road. Both of these are near end-of-life, and are

[72] DCC, 2005, p. 47.
[73] Elsam, 2006, p. 131.
[74] OPW, 2004, p. 11.
[75] Irish Times, 28/8/06.
[76] HRB, 2003, p. 96.
[77] HRB, 2003, p. 62.

across the city centre from Poolbeg. Neither could be considered "near" Poolbeg within the World Bank's meaning.

Proposed Scheme (6)

How secure is the site?

The facility will not only produce dioxins, it will also store hazardous ash and gas as well as materials required for the incineration process. Sealed containers and storage areas if breached will release gas and windblown ash. The release of these substances would pose a serious threat to the health of the local community and wider city population, yet it is proposed that the site be secured only with fencing and CCTV[78], and it is not clear what precautions are in place to mitigate against accidental or deliberate releases.

[78] Elsam, 2006, p. 143.

Landscape and Visual Impact (7)

The EIS states that the 'Poolbeg peninsula has a central and pivotal setting within the arc of Dublin Bay' and is a 'significant landscape'.[79] It goes on to state that the 'wider' Poolbeg Peninsula has 'a strong visual presence within Dublin Bay and its immediate coastal landscape.'[80]

The EIS accepts that the incinerator will be 'visible from a wide range of areas around and across the arc of Dublin Bay.'[81] However, it argues that any negative visual impact (the main building is 57m in height with stacks reaching over 100m)[82] will be mitigated by the surrounding industrial setting. It will have a 'strong visual presence'[83] but this is not considered to be negative and Elsam argue that the main building is of sufficient architectural and visual merit as to mitigate any negative visual impact. The EIS accepts that there will be a significant visual impact from the development. The implications of this on both the Peninsula and Dublin Bay need to be examined in more detail as the location is a significant visual landmark and if the development is misjudged, it risks destroying that visual amenity and environment.

The Manager's Report on the submissions and observations to the draft Southbank/Poolbeg Framework Plan recognises that 'the prominence of the location beside the bay means that new development will have a significant

[79] Elsam, 2006, p. 24.
[80] Elsam, 2006, p. 191.
[81] Elsam, 2006, p. 14.
[82] Elsam, 2006, p.183.
[83] Elsam, 2006, p. 17.

visual impact'[84], yet the EIS states 'overall the proposed development will not have a significant impact in terms of the contribution of Poolbeg Peninsula to the landscape, cityscape or seascape character of Dublin Bay.'[85] This entire section of the EIS is confused in terms not only of the likely impact of the proposed development but also unclear as to how it reaches such confused conclusions.

While the EIS states that the Poolbeg Peninsula is 'industrial in character'[86], and that as such the site is 'largely indistinct and consistent with its surrounding industrial character'. It is acknowledged later in the document that the future development possibilities for the area include significant residential development[87] and as a result, 'ongoing industrial development should be of the highest quality' and that the scale of the proposed facility means that the proposed facility 'will be of major visual significance for the entire area. It will be a landmark building of original expression.'[88] Yet concludes that 'Overall, the proposed development will not have a significant impact in terms of the Poolbeg peninsula to the landscape, cityscape or seascape character of Dublin Bay'. Scant support is given for this conclusion. Yet in the summary of the section it is stated that 'the proposed development will have a significant landscape and visual influence on the setting and views from areas such as Irishtown Nature Park and from the south shore of the Peninsula.'[89] Later in the EIS it is stated that 'the development cannot be screened, so it will undoubtedly be visually

[84] DCC, 2005, p. 55.
[85] Elsam, 2006, p. 17.
[86] Elsam, 2006, p. 190.
[87] Elsam, 2006, p. 201.
[88] Elsam, 2006, p. 201.
[89] Elsam, 2006, p. 206.

prominent from many areas.'[90] In short the conclusions of this section are confused to say the least, driven by a lack of clear evidence with the photo-montages included providing little clarity on the matter.

[90] Elsam, 2006, p. 482.

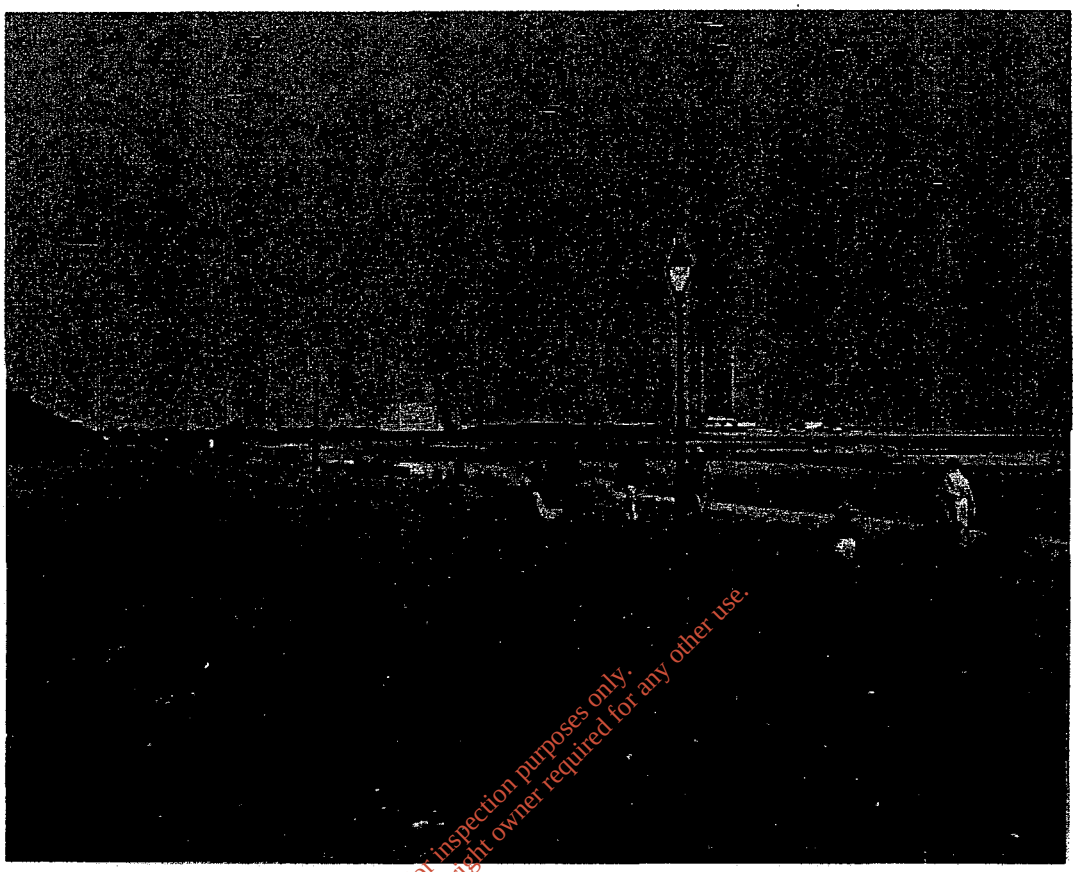

Fig. 1 – Revised photomontage with blue sky, showing visual impact more clearly

Many of the photomontages included in the EIS where the proposed incinerator is visible show it against a background of cloud cover. This serves to disguise the visual impact of the incinerator stacks on the skyline (see pages 772, 775, 785, 796 and 799 for example). Furthermore the angle of view in a number of the photomontages also distorts the relative scale between the Incinerator stacks and the stacks on the Poolbeg ESB Generating Station insofar as it is not clear that the incinerator stacks are half the size of the ESB stacks.

See Fig. 1 for a revised photomontage. This is one of the photomontages provided by Elsam in their EIS (p. 20; from Sandymount Strand) altered only to

show a blue rather than grey sky background. It more clearly shows the visual impact of the proposed development on the surrounding environment.

Traffic (8)

UK planning guidance relating to waste facilities favours rail over road transport: 'Transport by road is the commonest, thought not necessarily the most desirable, means of carrying wastes to management facilities... transportation by rail is particularly appropriate for facilities such as large incinerators... Opportunities for using forms of transportation other than road haulage should be considered actively and seriously by planning authorities when preparing waste development plans, and by prospective developers putting forward proposals.'[91]

The EIS argues that 'a traffic impact analysis showed the proposed development will not generate significant traffic... and adequate capacity was available on the road network to accommodate the development.'[92] The environmental impact of such additional traffic is brushed over in the EIS and requires stringent examination.

During construction – inadequate parking and ambigous impact

Up to 500 workers will be onsite during construction.[93] The EIS accepts that parking facilities will not be adequate and is vague on how their transport needs will be met although it argues that they will not be travelling during peak traffic times[94] and that a shuttle bus service will be provided. Experience of displaced vehicle parking of construction workers in the Sandymount and Ballsbridge areas suggests this could create considerable disruption.

[91] UK Parliamentary Research Paper, 2002, p. 28.
[92] Elsam, 2006, p. 20.
[93] Elsam, 2006, p. 31.

The EIS states that 'The construction contractor will decide the construction phasing and methodology'[95] and while the EIS may outline typical arrangements for such activity, they are not definitive. The size of the workforce is 'estimated' the peak construction period is 'anticipated', car volumes are 'approximate' and construction truck movements are 'expected'.[96] Yet again, the EIS leaves ambiguity about future activity and the consequent environmental impact.

During operation – an increasingly negative impact

While the EIS states that the site will operate 24 hours a day, 7 days a week, it contends that deliveries will be limited to 14 hours a day, 6 days a week, 312 days a year generating 288 journeys a day.[97] If this is the case then it must be asked why the loading bay has a stated capacity of 'up to 50 waste trucks per hour'?[98] This volume amounts to up to 700 trucks per day (1400 trips) given the stated limits on deliveries, five times the stated number of trucks and almost three times the number of journeys stated as being generated by the plant. Given the tendency of large incinerators to require greater volumes of waste to meet their objectives (as outlined earlier), the environmental impact of traffic to the proposed Poolbeg Peninsula Incinerator appears open to contention.

There are also safety concerns regarding any increase in the volume of Heavy Goods Vehicles (HGVs) in the area. By Elsam's own estimates, there will be at

[94] Elsam, 2006, p. 7-27.
[95] Elsam, 2006, p. 233.
[96] Elsam, 2006, p. 233-234.
[97] Elsam, 2006, p. 216.

least 89,856 (288 journeys by 312 days) additional truck journeys to and from the site every year. This is a very large volume of traffic. This figure must also be seen in the context that there are approximately 16,000 HGVs on Irish roads.[99] Statistically the increased annual traffic volume is the equivalent of every HGV on Irish roads journeying back and forth to the site over twice a year. **While the EIS argues that the traffic increase is small in context of overall traffic, the increase in HGV traffic in the locality is significant with 242 HGV journeys representing between 10 and 25% of daily HGV traffic volumes on local roads.**[100]

Additional issues will also be created:

- According to a 2005 report in the Irish Times - 'A high proportion of all Irish-registered lorries travelling in Britain failed to meet roadside mechanical or driver tests when checked in 2003-2004, according to British road authorities.'[101]

- According to the National Safety Council, there were 3,360 collisions between trucks and pedestrians between 1998 and 2002 with 10 percent resulting in fatalities.[102] 10 out of the 17 cyclists killed on Dublin streets between 2000-2005 were involved in collisions with HGVs.[103] Given the

[98] Elsam, 2006, p. 12.
[99] Irish Times 8/3/2006.
[100] see Elsam, 2006, p. 213.
[101] Irish Times 21/4/2005.
[102] Irish Times 15/7/2004.
[103] Irish Times, 31/1/2006.

large increase in HGV traffic, it is inevitable that there were be an increased risk to pedestrian and cyclist safety in the area.

- There is already a high incidence of asthma in area. This will be exacerbated by the nature and volume of increased traffic.

- Risk of load spillage and accidents

Long-term traffic issues are not adequately addressed

A number of longer-term traffic related issues arise that are not adequately addressed by the EIS.

- The EIS highlights that the construction of a district heating infrastructure will entail 'some temporary inconvenience to traffic in the area studied, but this effect is short term and manageable'[104] without actually quantifying this impact.

- The annual maximum capacity of the plant, given the reception hall's ability to handle 50 waste trucks per hour, is in excess of 2.6 million journeys per annum (50 trucks per hour by 14 hours a day by 6 days a week by 312 days a year by 2 journeys).[105] Little thought seems to have been put into the EIS in terms of addressing potentially significant increases in traffic volumes arising from an increase in incinerator

[104] Elsam, 2006, p. 1787.
[105] The weighbridges have a capacity for 60 vehicles per hour (Elsam, 2006, p. 143).

capacity. Such an increase in utilisation of the incinerator can only result in serious traffic congestion and restricted traffic movements in the area.

- How exactly residual waste will be transported to the port in not finalised. While there is a proposal, it is merely that.[106] As pointed out by the EU Commission, 'Air emissions also result from the transport of residual waste from the incineration plant to the disposal site.'[107]

- How traffic volumes will be affected by variation in waste volumes over time is not clear. Research[108] highlights the fact that there is significant variation in the volumes of municipal waste generated on a daily and monthly basis. Is it proposed to even out these variations or to vary traffic volumes to deal with them?

- Increased medium to long-term traffic volumes must also be seen in the context of potential increases in volumes arising from potential residential development on the peninsula. The Manager's Report on the submissions and observations to the draft Southbank/Poolbeg Framework Plan acknowledges this in that it recognises the potential for the development of up to 3,000 homes on the peninsula but 'there is virtually no spare capacity for private car generated peak travel.'[109] If this is the case, how can additional HGV volumes be accommodated at peak travel times?

[106] Elsam, 2006, p. 217.
[107] EU Commission, 2004, p. 23.
[108] HRB, 2003, p. 20-210.
[109] DCC, 2005, p. 27.

Inconsistency in traffic volume estimates

There appears to be a wide variation in traffic volume estimates across a number of documents which address the issue and, as a result, the EIS appears unnecessarily optimistic regarding the traffic impact of the proposed development. In the EIS, traffic volume is estimated at 288 journeys per day, 6 days a week. The Manager's Report on the submissions and observations to the draft South Bank/Poolbeg Framework Plan states 'the total number of trips per day based on a five day week is in the order of 130-150 maximum.'[110] On this lower traffic estimate, the Manager's Report states that this can only be accommodated 'if properly planned'. How can this be the case given the variation in short-term traffic volume estimates and the lack of clarity regarding medium to long-term traffic volumes?

[110] DCC, 2005, p. 28.

Air quality and climate (9)

Elsam argue that 'mitigation measures are proposed where appropriate to reduce, remedy or avoid significant adverse impacts.'[111]

Monitoring of incineration is a flawed concept

This raises an issue related to monitoring. It is held that 'properly managed and monitored Municipal Waste Incinerators do not impact on the environment, health or food quality.'[112] However, when the concept of monitoring that is applied in this instance is examined, it is found severely wanting and certainly not strong enough to support the contention that it renders incineration safe.

Monitoring is based on what can be monitored not what should be monitored

Monitoring is based on EU emission limits. However, as the UK Parliamentary paper on the incineration of Household Waste (2000) points out, 'this level has not been set on the basis of what might be considered a safe dose... Instead, the limit was set so that reliable measurements can be made by available detection equipment. This means that regulating emissions relative to the emission limit does not guarantee that emissions are at a safe level.'[113] In other words, monitoring levels are determined by technical rather than safety considerations.

[111] Elsam, 2006, p. 21.
[112] www.dublinwastetoenergy.ie
[113] UK Parliamentary Paper, 2000, p. 4.

The ambiguous nature of measuring safety levels was further reinforced by the actions of the World Health Organisation when they effectively halved the recommended Tolerable Daily Intake (TDI) of dioxins in 1998.[114] Monitoring of emissions to ensure that they are a safe level is not a reality. Small doses are not necessarily safe doses:

- 'There is no known level below which dioxins are known to be harmless.' [115]
- 'The emissions from incinerator processes are extremely toxic. Some of the emissions are carcinogenic. We know, scientifically, that there is no safe threshold below which we can allow such emissions.'[116]
- 'It is already known, or is a scientific opinion, that there are no 'safe' levels of many environmental chemical pollutants such as dioxins, other persistent, bioaccumulative and toxic chemicals, and endocrine disruptors.'[117]
- 'In relation to dioxin air emissions from incinerators ... it has been known for some time that incinerators generate and emit brominated and mixed chloro-bromo substituted dioxins in appreciable quantities ... these are regarded as of an equal toxicological significance relative to the chlorinated dioxins... little attention has been directed at evaluation of their

[114] See UK Parliamentary Research Paper, 2002, p. 23-24.
[115] GAIA, 2003, p. 13.
[116] Meacher, Micheal, 1999, Evidence to the House of Lords Select Committee on the European Communities, 11th Report, HL Paper 71).
[117] Greenpeace, 2001b, p. 60.

significance to human health and there are currently no obligations on the part of incinerator operators to monitor and control these chemicals.' [118]

Monitoring for all toxic emissions is not continuous.

It has been argued that continuous monitoring for dioxins is not possible. Connett (1998) contends that 'there is no equipment available in the world capable of monitoring dioxins and furans on a continuous basis.'[119] In the UK, 'Spot checks are carried out twice a year for hydrogen fluoride and metals, dioxins and furans. Continuous monitoring is not carried out for these as the Environment Agency does not consider that viable systems currently exist for this.'[120] In the case of the proposed Poolbeg Incinerator, while monitoring for certain substances will be continuous, Elsam propose that 'Emissions monitoring will include the measurement of dioxin emissions from the stack on a fortnightly basis'.[121] That leaves a two-week gap during which any issues that arise will not be identified.

Such an approach is less than satisfactory as acknowledged by the HRB: 'It is not unusual for a company to employ a specialist firm to supervise the sampling of the flue gas for dioxins. The samples are then sent abroad to the UK or elsewhere, for analysis. Clearly, such spot checks are not satisfactory and do not serve in any way to influence directly the day-to-day operation of the incineration

[118] Greenpeace, 2001b, p. 44.
[119] Connett, 1998, 5.
[120] UK Parliamentary Research Paper, 2002, p. 18-19.
[121] Elsam, 2006, p. 13.

facility. The EC has identified 'the measurement methods and standards' for dioxins and dioxin-like PCBs as 'one of the major gaps in our knowledge." [122]

Monitoring has not prevented safety breaches

There are significant issues with the concept of monitoring dioxin levels in relation to incineration. This is before the subject of any breaches of 'safety levels' is addressed. Supposed improvements in monitoring have not prevented such breaches from occurring. In the UK alone there were 546 self-reported breaches of emissions levels between 1999 and 2000.[123]

It must also be remembered that monitoring does not prevent breaches of safety standards. Rather, it identifies that they have occurred and the extent to which they have occurred. Even with the best of monitoring processes in place, there may be a significant delay between breaches of safety levels and their discovery, by which time dioxins will already have escaped.

This is likely to be so in Ireland

Issues in relation to monitoring of the effects of incineration are exacerbated in an Irish context by the limited monitoring infrastructure and a weak monitoring culture. A Health Research Board Literature Review found that the current monitoring and environmental analysis ability in Ireland is deficient: 'Irish health

[122] HRB, 2003, p. 66.
[123] UK Parliamentary Research Paper, 2002, p. 19.

information systems cannot support routine monitoring of the health of people living near waste sites.'[124]

The HRB cite as an example of this, the Askeaton, Co. Limerick case where despite evidence of ill-health attributed to industrial pollution, 'studies showed no substantial differences between the health of the population in Askeaton and people living in other rural parts of County Limerick. This episode showed clearly the severe lack of capacity for the assessment of human health in relation to environmental exposure in Ireland. This is still a major problem.'[125]

Furthermore, the general culture of regulation in Ireland is not only weak, but has repeatedly been found wanting, while regulatory bodies have tended to be significantly under-resourced (nursing homes and the construction industry for example). In this context, can we have confidence in the effective monitoring of a process which if found lacking could have significant consequences for the health of the local population? Indeed, the Health Research Board describes a 'non-compliant culture'[126] when it comes to compliance with waste management regulations in Ireland.

[124] HRB Executive Summary, p. 8.
[125] HRB, 2003, p. 180.

[126] ERB, 2003, p. 7.

Noise and vibration (10)

The EIS argues that noise and vibration levels will comply with relevant guidelines but that mitigating measures may need to be taken during construction.

During Construction

It is envisaged that construction will take place 24 hours a day.[127] As the EIS acknowledges that there are no statutory guidelines for construction noise levels in Ireland,[128] limiting the hours of construction would seem an appropriate approach to ensuring noise levels on site and in the local area are not disruptive rather than setting noise level targets as proposed in the EIS.[129]

During Operation

While the nuisance generated by noise and vibration may be clear, excessive noise and vibration also have significant indirect consequences. For example, noise pollution discourages people from opening their windows and, as a result, has been linked to increased rates of asthma.[130] Ireland already has high levels of asthma and levels among children are increasing.

[127] Elsam, 2006, p. 280.
[128] Elsam, 2006, p. 283.
[129] Elsam, 2006, p. 284.
[130] Irish Times, 11/7/2006.

Residues and Consumables (11)

Ash and gas will be generated by the incineration process. The EIS states that 'there will be no emissions from the ash and residue handling operations during normal conditions.'[131]

Incineration emmisions could undermine Ireland's green reputation

Ireland has an international image and reputation for being 'green', not so much in an environmental sense (as highlighted earlier our record is poor is this area), but in the sense of being a rural country with areas of significant natural beauty. This reputation has benefited our tourism and agricultural sectors significantly. It is a reputation that has a basis in scientific fact as well as a result of clever marketing of the country's natural beauty. A 1996 EPA study found that 'both the range and the average dioxin level in cows' milk in the UK (i.e. the background levels) is much higher than the truer background levels in Ireland.'[132] A summary of various research findings by the EPA found that dioxin levels 'are among the lowest measured in Europe.'[133]

This image is supported by the findings of numerous scientific studies across a variety of areas. Tests conducted by the EPA show that 'compared to more heavily industrialised countries, Ireland has significantly fewer problems in

[131] Elsam, 2006, p. 23).
[132] Connett, 1998, p. 7.
[133] EPA, 2004b, p. 8.

relation to dioxin contamination of land.[134] Tests of farmed and wild fish and human milk also show low levels of dioxins in relation to European levels.[135]

A move to a reliance on incineration as part of a national waste management strategy could permanently undermine this reputation. This is particularly the case given the potentially 'slippery slope' scenario outlined earlier, insofar as the acceptance of commercially driven incineration can create a momentum for further incineration.

The long-term certainty regarding the safe disposal of ash and residues is open to question

While it is envisaged that most of the residues generated by the incineration process will initially be exported, the implementation of the proximity principle will ultimately require that they be dealt with in Ireland. Even if the handling of these substances on the Poolbeg Peninsula site is safe and secure, it is unclear from the EIS that similar standards will apply at the ultimate Irish destination of the residues and consumables (which, applying the proximity principle, would have to be in the Dublin region). An EU Commission report on the externalities from incineration states that 'it is uncertain whether these pollutants will be emitted to soil or water, because the residues are disposed to specially lined landfills that are designed to keep the leachate within the site and control any discharge of leachate. Nevertheless, some experts argue that disposal of residues is also

[134] FSAI, 2003, p. 11.

associated with emissions to soil and water because in the long run, the lining is likely to rupture.'[136]

Monitoring will not be continuous

The EIS states that 'During the initial operation of the Facility, the boiler ash will be sampled and analysed to determine its characteristics and the typical level of contaminants.'[137] This indicates that monitoring of boiler ash contamination will not be an ongoing process, and that the operators are not even sure what the output of the incinerator will be.

[135] FSAI, 2003, p. 12.
[136] EU Commission, 2004, p. 38.
[137] Elsam, 2006, p. 298.

Soils, geology & groundwater (12)

During Construction:

The EIS states that among the chemicals found in the soil onsite were: 'hydrocarbon contamination... elevated concentrations of metals... some high sulphate concentrations... elevated concentrations of carbon dioxide.'[138] These may be disturbed during construction and may require 'specialist disposal.'[139] It is unclear how contamination will be dealt with during construction.

During Operation:

The EIS examines the issue of soil contamination as it currently exists, and addresses the possibility of further soil contamination arising from operation of an incinerator by stating that 'mitigation measures will be put in place to ensure the construction and operation of the Facility will not have significant impact on geology, soils and groundwater.'[140]

This confidence is misplaced insofar as an overview of research on soil contamination near incinerators concluded that 'data on levels of heavy metals in soils near to incinerators are very limited.'[141] Despite the limited nature of the research, there are results to indicate that incineration results in soil contamination.[142] **Furthermore, it is admitted in the EIS that 'no formal methodology for assessing the extent and degree of impact that the Facility**

[138] Elsam, 2006, p. 309.
[139] Elsam, 2006, p. 314.
[140] Elsam, 2006, p. 24.
[141] Greenpeace, 2001b, p. 39.

may have on the geological and groundwater aspects of the environment exists.'[143]

It is intended that 'During detailed design a quantitative risk assessment will be carried out as necessary for the final development to assess any impact on human health in relation to in-situ contaminated soils and groundwater. If an unacceptable risk is identified specific mitigation measures will be developed and implemented.'[144] In other words, the EIS does not adequately identify the potential issues arising in relation to soils, geology and groundwater.

The EIS acknowledges that 'Dublin Bay is an important habitat for fish' and 'the concentrations of heavy metals in Dublin Bay are generally low.'[145] During operation, biocides will be added to cooling water to prevent fouling. How adequate are measures to limit biocides and avoid leaks? The EIS states that 'It is not possible beforehand accurately to set the required dosage... In practise the required dosage is found by testing and adjusting during the operation.'[146] and 'The fate of the biocides has only been studied for normal plant operation scenarios.' (Elsam, 2006, p. 340). This appears to be a haphazard approach and makes it difficult to accurately assess the impact of biocides on water quality in the Bay. Thus, it is concluded that hypochlorite and its degradation product 'may

[142] see Greenpeace, 2001b, p. 39.
[143] Elsam, 2006, p. 304.
[144] Elsam, 2006, p. 317.
[145] Elsam, 2006, p. 327-328.
[146] Elsam, 2006, p. 329.

have toxic effects on the Liffey estuary.'[147] The likelihood of these effects occurring and their exact nature are not clarified. Similarly, the conclusion reached after modelling the effects of the thermal discharge is that they 'may be limited to the area close to the outfall' from the proposed incinerator.[148]

[147] Elsam, 2006, p. 369.
[148] Elsam, 2006, p. 363.

Human Beings (13)

This section of the EIS concentrated on the community issues and health impacts of the proposed incinerator. It identifies a number of positive effects:

- Increased direct and indirect local employment combined with no negative effect on existing local employment.
- A Community Gain Fund will be created for the benefit of the local community.
- District heating generated by the facility.
- The refurbishment of Pigeon House Power Station and Hotel.

However 'a preliminary risk assessment has identified a small number of major accident scenarios' [149] but argues that the effects of these 'outside the site' would be minimal.

It should also be pointed out that adequate community facilities should not require the provision of an incinerator to be provided. Such facilities should be provided as required to all communities rather than as some sort of 'bonus' for accepting the location of an incinerator in their midst. A number of counter points need be made.

[149] Elsam, 2006, p. 26.

There is far greater job-creation potential in investing in waste prevention, re-use and recycling.

While the project will create 64 jobs[150] when operational and up to 500 during construction,[151] this is a very small number of jobs given that the investment in the facility is estimated at over 1 billion euro over the lifetime of the project.[152] Incineration is a capital-intensive rather than labour-intensive process, certainly compared with the alternatives. Research in the US has shown that composting, recycling and re-use programs can generate up to ten times as many jobs as incineration.[153] The EPA (2004b) state that 'Recycling and recovery activities are job rich compared to landfill and incineration.'[154] They go on to state that 'From an economic perspective incineration is not a cheap alternative due to its high capital and operating costs.'[155]

Comparing costs from a study of four composting facilities in Canada and the US it is found that while they are significantly smaller than the proposed Poolbeg incinerator, their cost per job is significantly lower:

Sorel-Tracey Facility (Quebec, Canada):

Capital development cost: US$15m

Jobs created: 15

Cost per job: US$1m

[150] Elsam, 2006, p. 20.
[151] Elsam, 2006, p. 31.
[152] Irish Times, 20/08/2005.
[153] GAIA, 2003, p. 30.
[154] EPA, 2004b, p. 5.

Edmonton Facility (Alberta, Canada):

Capital development cost: US$100m

Jobs created: 42

Cost per job: US$2.4m

Bedminister Facility (Marlborough, Massachusetts, USA):

Capital development cost: US$15m

Jobs created: 14

Cost per job: US$1.1m

Rapid City Facility (Rapid City, South Dakota, USA):

Capital development cost: US$22.6m dollars

Jobs created: 10

Cost per job: US$2.3m

Proposed Poolbeg Facility:

Capital development cost: €500m or US$640m (approx).

Jobs created: 64

Cost per job: €7.8m or US$10m (approx)

[155] EPA, 2004b, p. 10.

Incineration is a very inefficient approach to energy generation.

Connett (1998) estimates that if the US burned all its municipal waste, it would meet less than one percent of US energy needs.[156] He points out that 'more energy can be saved as a whole by reusing and recycling objects and materials than can be recovered by burning them.'[157] Again, put in the context of the significant investment in the facility, relatively little energy will be produced. It is estimated that the proposed facility will generate 460,000MWh of electricity and 970,000MWh of heat; enough to meet the electricity and heating needs of 45,000 and 60,000 homes respectively[158] at an estimated cost of €1 billion over its lifetime.[159] Compare this with the latest ESB International 800,000MWh plant planned for Asturias in Spain at a cost of approximately €500 million.[160] Put in an alternative context, the EPA point out that the anaerobic digestion of cattle, pig and poultry waste could generate up to 2.75 MWh of electricity per annum, equivalent of 11% of the electricity supplied to the Irish Economy in 2001.[161]

It is estimated that the energy generated by all of Europe's waste to energy incinerators would meet the electricity demand of a country the size of Switzerland; this represents only 1% of Europe's population.

No infrastructure for district heating has been put in place to date and it is in many respects a hypothetical benefit.

[156] Connett, 1998, p. 10.
[157] Connett, 1998, p. 2.
[158] Elsam, p. 1784.
[159] Irish Times, 8/8/2006.
[160] Irish Times, 14/8/2006.

The EIS acknowledges that 'Installation of an underground district heating network is a large effort demanding comprehensive construction work'. The EIS talks of 'excellent feasibility for a district heating scheme'[162] for the Docklands and 'recommended to investigate the possibility'[163] of connecting local areas to a district heating scheme. Later the EIS is clearer on the status of district heating when it states that provisions have been made 'should a district heating scheme come into place.'[164]

While electricity generated by the incinerator can be fed to the local power plant all year round, district heating will only provide a meaningful benefit during the winter.

The use of such facilities will also further reinforce a reliance on incineration.

Administration of Community Gain Fund:

The selection process for membership of Community Gain Fund Board is unclear beyond a vague ability to reflect community interests and needs. Explicit criteria are required. A broad range of community interests must be represented on this board, which 3 community representative positions do not seem to adequately capture.

[161] EPA, 2005, p. 3.
[162] Elsam, 2006, p. 1784.
[163] Elsam, 2006, p. 1784.
[164] Elsam, 2006, p. 475.

Human Health

The issue of certainty relating to the impact on human health of modern incinerators has been addressed earlier. However, it is worth pointing out that while on the one hand the argument is made that 'modern' incinerators properly run in accordance with the latest guidelines are safe, the main research used to support this view is 10 years old (WHO, 1996) and that it is hesitant in its conclusions using phrases such as 'in general', 'need not pose a threat' and 'may' have a smaller impact on the environment than land-filling of untreated waste.[165]

Elsam's use of a more recent overview of the research on the issue by the Health Research Board (2003) was extremely selective in its interpretation of its conclusions. The HRB overview does not give incinerators a clean bill of health, finding that 'evidence cannot be described as conclusive.'[166] On that basis, adopting the precautionary approach would lead to an avoidance of incineration as its effects are unclear.

Yet again, Elsam end up stacking the deck in their favour by setting up a false choice between incineration and landfill[167] in terms of the preferable approach to waste management.

[165] Elsam, 2006, p. 380.
[166] HRB, 2003, p. 186.
[167] Elsam, 2006, p. 389.

To bluntly conclude that 'In fact, there is not a single peer-reviewed study showing modern Municipal Waste Incinerators release hazardous substances at a level causing any harm to the people in the vicinity'[168] is unsupportable on a number of levels:

- There are few peer-reviewed studies on modern incinerators.
- There is still huge debate regarding what exactly constitutes 'safe' levels of emissions from incinerators.

The level of detail given on the potential consequences of onsite accidents is minimal.

If 'a fire could escalate to other parts of the Facility' or 'Firewater could be contaminated with waste... and could contaminate receiving waters'[169], what are the likely consequences of such incidents and how would they be addressed? It is not re-assuring that an Emergency Procedure Strategy 'will be prepared'.[170] Such a procedure should already be in place and should form a part of the EIS.

[168] Elsam, 2006, p. 390.
[169] Elsam, 2006, p. 396.
[170] Elsam, 2006, p. 400.

Terrestrial Ecology (14)

The EIS argues that the site has 'low ecological significance.' and that 'all habitats present within and immediately around the Site... are not of conservation value.'[171] However, it is acknowledged that construction activities could impact on the Brent Geese nesting nearby.[172] Again the re-assurance provided in the EIS is less than satisfactory with the impact on the geese being described as 'unlikely to be much affected'[173] by construction while the operational plant is 'not expected'[174] to have any impact.

While this may be the case, the wider impact on Dublin Bay of a major accident also needs to be addressed

[171] Elsam, 2006, p. 410.
[172] Elsam, 2006, p. 27.
[173] Elsam, 2006, p. 411.
[174] Elsam, 2006, p. 411.

Marine & Estuarine Ecology (15)

The EIS states that 'none of the species or habitats recorded... were of specific nature conservation importance or interest'[175]. However, it acknowledges that during construction and operation of the Incinerator, 'potential impacts include the loss of habitats and species, sedimentation and pollution and or contamination of water, sediment and biota.'[176] In a worst case scenario, there could result 'in long-term negative impacts on habitats and species in an area of recognised nature conservation importance through physical disturbance and pollution, both in the area immediately adjacent to and at some distance from the point discharge.'[177]

Even when taking an optimistic view of the effects under this scenario, the EIS is hesitant - using phrases such as 'it appears fish should be able to migrate up the river'[178] and that, while 'little is known about noise and vibrations on invertebrates', their impact is 'likely to be minimal and short term'[179] and there 'could' be contamination of the area affecting habitats.[180] In terms of the marine and estuarine ecology, the EIS seems to be attempting to make the best of less than satisfactory consequences arising from the construction and operation of the proposed incinerator.

The environment into which the proposed incinerator is being placed is an important area for Atlantic Salmon, as well as other marine life, and the effects on these fauna and flora have not been properly established.

[175] Elsam, 2006, p. 421.
[176] Elsam, 2006, p. 423.
[177] Elsam, 2006, p. 423.
[178] Elsam, 2006, p. 424.
[179] Elsam, 2006, p. 425.
[180] Elsam, 2006, p. 425.

Archictectural heritage, archaeological and cultural heritage (16)

According to the EIS, there are 'no recorded features of an architectural or cultural heritage merit within the site.'[181] Archaeological monitoring before and during construction is recommended.

[181] Elsam, 2006, p. 29.

Material Assets (17)

The EIS states that there are no residential developments within 1km of the proposed incinerator,[182] but acknowledges that over 26,000 households (70,000 people) live within 3km of the site.[183]

The EIS contends that the development will not have a long-term negative impact on local property values. The research conducted for the EIS into house price impacts is extremely limited in scope and it cannot be concluded on that basis that 'there is no measurable impact on property values, the volume of transactions or the desirability of property in neighbouring locations.' [184]

While there is little research on the issue and the results are very much dependent on the assumptions made, there is considerably more research examining how the siting of landfills affects property values. Much of this research is applicable in the current context. Among the most recent findings are:

- Kago (2004) examining the impact of the siting of waste treatment facilities on property values in Japan found that such facilities did 'restrain' the rise in local property values.

[182] Elsam, 2006, p. 468.
[183] Elsam, 2006, p. 444.
[184] Elsam, 2006, p. 448.

- Parker (2003) of the National Solid Waste Management Association cites a number of examples where property values increased around land fill sites, however this ignores the possibility that property values would increase by a greater amount if no landfill were located nearby and his sample size is small statistically speaking.

- Ready (2005) in an overview of research on the matter found that many of the studies examining proximity to landfill sites and house prices 'have found that houses located near a landfill sell for lower prices than similar houses located farther away'[185] while acknowledging that the impact varies from site to site. He concludes from his overview that 'no study to date has conclusively demonstrated that the impact on house prices of a nearby landfill is less than 5% per mile.'[186] In other words there is generally a negative impact on house prices that is greater the closer a house is to a landfill. In a more detailed examination he concludes that while landfills do not always depress nearby property values, '92-95% of all landfills do have negative impacts on nearby house prices.'[187]

While it is not possible to identify which landfills have a minimal impact on property prices, he identified two factors which had 'statistically significant negative impacts on nearby property values' (Ready, 2005, p. 16):

- Waste volume - in other words the larger the landfill the greater the impact on house prices.

[185] Ready, 2005, p. 2.

- Landfill prominence - the degree to which a landfill was visible from the surrounding area also impacted on property values. The more prominent the landfill, the greater the impact on property values.

Given these findings and that the proposed Incinerator is at the larger end of the scale in terms of the volume of waste that it will be consuming and that it will be visible, it is reasonable to assume that it will have an impact on local property prices. While the incinerator may not be sited in close proximity to property in the short-term, that may not be the case in the medium to long-term as the Poolbeg Peninsula is developed. In conclusion, the findings of the EIS on this issue are questionable.

[186] Ready, 2005, p. 7.
[187] Ready, 2005, p. 15.

Construction and Decommissioning (18)

No negative impact is expected given 'proper construction management' (EIS Summary, p. 31). A number of issues have already been raised in previous sections regarding environmental impacts arising during the construction phase of the proposed incinerator. However, it appears that much of this section of the EIS is premature insofar as:

- It is acknowledged in the EIS that at this stage the construction 'sequence and methodology' have yet to be finalised.[188]
- As it is stated in the EIS that 'the selection and specification of construction materials will be based on local availability of these materials.'[189] It seems that neither have these been finalised.

Decommissioning:

The section of the EIS dealing with this issue raises more questions that it answers.

- The estimated lifespan of the proposed incinerator is 'at least 30 years.'[190] How do commercial arrangements for the incinerator impact on this?
- It is unclear from the EIS, what (if any) agreements have been entered into to ensure that decommissioning occurs to a satisfactory level.
- Who bears the decommissioning costs?
- What will be the environmental impacts of any decommissioning?

[188] Elsam, 2006, p. 452.
[189] Elsam, 2006, p. 454.

Other areas addressed:

Sustainability (19)

Sustainability is addressed under earlier headings.

Cumulative impacts and Interactions (20)

Cumulative impacts are addressed under earlier headings.

[190] Elsam, 2006, p. 462.

CONCLUSION

The concept of safe and well-managed incineration is unjustified by most of the evidence that exists. Furthermore, the Environmental Impact Study submitted by Dublin City Council and Elsam fails to sufficiently address a number of practical planning issues arising from their proposal to site an incinerator on the Poolbeg Peninsula. Therefore, the only appropriate action by the Environmental Protection Agency is to reject the licensing application.

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