

Administration,  
Waste Management Licensing,  
Environmental Protection Agency,  
PO Box 3000,  
Johnstown Castle Estate,  
Co. Wexford.

Environmental Protection Agency Waste Licensing Received 04 SEP 2002 Initials... <i>Eg</i>
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04/09/02

W.L. Application Ref:167-1

**Indaver Ireland - Response to Third Party Submissions 1 - 23**

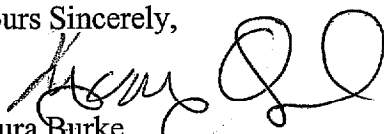
Dear Sir / Madam,

Please find attached an original plus five copies of Indaver Ireland's response to Third Party submissions regarding our Waste Licence application 167-1. This document responds to submissions 1 to 23 as assigned by the Agency.

Please note due to number of pages contained in Appendix 4 – Indaver Irelands submission to the Health Research Board on the “Public Health Study on Waste Management Practices in Ireland” – this document has been attached separately.

I trust that the above is to your satisfaction, however should you require any additional information please do not hesitate to contact me.

Yours Sincerely,

  
Laura Burke  
Projects Manager  
Indaver Ireland



**Waste Licence Application 167-1**

**Response to Third Party Submissions 1 – 23**

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**August 2002**

## Licence Application 167-1

### Carranstown Waste Management Facility

#### Response to Third Party Submissions - August 2002

The following information has been compiled by Indaver Ireland in response to submissions received by the Agency in regard to the licence application for the proposed waste management facility at Carranstown, Co. Meath.

This document addresses each submission individually. Where the content of submissions overlap a reference to previous discussion is made.

#### ***Submission 1: Louth/ Meath Health Protection Group – 17<sup>th</sup> December 2001.***

*In recent years we have been concerned at the lodging by multinationals of applications to statutory bodies immediately before Christmas / New Year holiday periods which would seem to offer no purpose than to avoid notice by the public and to restrict the time available to possible objections by the inclusion of public holidays...*

Indaver Ireland lodged an application for a Waste Licence on the 5<sup>th</sup> December 2001. The lodgement date was not scheduled to coincide with the Christmas / New Year period.

A statutory notice regarding the application appeared in the Irish Independent on 3<sup>rd</sup> December 2001. In addition, a site notice was erected at two locations at the front of the proposed site and a letter of notification was issued to the planning department of Meath Co. Co.

On the 6<sup>th</sup> December 2001, Indaver Ireland wrote to all members listed on the communications register- in excess of 250 letters posted. The letter informed the members of the register of the license application and offered a free copy of the licence application non-technical summary or a free full copy of the licence application on request. Attached as Appendix 1.

On the 14<sup>th</sup>/ 15<sup>th</sup> December, Indaver Ireland published a colour advertisement in both the Meath Chronicle and the Drogheda Independent offering free availability of the licence application non-technical summary or a free full copy of the licence application to any member of the public upon request. Attached as Appendix 2.

The above demonstrates Indaver Ireland's commitment to fully inform the public on the licence application, the communications register will continue to provide similar information on key events throughout the licence application process.

***Submission 2: John W. McGrath, Balrath, Co. Meath- 21<sup>st</sup> January 2002***

(1) *"Toxic Pollution affecting us humans and our food chain through land, cattle etc"*.

The proposed facility consists of three aspects namely; a community recycling park, a materials recycling facility and a waste to energy plant.

The community-recycling park will allow members of the public to deposit items of waste for recycling in specially designed containers. The park will discharge no direct emissions to air or water. Any surface water generated at the park will be passed through an oil/ petrol interceptor prior to entering the storage tank for use in the waste to energy plant.

The materials recycling facility will provide for deliveries of approximately 20,000 tonnes of unsorted dry recyclable commercial and industrial waste per annum. All materials leaving this process either will be within enclosed containers or will be covered to prevent risk of litter during transport. There will be no solid, liquid or gaseous emissions from this activity. The residual fraction of the incoming waste that cannot be recycled will be conveyed to the bunker of the waste to energy plant for disposal.

The waste to energy facility will accept approx. 150,000 tonnes / annum of non hazardous waste. The incineration of the waste will produce hot gases to be used for energy recovery; these gases will be treated in a five-stage gas cleaning process prior to be emitted to atmosphere.

As a result of the gas cleaning process all emissions will be below the limits specified in the Incineration Directive 2000/76/EC- for dioxins the plant will operate at approx. 90% below the limits.

Indaver Ireland has submitted as part of the application an air dispersion modelling report that assesses the potential impact of the emissions from the stack. The model used is the Irish and US E.P.A. approved Industrial Source Complex (ISC 3) computer model. The results of the modelling showed that the predicted ground level concentrations were significantly below the most stringent air quality standards and therefore the impact of these emissions on the surrounding environment will be insignificant.

The full air dispersion model report is included in section H1.2 of the licence application attachments.

There are six waste incinerator sites currently operating in Ireland. The EPA have recently issued a report entitled "Dioxin levels in the Irish environment"; this report details the level of dioxins measured in cow's milk taken at 24 locations throughout the country and 13 locations in the vicinity of the incinerators in yr. 2000. The results

of this report can be compared to a similar study also undertaken by the EPA in 1995. It is to be recorded that dioxin levels in the milk have fallen by approx. 16 per cent in the intermittent five- year period.

In the vicinity of the incineration plants 9 of the 13 samples taken were common locations in 1995 and 2000. Of these 9 samples – 8 showed lower levels of Dioxin in 2000 than in 1996. The EPA states, “These concentrations were uniformly lowly international standards”. The report goes on to say, “There were no unusually high values meriting particular attention in any of the type A or type B samples”. The EPA define type A and B samples as follows.

Type A background stations covering the entire country (24 samples)  
Type B potential impact stations in areas of perceived potential risk (13 samples)

There is no known case in Europe whereby a food producer has had their produce refused by any food processing company or outlet as a result of the proximity of the producer to a modern incineration plant. In addition, there is no known policy in place by any food processing company or outlet stating that produce originating from lands located close to a modern incineration plant is to be refused acceptance by virtue of their origin. Ireland imports €109 million worth of food and beverages from Germany annually, Germany operates 60 incinerator that treat over 16.8 million tonnes of waste each year. In addition, we import €264 million worth of food and beverages from Holland, Holland operates 11 incinerators which treat over 4.4 million tonnes of waste each year.

(2) *“Toxic Ash cannot be disposed of without further pollution”.*

There will be four solid waste residues collected from the proposed waste to energy plant namely;

- Bottom ash
- Boiler ash
- Flue gas cleaning residues
- Gypsum

The bulk of the waste residue will be in the form of bottom ash, representing about 20% of the waste input or approx. 30,000 tonnes per annum. The bottom ash will mainly consist of inert material such as sand, glass, scrap metal and stones. This ash, which is classified as non-hazardous in a similar Indaver waste to energy plant can be used as a material in road construction (following processing in an Ash Recycling plant) or may be disposed of in a licensed non-hazardous waste landfill. A copy of a certificate for use of this ash as a road construction material in Belgium is attached as Appendix 3.

About 1-2% of the waste input or 1,500 to 3,000 tonnes per annum will be collected as boiler ash. The boiler ash according to the European waste catalogue may be classified as either hazardous or non-hazardous depending on the constituents in its makeup. Indaver Ireland has stated in the licence application that this ash will be sampled and analysed to determine the correct classification. If the ash is classified as non-hazardous, it will be disposed of in a licensed landfill. In the case that the ash is

classified as hazardous, it will be mixed with cement/ iron silicate and water; this will chemically bind the ash to produce a solid material. The ash may then be disposed at a licensed non-hazardous/ hazardous landfill as appropriate.

Flue gas cleaning residues will amount to some 2-3% of the incoming waste input or 3,500 to 5,000 tonnes per annum. The flue gas cleaning residues will require solidification prior to disposal at a licensed hazardous landfill. This stream will be solidified with cement/ iron silicate and water; this will chemically bind the ash to produce a solid and inert material

Approximately 1,000 tonnes of gypsum will be generated in the gas cleaning process per annum. This material following further refinement can be suitable for reuse in the construction business, however in the absence of such a market this will be disposed of to a licensed non hazardous waste landfill.

(3) *"We must recycle and aim for zero waste"*.

The proposed facility will allow members of the public to dispose of waste for recycling at the community-recycling park. It is anticipated that this park will accept approximately 2,000 tonnes of material per annum.

The materials recycling facility will accept 20,000 tonnes/annum of non-hazardous industrial and commercial material for further recovery and processing.

The waste to energy facility will have a nominal capacity of 150,000 tonnes/annum, this represents approximately 30% of the waste produced in the four counties of the north east region. This leaves approximately 70% of the waste arising available for recycling/ recovery. This compares to the Flanders - where Indaver also operate - here recycling levels of 66% are achieved - the highest levels for any region in the world.

A submission made by Indaver Ireland to the Health Research Board regarding the "Public Health Study on Waste Management Practises in Ireland" details waste management practises around the world is submitted as Appendix 4.

(4) *"A smaller landfill site maybe needed but will be a safer alternative to an incinerator"*.

The governments policy on waste management entitled "Changing Our Ways" lists landfill as the least favourite option in the waste hierarchy. Landfills are required only after waste has been recovered/ recycled and energy has been recovered from the residual stream.

In addition, the EU Sixth Environmental Action Program states; "The community's approach to waste management policy is based on the guiding principle of the waste hierarchy which gives preference first to waste prevention, then to waste recovery (which includes reuse, recycling and energy recovery, with preference to material recovery), and lastly to waste disposal (which includes incineration without energy recovery and landfilling).

The total “footprint” of the proposed facility will amount to ca. 17 acres; the equivalent size required for a 150,000 tonnes/annum landfill over a 25 year period would amount to a much greater land area requirement.

As stated above the gas emissions from the waste-to energy facility will well below the limits set in the incineration directive 2000/76/EC.

### ***Submission 3:Louth People Against Incineration- 28<sup>th</sup> January 2002***

#### **(1) “Health Implications of Incineration”**

Dioxins –The World Health Organisation has determined that dioxins are hazardous substances, and have recommended a tolerable daily intake (TDI) of 1- 4 picogram TEQ/ kg of body weight. The new EU directive (2000/76/EC) takes into account recent studies on dioxins and their effects and the WHO recommendations

The World Health Organisation have stated in their document on “Solid Waste Disposal – Waste Incineration” –attached as Appendix 5 - that “The incineration of waste is a hygienic method of reducing its volume and weight which also reduces its potential to pollute”. “In general, properly equipped and operated waste incinerators need not pose any threat to human health, and compared to the direct land filling of untreated wastes, may have a smaller environmental impact.”

Chemically, dioxins refer to a large group of structurally similar compounds that include both dioxins and furans. Dioxins consist of 75 individual compounds and furans include 135 different compounds. Of the 75 individual dioxins only 7 of these are considered toxic, similarly of the 135 furans only 10 are thought to have dioxin like toxicity. The most toxic and the most researched dioxin is 2,3,7,8- tetra-chloro-dibenzo-dioxin; this compound is used as a reference for which the toxicity of the other compounds are referenced.

Dioxins have always being present as a by-product of the combustion of wood and coal, their formation in the temperature range of between 200<sup>o</sup> C and 800<sup>o</sup> C corresponds to the “low temperature” burning range often occurring in domestic home heating and from back garden/ forest fires. A European Dioxin Inventory Study in 2000 estimated that 25 grams I-TEQ of dioxin was produced in Ireland and of this 22 grams came from non-industrial sources, primarily home heating and transport.

*“Researchers from Britain have found elevated instances of cancer in the lungs, larynx, and the bladder within 7.5Km of these incinerator locations”*

Old incineration plants operating in the 1970’s and 1980’s with little or no gas cleaning have been replaced by modern Waste-to-Energy facilities that are capable of meeting stringent emission limits complying to new legislation (EU 2000/76) whilst also providing energy recovery from the waste material. Because of the advances in technology, new Waste-to-Energy facilities are located in both urban and rural areas. Indeed, according to the World Health Organisation (WHO), modern incinerators may be permitted at close distances from residential areas.

The reduction in the number of old plants has been offset by the increased capacity of the new Waste-to-Energy facilities, incineration capacity in Europe has increased from 32.7 million tonnes per year in 1996 to 46.7 tonnes per year in 2000<sup>2</sup>. This value is expected to rise to almost 62.8 million tonnes per annum by 2006, with the total installed base of plants expected to rise to 474.

Modern incineration plants are required to operate under strict emission limits, in Europe the directive for waste incineration (2000/76/EC) has lowered the emission limit for dioxins to 0.1 nanogram/m<sup>3</sup>.

The new incineration Directive (EU 2000/76) will reduce emissions of dioxins and furans from incinerators in the European Union from an annual 2,400 grams in 1995 (out of approximately 5749 grams total dioxin emissions) to 10 grams after full implementation in 2005, or less than 1% of total dioxin emissions.

The proposed Waste-to-Energy Plant at Carranstown will operate at a level approximately 90% lower than the new emission limit for dioxin i.e. 0.01 ng/m<sup>3</sup>. For a one-year period the total dioxin emissions from the proposed facility will amount to approximately 0.01 gram I-TEQ, using a two-stage dioxin removal process.

More than 1,500 similar Waste-to-Energy Plants would be required to match the yr. 2000 estimated dioxin production in Ireland from home heating and cars. It is been estimated that Ireland needs 6-8 such plants.

*“At the core of our anxiety concerning this technology is the unreliability of the monitoring technology for Dioxins...”*

As submitted under attachment J6.2 of the licence application, Indaver Ireland intend using the AMESA system for dioxin and furan monitoring. This German approved system is used for measuring dioxin/furan emissions in plants that are subject to the 17BImSch V and TA Luft.

Indaver Ireland is proposing to continuously sample the flue gases from the waste to energy plant for Dioxins. The Incineration Directive 2000/76/EC requires two measurements per year for dioxins, however Indaver will be providing up to 20 such measurements per year.

*“The effects of dioxin emissions are apparent over a range of 30 miles or more”*

The air dispersion modelling carried out for the licence application (Attachement H1.2) has demonstrated that dioxin levels at the nearest residential receptor will be minor, with the annual contribution from Indaver Ireland accounting for less than 10% of the existing very low background concentration under maximum operating conditions.

In addition to the air dispersion modelling, Indaver commissioned a comparative study demonstrating the increase in intake of dioxins at the point where the ambient



ground level concentrations are predicted to be highest when the plant is in operation, compared to drinking milk produced in the area. (Attachment H1.3)

This study showed that an individual standing in the area of maximum impact for 24hrs/day and 365 days /year would intake the same amount of dioxin/furan as they would by drinking an additional 4.6 –5.3 glasses of Irish milk /year. (Assuming 1 Glass = 300ml).

## 2. “The Handling, Transport and Disposal of the various incineration ashes”

*“The EIS does not demonstrate, how or if, the flue ash is to be kept separate from the bottom ash or boiler ash”*

As stated above the waste to energy process will produce the following ashes; Bottom ash, Boiler ash and Flue Gas Cleaning residues (containing some carry over ash from the boiler and spray-tower ash).

The bottom ash will be collected in a dedicated area as it falls from the end of the combustion grate. This non-hazardous ash is not mixed with any other ashes or residues from the process. Covered trucks will transport this ash off site to a licensed landfill.

Due to the reduced velocity of the flue gases in the boiler, any ash entrained in the gases will fall out and will be collected in silos. The boiler ash may require solidification prior to landfill – depending on the composition of the ash. Solidification will chemically bind the ash producing a solid, inert material. If a solidification plant is not installed at the facility, the ash will be solidified off site if required prior to landfill.

In a similar way, the flue gas cleaning residues removed at the baghouse filter will be collected in silos located within the process building. This material will require solidification prior to disposal at a licensed non hazardous / hazardous landfill. The solidification process may be either on or of site.

A full description on ash handling from the waste to energy process has been submitted in attachment D2.1 (section 4.11) of the licence application. A drawing indicating the separate locations of the ash storage areas is included in the licence attachment H11.5.

*“Boiler Ash will contain dioxins and furans and therefore should not be land filled in regular municipal landfill sites”*

The ashes will be analysed on an ongoing basis to ensure their correct classification. Only ash streams that will demonstrate to being non-hazardous will be sent to non-hazardous landfill. Whether the ashes are classified as non hazardous / hazardous, only licensed facilities will be used by Indaver Ireland for the disposal of these streams.

*“The EIS does not demonstrate any commitment by the applicant to keep an inventory of the various ash streams which includes the highly toxic flue ash”*

As stated in the licence application (attachment D1.1) the proposed facility will use two weighbridges in order to accurately measure the weights of all materials entering and leaving the facility. Records of these materials will be maintained detailing the origin of incoming wastes and final destination of residues, E.W.C. codes, and transportation details of these streams. These records of materials entering and leaving the site will be maintained for the community-recycling park (for outgoing material), the materials recycling facility and the waste to energy plant.

*“...Indaver have applied for planning permission for a hazardous waste facility in Cork. If granted this will necessitate the transport of toxic Flue ash from the NE region to the Southernmost end of the country..”*

The submission that Indaver Ireland will transport any potential hazardous ash from Carranstown to our proposed hazardous waste-to-energy facility in Cork is totally rejected. The disposal of an ash in a combustion process would be a pointless exercise as the organic content will have already been removed.

*“If roads and buildings which have incinerator ash already added to them are to be recycled, the dioxins, furans and heavy metals will continue to escape out into the opening environment....”*

The reuse of bottom ash as an inert material for the construction industry is well established throughout Europe. In the event that the bottom ash from the proposed facility will be reused as such a material, analysis will be undertaken to ensure the material is non hazardous and is suitable for use. Only Bottom ash will be proposed for this use, the boiler ash, flue gas cleaning residues and gypsum will require disposal without recovery.

The proposed facility at Carranstown includes; a 2,000 tonnes / annum community recycling park, a 20,000 tonnes/annum materials recycling facility and a 150,000 tonnes/ annum waste to energy plant.

The Irish government incorporates the waste hierarchy into waste management legislation through the policy document “Changing our Ways”, in addition the EU Sixth Environmental Program incorporates this policy for the waste management for member states. The waste management policy includes as part of the hierarchy both recycling and energy recovery. This proposed facility therefore is in line with both European and national waste management policy.

***Submission 4: Irish Doctors Environmental Association- 07<sup>th</sup> Feb 2002.***

*".. we are concerned regarding possible adverse effects caused by both particulate matter less than 10 microns in diameter and mixed brominated and chlorinated biphenyls, for which we understand that there are no guidelines to regulate emissions."*

Under the Incineration directive 2000/76/EC, emissions of particulates are not specified into PM<sub>10</sub> or PM<sub>2.5</sub>, the emission limit value for dust is 10mg/m<sup>3</sup>. The proposed waste to energy facility is expected to operate at a level of approximately 1 mg/m<sup>3</sup>. As part of the air dispersion modelling report (attachment H1.2) of the licence application, all dust emissions from the stack were conservatively assumed to be in the form of PM<sub>10</sub>. The results indicate that the ambient ground level concentrations are below the relevant air quality standards (1999/30/EC) for PM<sub>10</sub> under both the maximum and typical operation of the waste to energy plant. Emissions at maximum operation equate to ambient concentrations (including background concentrations), which are 44% of the max. ambient 24-hour limit value and 51% of the annual average limit value at the worst-case boundary receptor.

In relation to Brominated emissions from municipal waste incinerators, a document has been prepared by AWN Consulting on this matter and is attached as Appendix 6

In Belgium, where similar facilities are operated by Indaver, a number of organic compounds were detected in the flue gases, however all these groups were found in concentrations similar to existing background levels.

***Submission 5: Pat Corcoran, Julianstown, Co. Meath - 08<sup>th</sup> Feb 2002.***

*"Indaver will install scrubbers to reduce dioxin and other emissions, but it is well known that up to 200 times more dioxins are produced in the scrubbing process than would otherwise be produced."*

The proposed waste to energy facility will operate a five-stage gas cleaning process. This will ensure that emissions are consistently maintained below the limits set down in the incineration directive 2000/76/EC.

In relation to dioxins, both the combustion process and the gas cleaning steps will ensure emission levels of 90% below the new limit value. The control of dioxins will begin in the combustion chamber where the temperatures of the gases entering the first pass of the boiler will be maintained at 850 °C for 2 seconds as recommended in the EU directive to destroy any dioxins and contaminants that are present in the incoming waste. The gases will be injected with Activated Carbon, this will remove dioxins and heavy metals, this degree of combustion control and gas cleaning alone would be sufficient to meet the limits specified in the directive. However, Indaver Ireland will also install second Activated Carbon/ Lignite Coke step to ensure that typical levels of dioxin are 0.01ng/m<sup>3</sup>.

*"The country's farm produce is highly regarded throughout the world as being clean, green, and non-toxic. This will change if waste incineration is permitted."*

Incineration plants are in operation throughout the world, with over 300 in Europe alone. The location of these facilities varies from industrialised to urban areas and into rural areas. WTE plants are located in Paris, Vienna, Monaco, Hamburg, Zurich, and Gien to name but a few. The occurrence of these plants throughout mainland Europe is such that incineration plants are frequently situated close to agricultural areas.

There is no known case in Europe whereby a food producer has had their produce refused by any food processing company or outlet as a result of the proximity of the producer to a modern incineration plant. In addition, there is no known policy in place by any food processing company or outlet stating that produce originating from lands located close to a modern incineration plant is to be refused acceptance by virtue of their origin.

There are six waste incinerators currently operating in Ireland. The Agency has recently issued a report entitled "Dioxin levels in the Irish environment"; this report details the level of dioxins measured in cow's milk taken at 25 locations throughout the country and in the vicinity of the incinerators in yr. 2000. The results of this report can be compared to a similar study also undertaken by the Agency in 1995. It is to be recorded that dioxin levels in the milk have fallen by approx. 16 per cent in the five- year period; this reduction is in line with similar reductions in Europe.

In the vicinity of the incineration plants 9 of the 13 samples taken were common locations in 1995 and 2000. Of these 9 samples 8 showed lower levels of Dioxin in 2000 than in 1996. The EPA states, "These concentrations were uniformly lowly international standards". The report goes on to say, "There were no unusually high values meriting particular attention in any of the type A or type B samples". The EPA defines type A and B samples as follows:

Type A	background stations covering the entire country (24 samples)
Type B	potential impact stations in areas of perceived potential risk (13 samples)

The EPA state "There is some evidence of slightly higher values from samples taken along the East coast with correspondingly lower values from rural samples in other areas. This is hardly surprising in view of population distribution. However, undue significance should not be attached to this as levels are still very low by international standards.

In Belgium over 3 billion dollars worth of damage was caused to the food industry following the deliberate mixture of dioxin-like PCB's with animal foodstuffs. Incineration was used to dispose of the contaminated material that arose during this episode. Indaver's incineration plants were used for the destruction of this material. Dioxin levels in the vicinity were monitored throughout this process and there was no increase in levels recorded.

It has been stated that Ireland will be agriculturally uncompetitive as compared to New Zealand if incineration is introduced as a waste management option. There are currently six hazardous waste incinerators operating in Ireland without adverse affect on agriculture. In addition, the New Zealand government recently produced a report

on dioxin production in their country. The report states that the major emitters of dioxins to the environment are uncontrolled landfill fires. The report states, "It is clear that landfill fires do occur at an unacceptable rate in New Zealand". The emission of dioxins in New Zealand is estimated at between 14 and 51 grams I-TEQ/yr, as compared to dioxins emissions in Ireland of between 25 and 39 grams I-TEQ/year.

In "An Action Plan for Reducing Discharges of Dioxin to Air" published by the New Zealand - Ministry for the Environment, chapter 5.3 states " State of the art municipal waste incinerators that are operated well could decrease the incidence of landfill fires, and could therefore result in an overall reduction in dioxin discharges".

*"The Acid and greenhouse gases emissions, as detailed in the Indaver EIS, contravene the Kyoto Agreement which Ireland signed up to last year"*

As part of the waste licence application Indaver Ireland commissioned a study comparing the Greenhouse gas emissions from the proposed waste to energy plant compared to landfilling the equivalent amount of waste (Attachment H2.1). The study found that when waste is disposed to landfill, large quantities of methane are produced, which is an extremely potent greenhouse gas (15 times more powerful than CO<sub>2</sub>). By treating the waste in a waste to energy plant, inert ash produced, avoiding the formation of large quantities of methane. There will be an overall net reduction in greenhouse gases arising from this proposed facility as compared to landfilling the same amount of waste material.

Acid gases are not covered under the Kyoto agreement. However, as a result of the combustion process the plant will emit these emissions in the form of HCL and SO<sub>2</sub>. The plant will operate at approximately 90% below the 2000/76/EC limit for HCL and approximately 60% below the limit for SO<sub>2</sub>. As stated in the EIS and waste licence application the facility will export approx. 10MW of electricity to the national grid. The power generation sector is the single largest contributor of SO<sub>2</sub> emissions, the electricity produced by the waste to energy plant will produce less acid gases per unit of electricity than that of current power stations.

***Submission 6: North East Health Board (Community Care Services) - 13<sup>th</sup> Feb 2002.***

1. *"The developer proposes to use the sorting bay only when a delivery of dry recyclable waste is received while unsorted waste shall be disposed of in the incineration process. This is contrary to the basic principles of the waste management hierarchy.."*

The materials recycling facility is designed to accept 20,000 tonnes per annum of non-hazardous dry recyclable waste. This material will be separated at source and brought to the plant for recovery. The separate collection of dry recyclable material throughout the region is listed as a key objective of the north east waste management plan. Once this material has been collected it will need further sorting and possibly baling prior to be sent for further reuse. From experience of operating similar facilities, Indaver expect that approximately 20% of this material will be unsuitable

for recovery and will be disposed of in the waste to energy plant. Sorting waste at source is in line with EU policy and achieves a higher quality recovered material.

The nominal capacity of the waste to energy plant is 150,000 tonnes / annum, this represents approx. 30% of the waste arising in the northeast region. This leaves the region with 70% of the waste arising to divert for reuse and recycling.

As discussed previously above the proposed facility is in accordance with the waste hierarchy as published in “Changing our Ways” and European policy on waste management.

*2. The E.I.S. does not provide a breakdown of source and quantity of municipal and commercial*

Attachment E2.1 of the waste licence application provides details on the proposed waste types and quantities to be accepted at the facility. Information provided includes the name and a detailed description of each waste type, the nominal and maximum tonnes per annum for each waste stream, the total nominal and maximum tonnage for each waste to be accepted over the lifespan of the facility and the European Waste Catalogue number for each waste stream.

*3. Alternative sites for this development shall be fully assessed and examined in accordance with EIS requirements.*

Statutory requirements set out in the European Communities (EIS Amendment) Regulations 1998, Section 7 – Information contained in an EIS, does not require the identification of “specific alternative sites”. In this regard, the EIS should contain; a description of the proposed development, the data necessary to identify and assess the main effects, a description of the likely significant effects and a description of the measures envisage in order to avoid, reduce, and if possible remedy those effects.

In selecting the site, Indaver used both technical and environmental criteria. The technical criteria included the following factors;

- Proximity to centres of waste production – Centre of Gravity
- Proximity to Transport Infrastructure
- Proximity to Electrical Distribution System
- Appropriate zoning/ land use
- Availability of sites

The process of site selection and reasons for the proposed location have been detailed in section 2.10 of the EIS.

*4. The WHO criteria for site selection for new hazardous waste management facilities are not confined to landfill activities as stated in the applicant’s submission and specifically exclude areas of limestone deposits.*

The proposed facility at Carranstown will accept non-hazardous commercial and municipal waste. By incorporating the use of the WHO guidelines for selecting a site for hazardous waste management facilities, as one aspect of the site selection process, Indaver Ireland have adopted a conservative approach to this assessment.

Section 2.10.1 (a) of the E.I.S. states “ While these criteria (WHO guidelines) relate to hazardous waste facilities, and many of the criteria are more applicable for a landfill site than a waste to energy plant, their application potential sites provided a useful objective assessment of the site’s suitability.”

The screening criteria listed in the guidelines (page 31) are to “assist in judging the overall suitability of a location, but are not necessarily decisive in the choice of location”. For example, in the case of landfill sites the production of leachate and its possible effects on groundwater would prevent that facility from being sited above a limestone deposit, whereas a facility that handles waste within a building and stores material in a watertight bunker would not require the same criteria to be applied.

*5. The limestone rock constitutes a regionally important aquifer which is karst and fractured and is susceptible to ground water pollution. This aquifer is the sole source of water for numerous houses in the vicinity.*

The EIS (section 8.2.4) identifies the importance and the physical nature of the ground water in the area of the proposed site. Based on the thickness and type of overburden cover the aquifer vulnerability for this site is considered moderate (GSI Guidelines for aquifer protection).

The operation of the facility will result in no direct discharges to groundwater. A number of measures including the installation of a domestic effluent system, the design of the waste storage bunker, the bunding of all chemical storage tanks and the installation of interceptors for the surface water entering surface water drainage system will ensure that the impact on the groundwater from the facility will be negligible. In addition, regular monitoring of the groundwater will take place that will detect any changes in quality.

As detailed in section 8.2.5 of the EIS, a 72 hour pump test was carried on site in 2000 to determine the ground water development. An average yield of 470m<sup>3</sup> / day was pumped during the test, with a resultant draw down of 2.99m. As the facility will require a approximately 14m<sup>3</sup> / hour (336m<sup>3</sup> / day), the impact on the aquifer draw down will be minimal.

*6. The effects of the removal of overburden during preparation of the site were not discussed, nor were the impacts addressed in relation to the aquifer.*

Attachment H 6.1 of the licence application discusses the impact on Hydrogeology as a result of the facility, both during the construction and operation phases of the development.

There will be no direct discharges to groundwater during the construction phase of the development. The hydrogeological survey has demonstrated the soils and groundwater on site are free of contamination and therefore excavation works on site and not result in the mobilisation of any sub-surface contaminants.

A number of mitigation measures will be put in place during construction to prevent any spillages of potentially polluting substances entering the soils and groundwater. These will include;

- Bunding of any oils, chemicals, paints or other potentially polluting substances.
- Filling and draw off points will be contained within bunded areas.
- Drainage from bunded areas will be diverted for collection and safe disposal
- All domestic effluent generated on site will be discharged to temporary sewage containment facilities prior to transport and treatment off-site.

*7. The effect of the development on the drawdown of local wells shall be addressed.*

As discussed in 5 above the effects of drawdown as a result of the facility will be minimal.

This is further discussed in chapter 8.2.5 of the E.I.S. and chapter 9 of the E.I.S. attachments.

*8. The impacts of the development on the gas line running directly underneath the site were ignored i.e. potential for gas leaks, fire, explosion.*

Condition 12 of the notification to grant planning permission by Meath Co. Co. for the facility states “ The developer shall comply with the “Special Requirements in relation to Bord Gais” conditions relating to the executing of any works in the vicinity of the Bord Gais distribution mains, which traverses the site.”

Indaver Ireland are in discussion with Bord Gais (Network) to ensure that all works carried out on site are to their satisfaction. In the event that a road etc. requires to pass through the wayleave, works will be undertaken by Bord Gais to ensure the strength of the mains is ensured. The mains line currently has a wayleave in place that prevents any buildings been constructed within the vicinity of the pipeline. The wayleave has a width of 20 meters each side of the mains giving a total “buffer zone” of 40 meters in this vicinity for the full length of the site. At it’s nearest point the main process building will be approx. 33 meters outside the wayleave, the administration building will be approx. 18 meters outside and the warehouse will be approx. 2 meters outside this area.

*9. The applicant shall carry out a feasibility study on the sourcing of waste which would ensure the viability, sustainability and continued efficient operation of the incineration plant.*

The proposed waste to energy plant will have a nominal capacity of 150,000 tonnes per annum; this represents approximately 30% of the waste generated in the northeast



region. The north east waste management plan (chapter 10.3) has stated “one plant will serve the region... with an estimated nominal capacity of 200,000 – 300,000 tonnes per annum”. Therefore, the proposed facility will operate at the lower end of the capacity recommended in the waste plan.

*10. The applicant proposes to collect recyclable waste on site. Details on how or where this waste shall be recycled are to be submitted.*

The community-recycling park (Attachment D2.1, chapter 2) will accept approximately 2,000 tonnes per annum of household waste. The waste will be collected in containers and transferred to suitably licenced or approved facilities for further recovery. Only materials that have outlets will be permitted at the park.

Indaver Ireland currently operates a similar facility on behalf of Meath Co. Co. in Navan; this park can accept nineteen different waste products (glass, plastic etc.), Indaver are constantly looking for new outlets to extend the range of materials that can be accepted at the park.

A full process description of the recycling park has been submitted as part of the waste licence application as attachment D2.1, Chapter 2.

The materials recycling facility will accept approximately 20,000 tonnes per annum of non-hazardous industrial/ commercial waste. As in the case of the community-recycling park – only materials that have recovery outlets will be processed in this facility.

A full process description of this facility has been submitted as part of the waste licence application as attachment D2.1, Chapter 3.

*11. The quantity, storage facilities and treatment of green waste were not discussed in the EIS. Outline proposals for the location, treatment and final destination of this waste.*

The community-recycling park will accept green (garden) waste for disposal. Based on the operation of the Navan recycling park, it is expected that approximately 3- 5 tonnes of this material will be accepted per week – depending on the time of year.

The green waste will be stored in containers in the park. Owing to the bulky nature of the waste, it is expected that the material will be shredded prior to removal off site.

The shredded material may be transported to composting centres such as St. Annes Park in Raheny, or Organic Gold in Summerhill- the current outlet for the Navan material. In addition, the material may be offered free to users of the park for use in gardening.

The recycling park will not accept kitchen waste.

*12. Details on the stockpiling of waste –capacity and length of time waste will be stored on site- for both waste bunker and community recycling park.*

Process details relating to the waste storage bunker and the community recycling park have been submitted as attachment D2.1 of the licence application.

The storage bunker for the waste to energy plant will have a capacity of 12,000 cubic meters, mixed waste of the type expected at the plant has a typical density of 0.3 -0.4 tonnes / cubic meter, this gives the bunker a capacity of up to 4,800 tonnes. This would provide enough capacity to run the plant for 10 days.

In practise the bunker will not be operated at full capacity and the levels of waste in storage will depend on the time of year, bank holidays etc.

As the waste arriving in the bunker will not be uniform, the process operators at the plant will continually mix the contents of the bunker using a grab crane, ensuring the waste feed to the bunker is consistent.

Because of this mixing the residence time of waste in the bunker will be limited to <10 days.

The community recycling park will accept approx 2,000 tonnes/ annum of waste primarily into 12 cubic meter skips, however other receptacles such as 1100 litre wheelie bins may also be used. All containers will be emptied as they become full.

Indaver Ireland's experience of operating a similar facility in Navan, has shown that some containers i.e. P.E.T. plastic require emptying more frequently than the other containers i.e. Textiles. It is imperative to the successful operation of a recycling park to ensure that the community have access to containers with available capacity for disposing of materials. Therefore, the removal of full containers from site without delay will be ensured.

*13. The applicant failed to submit sufficient details of the process involved in this development as follows:-*

- *Site Layout was not adequately detailed.*
- *Processing areas and systems were not fully indicated and described.*

The following drawings were submitted as part of the licence application.

- D1.3 – Site entrance details
- D1.4 – Waste Inspection and Quarantine Areas
- D1.5 – Site Drainage layout
- D2.2 – Main Site Layout drawing
- D2.3 – Layout of the Community Recycling Park
- D2.4 – Layout of the Materials Recycling Facility
- D2.5 – Layout of the Main Process Building
- D2.6- Waste to Energy Plant Schematic

Attachment D2.1 is a 65 page description of each unit process incorporating the community recycling park, the M.R.F. and the waste to energy plant. This attachment

includes details for each process under the headings; Process description, Process Control, Emissions and Inputs & Outputs. In addition, a process flow diagram for each unit operation is included.

*14. The EIS states that the boiler ash shall be sent to landfill whilst the flue gas cleaning residues shall be removed to a hazardous waste landfill. Boiler ash is classed as a hazardous waste under EC Council Directive on Hazardous Waste 91/689/EEC. However, the applicant is not treating it as such. The applicant shall provide for the segregation of flue gas cleaning residues and boiler ash.*

EC Council directive 91/689/EEC was replaced by Commission Decision 2000/532/EC, this in turn was replaced by Commission Decision 2001/118/EC, this Decision lists boiler ash and flue gas cleaning residues as either hazardous or non hazardous depending on the concentration of listed constituents present in the materials. It is under the latter decision on which the classification of the ashes and flue gas cleaning residues have been made for the licence application.

As stated above in reply to "Louth People against Incineration" and John W. McGrath, the boiler ash will be analysed on an ongoing basis to ensure the correct classification for disposal.

A description on how the both the boiler ash and the flue gas cleaning residues are kept separate in the process is provided.

*15. Provision shall be made for visual inspection, weighing of each load, a storage tank inspection area for waste and quarantine area for waste which cannot be dealt with by the plant i.e. hazardous or clinical waste.*

Attachment E3.3 of the licence application includes a - Draft Procedure for Waste Acceptance at Carranstown. This document provides details on the weighing, visual inspection and waste quarantine of waste upon arrival at the facility.

Details on the weighbridge, the waste inspection area and the waste quarantine area have been provided in the site infrastructure attachments D1.D, D1.H and D1.I respectfully.

In addition, an attachment drawing D1.4 showing the locations of the waste inspection area and waste quarantine area within the acceptance hall of the main process building has been included with the licence application.

*16. Details on the storage and treatment of overburden shall be submitted.*

It is not clear what exactly is meant by the above statement. If this relates to the movement of overburden during the site construction phase, see reply to 6 above.

If this relates to the storage and treatment of overburden as an incoming waste, it must be noted that in Attachment E2 of the licence application (Proposed waste types and

quantities) Indaver Ireland have not included “Stones and Soil” as a waste to be accepted at any of three facilities within the Carranstown development.

*17. The applicant failed to give sufficient detail with regard to volume of surface and rain water, site drainage layout, run off and run off controls. The direction and relative magnitude of flow of surface water movements shall be quantified.*

Details of the surface water impact have been included as Attachment H9 of the licence application. Included in this attachment is the following;

- H9.1 – Details on surface water volume, run off and run off controls
- H9.2 – Proposed Site Drainage layout
- H9.3 – Proposed Site Paving layout
- H9.4 – Location of surface water discharge point

*18. Provision shall be made for the retention of firewater on site to avoid the potential threat of ground water pollution.*

As discussed in the waste licence application – Attachment D1.1, the waste storage bunker will be constructed to retain any firewater generated within the bunker. The bunker will have one monolithic concrete slab as a base and poured concrete for sidewalls. The sidewalls will also be fitted with steel plates to prevent possible firewater from escaping through the sides of the bunker.

In addition, as stated in the application Indaver Ireland will complete a firewater retention study prior to the construction of the facility to ensure that the retention measures are satisfactory.

*19. Details of the location of the puraflo waste water treatment system and percolation area shall be submitted. In addition, request applicant to submit details of water table and soil percolation tests.*

The drawing submitted as Attachment H6.2 of the licence application details the location of the “Puraflo” waste water system. This drawing also identifies the location of the percolation area, reserve percolation area and pumping chamber.

Details on the water table have been submitted in Attachment 9- Appendix B of the E.I.S. Attachments document as submitted with the licence application.

Soil percolation tests were carried out and were submitted to Meath Co. Co. as part of the planning application. A copy of these tests is attached as Appendix 7

*20. The management policy and procedures of the plant shall be described i.e. operational, quality control and environmental management procedures.*

A complete set of procedures will be generated as part of the quality system prior to the operation of the facility; these procedures will be made in agreement with the Agency.

Attachment I2 of the licence application provides details on the proposed Environmental Management System for the facility. Attachments include:

- I2.1 - Introduction to the Indaver Ireland Environmental and Quality Management Systems
- I2.2 - Index of Environmental and Quality Management System Procedures

In addition, the following Technical Competence and Site Management attachments were included in the licence application.

- L2.2 – Indaver Ireland Training and Staff Competence Procedure and Training Matrix
- L2.3 – Indaver Ireland Environmental Policy
- L2.4 – Indaver Ireland Safety Policy
- L2.5 – Indaver Ireland Quality Policy

*21. Back-up or failsafe procedures which would effectively mitigate very severe impacts in the event of failure of the proposed measures shall be submitted.*

Attachment D2.1 of the licence application (Section 4.12 – Operation of Waste to Energy Plant in Abnormal Conditions) specifies the sequence of events to be undertaken during start-up, shut down and emergency shut down.

*22. A detailed description of the manner in which waste will be transported from the site i.e. enclosed waste containers or fully enclosed collection vehicles for the transport of waste to and from the site shall be submitted.*

All waste delivery trucks arriving at the facility will be required to be covered, this will prevent litter from the trucks leaving the container during transport (Attachment D2.1 – 4.2.1 & 4.2.3). “Litter Patrols” will be operated by Indaver staff within the facility, around the site and on local approach roads to ensure that litter will not cause a problem.

All trucks removing ash or residues from the facility will be required to be covered to remove the potential for windblown ash (D2.1 – 4.11.3).

*23. Detail proposed method and location of wheel washing facilities.*

Wheel washing facilities will be provided at the entrance to the facility during the construction phase of the development. The wheel wash will be constructed in line with similarly used wheel washes located at many other construction sites. The wheel wash will be provided for all vehicles leaving the site, other than private cars and vans.

As the facility will have hard surfaced roads throughout upon the completion of construction, there will be no requirement for a wheel wash during the operation phase of the development.

*24. Measures taken to limit movement of heavy goods vehicles on and off site during unsociable hours shall be indicated.*

The following information regarding facility opening and waste acceptance times has been included in the application as Attachment E3.1.

The Community Recycling Park will open to the public six days a week, eight hours a day, Monday to Friday and on Saturday mornings. As the park is for public use, the predominant traffic generated will be cars and small vans. Heavy Goods Vehicles will enter the park to remove recyclable waste in containers; this will only take place during opening hours.

The Materials Recycling Facility will accept waste 8am to 6.30pm Monday to Friday and from 8am to 2pm on Saturdays. No delivery or movement of waste off-site will take place outside of these times.

The Waste to Energy plant will accept waste between 8am and 6.30pm 30pm Monday to Friday and from 8am to 2pm on Saturdays. No delivery or movement of waste off-site will take place outside of these times.

*25. A public complaints procedure shall be addressed.*

Indaver Ireland / Minchem Environmental Services Ltd. currently operate an Environmental Complaints procedure. This procedure will be expanded to include the Carranstown Facility prior to construction.

A copy of this procedure is attached as Appendix 8.

In addition, as conditioned by Meath Co. Co. in their notification to grant planning permission, Indaver Ireland are required to establish a Community Liaison Committee –“To provide for appropriate on-going review of waste disposal/ recycling operations in con-junction with the local community.”

The condition states that the committee shall consist “of a minimum of eight representatives (two officials from the planning authority, two representatives from the developer, two local residents and two elected members of the Meath County Council)”. Indaver Ireland will begin establishing the committee once the planning decision is finalised.

Indaver Ireland currently operate a widespread communications program for both proposed projects (Carranstown and Ringaskiddy). In regard to Carranstown, there are currently over 300 names on the communications register. Since the project was announced Indaver Ireland have brought over 60 people from the local community, councillors, media and other interested parties to visit Indaver facilities in Flanders. As discussed previously copies of the E.I.S. and Waste licence application are freely available to any member of the public.

26. *The applicant shall submit a detailed rodent control programme for the site.*

Attachment F9.1 of the licence application details Indaver Ireland's proposal for vermin control at the proposed facility. It is stated in this attachment that

“A specialist company such as Rentokill will be used to implement the rodent control plan. This company will make an assessment of the vermin control requirements for the facility.”

27. *Submit proposals for the control and monitoring of dust and noise during the construction phase of the development.*

Conditions set down by Meath Co. Co. in their notification to grant planning permission for the proposed facility included limits on dust and noise levels during the construction phase of the development. See Attachment B3.1 of the licence application.

Condition 22 of the notification specifies limits for noise as follows:

LAeq (1 hour)	Time period
65 dB(A)	07:00 hours –19:00 hours Mon – Sat (excluding Sundays & Public Hols)
45 dB(A)	Any other time

Proposals on how Indaver Ireland intends to comply with the above limits are detailed in Attachment H8.1 of the licence application.

Condition 23 of the notification to grant planning permission specifies “Dust Deposition during the construction phase shall not exceed 130 mg/m<sup>2</sup>/day measured at the site boundaries and averaged over 30 days.”

Proposals on how Indaver Ireland intends to comply with the above dust limits are detailed in Attachment F3.1 of the licence application.

28. *Applicant stated in section 2.7 of the EIS that a decommissioning plan would be submitted as part of the licence application. No such plan has been included. The applicant shall address this issue.*

Attachment G1.1 of the waste licence application details the decommissioning proposals for the facility.

29. *Clarify the methods and frequency of leachate tests which shall be carried out on flue gas cleaning residues and boiler ash. Request Applicant to state parameters which shall be analysed in the above tests in order to determine the hazardous nature of the waste.*

The methods and frequency of the analysis of ashes and gas cleaning residues have been detailed in Attachment H11.1 of the licence application.

A description on how the ashes/ residues are classified as non hazardous / hazardous is also included in Attachment H11.1. The specific methods for analysis and criteria are included in Attachments H11.2 and H11.3.

As stated in the application leachate tests will be carried out on each residue and the results will determine if the residue is suitable for disposal to a non hazardous landfill in accordance with the Landfill Directive (99/31/EC) and the Hazardous Waste Directive 91/689/EEC.

A draft Commission Decision (EWG 02/086) establishing criteria and procedures for the acceptance of waste at landfills pursuant to article 16 and Annex II of the Landfill Directive (91/13/EC) has been issued by the EC. The criteria specified in the final version of this document will be adopted by Indaver in agreement with the agency in establishing the type of landfill required for each waste stream. Currently this draft Decision specifies three types of landfill i.e. Inert, Non-Hazardous and Hazardous. The document also specifies the (leachate test) limit values for waste streams that will define the type of landfill from the three listed.

Typical analysis of boiler ash and flue gas cleaning residues from a similar Indaver facility in Flanders is attached as H11.4 of the licence application.

*30. Applicant shall submit details on the transport and final destination of both boiler ash and flue gas cleaning residues. The weight and volume of the above solid wastes shall be quantified.*

Details on the transportation, final destination (licensed hazardous/ non hazardous Waste landfill), approximate weights and volume of each solid waste arising from the facility are listed in Attachment H11.1 of the licence application.

*31. The disposal of bottom ash to landfill is not in keeping with the basic principles of waste management. The applicant stated that the ash can be treated in an ash recovery plant to render it suitable for road construction. Request Applicant to provide full details of the ash recovery process. Indicate process method and location of the plant.*

The recovery of bottom ash for reuse in the construction industry is common practise throughout Europe. However, as no bottom ash has ever been produced from the combustion of municipal waste in this country it will only be after the plant is in operation will the suitability and market demand for this material be established.

Indaver operate an Ash treatment plant in Belgium. This plant treats ash from municipal waste incineration, the ash is treated in various cut, sieve and wash units.

The initial stage involves sieving; this separates the large pieces of metal and stones from the ash. The ashes are then separated into three fractions depending on size in



the wash and sieve unit. Magnets retrieve the iron from the two largest fractions. An eddy-current separator will also remove aluminium. The inert fraction is converted into granulates, which are used as secondary material in the construction industry. The smallest fraction is dried and sent to landfill. The ferrous and non-ferrous fractions are further sent for recycling.

A flow diagram and further information on this plant is attached as Appendix 9.

*32. In section 2.4.2 of the EIS the applicant states that in the case of both lines being shut down typically for 1-2 days per year fans will be kept on line as long as possible to maintain the bunker under negative pressure. Any odours will be discharged via the 40m stack. During these periods the waste in the bunker will be sprayed with odour suppressing chemicals to minimise odours. Masking of odours is unacceptable – All odours shall undergo treatment prior to extraction. Please submit proposals for the treatment (of) odours during this shutdown.*

Typically both lines of the waste-to-energy plant may be shut down together for 1 –2 days /year. During this time the Induced fans will remain in operation for all but a limited time to allow for preventative maintenance. While the fans are in operation air from the bunkers will be drawn through the process and discharged through the stack. As at least one carbon injection and baghouse filter will be located as a gas-cleaning step – the odours will pass through this bed where the organics will be removed prior to discharge.

In the brief period that the fans are off-line, odour suppressant chemicals may be sprayed into the bunker to ensure that no odour nuisance will occur. Additional measures such as closing the discharge chutes and doors to the waste acceptance hall will also be made during this time.

This practise will not extend beyond the time that the I.D. fans are off-line.

*33. Request applicant to clarify method that was employed to determine worst-case air emission data and state where this information was sourced.*

Attachment H1.2 – section 1.2.2 (Air-Dispersion Modelling Report – AWN Consulting) of the licence application details the meteorological considerations used for the air modelling exercise.

In summary, the meteorological data is an important input into the air dispersion model. The selection of the appropriate meteorological data has followed the guidance issued by the USEPA. The meteorological data should be representative of conditions affecting the transport and dispersion of pollutants in the area of interest as determined by the location of the sources and receptors being modelled.

The representative data is dependant on:

- The proximity of the meteorological monitoring site to the area under consideration
- The complexity of the terrain

- The exposure of the meteorological monitoring site (surface characteristics around the meteorological site should be similar to the surface characteristics within the modelling domain)
- The period of time during which data is collected.

In the region of the site, Dublin airport is the nearest suitable meteorological station to the site and thus the weather pattern experienced would be expected to be similar. On account of the modest terrain features north of the site, some channelling of wind may occur along the direction of the Boyne Valley. However, this would not be expected to be significant at stack height due to the modest nature of this terrain.

The windrose from Dublin airport for the years 1993-97 is shown in figure 1.1. The windrose indicates the prevailing wind speed and direction over the five-year period. The prevailing wind direction is generally from the W-SW direction. In the worst-case year of 1994, wind speeds were generally moderately strong, averaging around 5-6 m/s.

*34. Section 5.5 states that an assessment shall be submitted to the EPA to ensure that noise emissions from the plant shall not exceed given limits at any sensitive noise receptor. No such assessment was included in the EIS. This issue shall be addressed.*

Item 9 and Attachment I of the Environmental Impact Statement –Additional Information, provides a detailed noise model for the proposed facility. This document was submitted to Meath Co. Co. upon request and was included as part of the licence application. A noise survey will also be undertaken upon the start-up and operation of the facility.

*35. Provide further details on the silt trap which shall be used during construction i.e. management and location of same.*

Condition 24 of the notification to grant planning permission specifies “ *Prior to the commencement of the development the developer shall submit for the written agreement of the planning authority details of temporary settlement ponds/ silt traps/ oil interceptors to control discharges of site surface water run –off during the construction period..... The concentration of suspended solids (SS) of the surface water run off from the site construction works, for discharge to surface waters, shall not exceed 30 mg/litre.* ”

Indaver Ireland are currently in the process of completing the design and final location of the silt trap that will ensure the suspended solid levels of the surface water meet the limit set out above.

As stated, the details regarding the silt trap are required to be submitted to Meath Co. Co. prior to the commencement of construction.

*36. The EIS claimed that the applicant consulted with the North East Health Board during the pre-application process however no such consultation took place.*

Indaver Ireland contacted the NEHB in October 2000 enquiring as to who the company should contact regarding the proposed development. As a result of this

enquiry, a letter was sent to Mr Seamus Mattimoe on 06<sup>th</sup> November 2000. A copy of this letter is included as Appendix 10.

Since this time the NEHB have been sent regular updates on the project status.

**Submission 7: Paul Matthews, Beamore - 14<sup>h</sup> Feb 2002.**

*“The health implications for us living nearby are appalling”*

As discussed previously, the gas emission concentrations from the waste to energy plant will be well within the new EU limits as specified in Directive 2000/76/EC. Air modelling (Attachment H1.2) for the proposed plant has shown that ground level concentrations for all parameters listed in the above directive will be below relevant standards.

Further information regarding incineration and health has been detailed in the response to the “Louth People against Incineration” submission.

*“The damage to tourism in the Boyne Valley area and Meath as a whole”*

The proposed facility is to be located in a landscape that has an existing industrial character. The site is also outside the buffer zone as proposed by the Dept. of Arts, Heritage, Gaeltacht and the Islands for the Bru na Boinne Development Plan 2000.

Incineration plants are in operation throughout Europe, in cities such as Paris, London and Vienna, these cities are also popular with tourists with many thousands visiting these areas each year.

A visual impact study using photographs of the facility demonstrated that the facility would have a minimal impact from views in the area. See E.I.S. Attachment 7.

*“The effects on farming, land values, the food produced and the effects of the animals..cattle, sheep etc”*

There are over 300 incinerators of this type in operation throughout Europe, both in industrial and rural locations. The EU emission limits as specified in Directive 2000/76/EC and the World Health Organisation (WHO) guidelines have been developed to prevent any impacts from emissions, either on health, the environment in general, or on agriculture. By operating well below these limits, Indaver Ireland will ensure that there will be no adverse impact on agricultural practises, or on employment in agriculture, in the surrounding area.

*“It will have an effect on peoples livelihoods”*

During the 18 – 24 month construction phase of the development, up to 300 workers, both skilled and unskilled will be employed at the site. Where possible, local services and construction staff from the surrounding areas and counties will be used. Therefore, the construction of the development will have a significant temporary positive impact on employment.

The facility will employ a permanent staff of approx. 50 people. Therefore, the development will have a positive impact on employment in the area. The direct expenditure on employees salaries will have a multiplier effect on employment, and household income.

Goods and services required during the operation of the plant will be sourced locally where possible which will have a further positive impact on the local economy and employment in the area.

*“There will be a major amount of toxic/waste ash....were is that to go?”*

It is expected that the only hazardous solid waste stream from the process will be flue gas cleaning residues (3,000 – 5,000 tonnes per annum). Although this material is classified as non-hazardous for transport, it will be sent to a hazardous waste landfill. Details of ash handling have been included in Attachment H11.1 of the waste licence application.

*“When there are winds the pollution could end up anywhere”*

The Air Dispersion modelling for the waste to energy plant has demonstrated that the max. ground level concentrations for emissions from the plant occur either within the site boundary or not far from it. This modelling took account of meteorological data taken over a 5 year period from Dublin airport, and used the worst case scenario for dispersion i.e. little or no winds. Therefore, the greater the wind speed, the greater the dispersion of the emissions in the atmosphere.

*“A national school is in the line of fire too, what about those children”*

AWN Consulting carried out the Air dispersion modelling for the proposed facility. AWN Consulting has specifically reviewed the air impacts at Mount Hanover School see Appendix 11.

The results of this review indicate that concentration of emissions at the school range between 0.1 – 13% of the air quality standards and between 15-18% of the maximum concentration near the site boundary.

*“Thus the impact at Mount Hanover School is significantly lower than those values reported in the EIS and well below the most stringent air quality standards and guidelines.”*

#### **Submission 8: Mary P. Burke, Lagavooren, Drogheda - 14<sup>th</sup> Feb 2002.**

*Topographically the site is on the perimeter of the Boyne River Plain. Bellewstown Ridge 3Km to the south is the nearest high ground with a max elevation of 100 m OD (Malin Head). Red Mountain which is approx. 2Km North East of the site has an elevation of 100m OD (Malin Head). Both of these are protected views!*

Chapter 6 of the E.I.S. and Attachment 7 of the EIS Attachments examine the Landscape and Visual Impacts as a result of the proposed development. The details

listed by Ms. Burke are extracted from the Wilson Associates –Visual Impact Report for the E.I.S. (Section 2.2).

The report states (Section 6.0 – Views)-

“A number of specific views in this area are identified in the Draft Development Plan 2000 –Navan Area Amenity Map. All identified views with the exception of the view from Bellewstown Ridge, look northward into the Boyne Valley and as such are not visible from the proposed development and will not visually impact on these views”.

“The view from Bellewstown Ridge looks northward over the proposed site. However, the view is panoramic and the proposed development forms a very small proportion of the total view and is located in the middle distance. It is considered therefore, that the visual impact, while negative when viewed on the Ridge, will not be significant.”

A photomontage taken from Bellewstown Ridge showing the view both with and without the proposed facility is attached as Appendix 12.

*This North East Area has the highest Asthma rate in the whole country, not to mention frighteningly high cancer rates as a new report states. According to the Indaver E.I.S. Site selection criteria (2.10.1) & table 2.4 W.H.O. Site selection criteria, the site should be immediately rejected.*

Details regarding the site selection criteria for the proposed facility have been discussed in the response to Submission 6 - North East Health Board (Community Care Services), observation 3 and 4.

Indaver Ireland contacted the Asthma Society of Ireland (01- 8788511) regarding the distribution of Asthma rates in Ireland. The society was unable to confirm that the Northeast region had the highest rates preferring to use a national average of 20% of all under 16's and 5% of all adults nationally. In addition, Indaver Ireland consulted the Dept. of Health and Children “Health Statistics 1999” Document, this again did not provide asthma levels for any region. Indaver Ireland therefore cannot confirm the above statement that the Northeast region has the highest Asthma rate in the country.

*Why was the school deliberately omitted from the aerial photograph and almost all the maps.*

Indaver Ireland refutes the above statement regarding the “deliberate” omission of Mount Hanover School from the aerial photograph. The purpose of this photograph in the E.I.S. was to demonstrate the land use in the area. The photograph clearly shows that the area is predominately agricultural with the exception of the Platin Cement factory and its associated quarry and neighbouring houses. The school is 1 km distance from the proposed facility.

The very first map in the E.I.S. (Figure 1.1 -page 6) identifies the school to the northeast of the site.

Any additional maps or drawings submitted are in accordance with specified scales required by the planning authority.

*The infrastructure must be put in place quickly to enable the people to recycle any materials that can be recycled such as glass, paper, tins, plastics etc, by providing "Bring Centres" in towns and villages country wide. My nearest centre is Navan 17 miles away, otherwise Dundalk is 22 miles away. Drogheda, apart from a bottle bank has none!*

The facility includes a community-recycling park that will allow the local community people to freely dispose of recyclable household materials.

In addition, the facility will include a 20,000 tonne/annum materials recycling facility, this plant will recover non-hazardous commercial and industrial waste.

*If individual heavy metals are to be emitted at significant concentrations on rare occasions, even when no such individual heavy metals occur in the waste stream, are we to take it that when such heavy metals are present in the waste stream that the emissions will contain significant concentrations of these heavy metals at all times?*

Section 4.3.10 of the E.I.S. states that heavy metals will be only be emitted when these substances are present in the incoming waste- i.e. if no heavy metals are in the waste then none will be emitted. These materials are currently going to landfill where they receive no treatment. In the flue-gas cleaning of the waste to energy plant heavy metals will be captured in the two stage activated carbon injection prior to discharging the gases.

The expected average Heavy Metal concentration from the waste to energy facility will be 50% of the emission limit value as defined in the Incineration Directive 2000/76/EC.

*The proposed site is adjacent to Duleek Commons, a wetland complex, now a N.H.A. No. 001578...An Taisce? Duchas will confirm this?*

Attachment C4.1- Section 2.4 states " The closest site of conservation importance is Duleek Commons proposed Natural Heritage Area (pNHA) site no.1578, located over 2 km to the south west."

Letters received from Duchas (National Monuments & Architectural Protection Division and the Site Designation Division) are attached as Appendix 13. These letters state that the proposed site has no known archaeological sites contained therein and the site is not within a pNHA/ SAC/ SPA.

*Have the cumulative effects of emissions from three plants, C.R.H., the proposed Incinerator and Marathon power plant in foggy conditions if these two latter go ahead?*

As the region around Carranstown has existing industrial activity, and with proposals to construct both the waste management facility and a power plant, a cumulative air dispersion modelling assessment for Nitrogen Dioxide and Sulphur Dioxide has been

carried out using methodology outlined by the USEPA (See Appendix 1.3 of the Air Dispersion Modelling report).

Meteorological conditions gathered from Dublin airport over from a five-year period were inputted to the model. Worst-case meteorological conditions have been used in all assessments. The selection of the appropriate meteorological data has followed the guidance issued by the USEPA.

The results of the cumulative model for Nitrogen Dioxide show that in the area of maximum impact of each nearby source, the impact from Indaver was very small. In relation to the 99.8%ile of maximum concentrations, the impact from Indaver at the point of maximum impact of each nearby source was always less than 12% of the limit value. The annual average cumulative assessment was likewise minor at the area of the maximum impact of each individual source. The overall impact leads to an increase of 3% in the annual average level of the worst case nearby source.

The results of the cumulative model for Sulphur Dioxide show that in the area of maximum impact of each nearby source, the impact from Indaver was very small. In relation to the 99.8%ile of maximum concentrations, the impact from Indaver at the point of maximum impact of each nearby source was always less than 5% of the limit value. In the region where all sources combine to cause the maximum impact, an examination of the impact from Indaver reveals no significant impact at all.

*The Waste Management Plan of Meath County Council makes no plans for the disposal of this toxic/ hazardous ash and neither do Indaver. Is it to be shipped abroad – crating (sic) the risk of spillage from trucks on the roads of Ireland.*

The disposal of ashes and residues from the proposed waste to energy facility have been addressed in response to Submission 2 above.

All vehicles leaving the facility carrying solid waste will be covered, in addition the ashes and residues arising are classified as non-hazardous for transport.

**Submission 9:            Considered Invalid by the E.P.A.**

**Submission 10: Mrs A. Brady, Drogheda – 25<sup>th</sup> February 2002**

*The emissions of toxins into the air will be carried for miles around and will destroy peoples health.*

As stated above the maximum ground level concentrations of emissions from the waste to energy facility will occur either within or just outside the site boundary depending on the particular emission. These ground level concentrations will be well within the most stringent current limits and guidelines for both typical and maximum operating conditions.

*It is not that there is no other option to incineration there is reprocessing.*

Reduce, Reuse, Recycle, Energy Recovery and Landfill are all aspects of the Waste Management Hierarchy as discussed in the EU Sixth Environmental Action Program and adopted by the Irish Government in the Policy document on Waste management – “Changing our Ways”.

The removal of any one of the above aspects from the policy would undermine the effectiveness of the entire integrated waste management program.

The waste to energy facility (capacity 150,000 tonnes /annum) would accept approx. 30% of the waste produced in the North East region, leaving approx. 70% of the waste to be reused and recycled.

In Flanders where Indaver also operate, a recycling rate of 66% is achieved- the highest for any region in the world. This high recycling rate coexists with an incineration capacity of 1.1 million tonnes per annum.

**Submission 11: Dúchas – 28<sup>th</sup> February 2002**

*Dúchas has no comments or recommendations on this application.*

**Submissions 12, 13, 14, 15: Bernard, Claire, Daniel and Tina Kavanagh – 04<sup>th</sup> February 2002**

*Reason 1: My family have lived here for the last 70 years... and we have been living beside Irish Cement factory for the last 30 years which has been a terrible nuisance and noise to us day and night and traffic and dust.*

Attachment H8.1 of the licence application discusses the noise impacts from the proposed facility during both the construction and operation stages of development.

Meath Co. Co. in issuing notice to grant planning permission for the facility states in condition 22 the construction noise levels for day and night time that cannot be exceeded. (Attachment B3.1 of the licence application) and item 27 of the North-East Health Board (Community Care Services) submission above.

Attachment F.8 of the licence application discusses the traffic impact studies undertaken for the proposed development. The study states that the predicted maximum increase in traffic as a result of the facility will occur on the regional road R152, this will see increase in volume by a level of 7.1%.

In relation to dust, the air dispersion model (assuming a worst case scenario that all dust particles are of the size PM<sub>10</sub>) has shown that at maximum operating conditions the max concentrations including background levels will amount to 44% of the ambient 24-hr limit and 51% of the annual average limit.



*2. An incinerator will add greatly to our problems, regarding the effects on our health, the emissions and the dangers from toxins, litter, rats, dust, noise, smells and extra lorries bring waste to the plant.*

The impacts from the facility regarding air emissions from the waste to energy plant have been discussed in detail above.

The impacts from the facility in regard to litter have been discussed in response to item 22 of the North East Health Board (Community Care Services) submission above. This is also discussed in attachment F5.1 of the licence application.

Attachment F9.1 of the licence application discusses the proposed control of vermin at the site.

The impact of dust, noise and traffic have been discussed in previous item of this submission.

Attachment F6.1 of the licence application discusses the proposed odour control for the facility.

*3. This area has been designated a green belt area, so how can an incinerator be granted permission.*

Contrary to the above statement the site is not located within a green belt area. The site is classed as “white land” or “unzoned” in the Meath County Development Plan 2001 (See Map 12 of the Development Plan).

In the Meath Co. Co. planning report for the facility, it states, “The site has no specific land-use-zoning objective and is currently in agricultural use. However, there is an industrial land use/commercial pattern established in the area”.

*4. We will also have Marathon power plant beside our house as well. We have three young children in Mount Hanover School and as there are no proven facts that dioxins can cause cancer this is an added worry.*

As discussed above, a cumulative air dispersion modelling assessment including the emissions from both current and proposed activities in the area was submitted as part of attachment H1.1 of the licence application.

The impact at Mount Hanover School as a result of the proposed facility was been addressed in response to Submission 7 above.

**Submission 16: An Taisce, Black Lane, Dublin 8 - 5<sup>th</sup> March 2002**

*We are unable to reconcile the proposed 2,000-t.p.a target for the community-recycling park with the 150,000 t.p.a. projection for the proposed waste incinerator. No Catchment area comparison has been provided for the community recycling park for a comparison to be drawn for the catchment area for the proposed incinerator.*

The proposed recycling park will provide free access to recycling facilities for members of the local community drawn primarily from the towns of Duleek, Donore, and the surrounding hinterlands. In addition, people may also travel from Slane and Bellewstown in the absence of recycling parks in their area. The Meath County Development Plan 2001 (page 20, figure 7) provides the yr. 2006 population estimate for these areas, this states that 5,300 people will be living in this area at that time, excluding the south Drogheda Environs with an additional 6,000 people – a recycling park is to be provided for Drogheda.

These recycling facilities need to be locally available to people throughout the region, currently just one park is in operation in Navan.

As stated in the licence application (Attachment D2.1) the anticipated monthly traffic using the facility will be ca. 3,500 cars. Indaver Ireland's experience of operating a similar recycling park in Navan – with a population of ca. 16,000 people- has shown a monthly traffic count of ca.10, 000 cars. Therefore, on a pro rata basis the expected traffic throughput can be justified.

Again, from experience of operating these facilities both in Ireland and in Belgium the expected weight of 2,000 tonnes / annum corresponds to a visitor levels discussed above.

The North East Waste Management Plan (Chapter 10 – Implementation over the Plan Period) requires the provision for a network of 10 similar parks throughout the region. The plan also states, “these civic amenity sites with have a high level of appearance and will be permanently staffed” - this is as proposed by Indaver Ireland for Carranstown recycling park. To date, of the 10 community recycling parks required by the NEWMP only 2 namely, Dundalk and Navan are in operation. Therefore, the requirement for this facility is in also in accordance with the NEWMP.

*Recycling Plant for Non Hazardous Waste: No comparison is provided for the catchment area of this waste and it's source and the proposed catchment area for the incinerated waste.*

As with the community recycling park, the NEWMP also requires for the construction of both materials recycling facilities and waste to energy disposal.

Disregarding agricultural waste, 516,000 tonnes of waste is produced in the four counties of the northeast. It is predicted in the plan that the maximum recycling rate ranges from 43% to 51% with between 49% and 57% left for final disposal or a combination of thermal treatment and final disposal. The proposed recycling facility

will provide part of the solution for the recycling of waste in the Northeast region as discussed in the Northeast region Waste Management Plan.

*It is noted in the statement made that the plant will produce 11 mega watts of electricity, however no information has been supplied as to what energy is required to supply the combustion plant, and as to whether this figure is included or excluded from the 11 megawatt figure.*

Section 4.5 (Energy Recovery) - Attachment D2.1 of the licence application states the following:

“This low pressure will maximise the energy recovery from the turbine, which will be used to drive the generator set and give an electrical output of about 14MW. As approximately 3MW will be required for electrical demand within the site, the net electrical output from the plant for export as a renewable energy source to the ESB distribution network will be approximately 11MW.

*Chapter 2.5.6b of the EIS “natural gas may also be occasionally require as a supplementary fuel to maintain the temperature if waste of an exceptionally low calorific value is received”. No information is supplied as to the power generation content of this proposed gas use.*

Natural gas will occasionally be used in the process for (1) Initial firing of the waste during start-up situations. (2) For supplementary firing during operation.

In regard to supplementary firing, this will be undertaken to ensure that a temperature of 850 °C as maintained at the first pass of the boiler in accordance with the Incineration Directive 2000/76/EC

Therefore, the purpose of gas firing in the boiler is not for the production of electricity, but rather to ensure compliance under the incineration directive for the correct combustion of the waste.

As stated in Attachment E5.1, it is expected that the natural gas usage for the waste to energy facility will amount to ca. 202,400-m<sup>3</sup> per annum.

*We submit that this application is premature and invalid, because it does not address the location of the necessary reuse or disposal of the 30,000 tonnes per annum bottom ash.*

As stated in the E.I.S. it is Indaver Ireland’s intention to proactively identify potential uses for the bottom ash. If no market is found, the material will be disposed of to a suitably licensed landfill.

In addition to the existing landfill capacity, a new landfill site at Knockharley, Co. Meath with a capacity of 132,000 tonnes/ annum until 2007 and 88,000 tonnes/ annum for the remaining life of the site has recently been granted planning permission. An Bord Pleanala has justified the decrease in intake volume in 2007 by

factoring the introduction of other disposal techniques such as “thermal treatment/ incineration” as scheduled in the Northeast Waste Management Plan.

*We would further more state our concern that it is incorrect to state that this bottom ash is “non hazardous” because of it’s heavy metal content.*

Chapter 2.5.4 (b) of the E.I.S. states the following:

“The decision on whether or not the ash is hazardous will be made by referring to the classification set out in the European Waste Catalogue. If the ash does not contain the properties listed in H1 –H14 of the “Waste Catalogue and Hazardous waste list” and Annex III of Directive 91/689/EEC it is non hazardous and is suitable for disposal in a non hazardous landfill.

Bottom ash generated in municipal waste incinerator plants is considered non hazardous throughout Europe. A copy of the typical analysis for this material has been included in Attachment H11.1.

*Section 2.5.6b states that the bottom ash is not suitable for use as a construction material and that “these metals and dioxins will be contained in the landfill and will not have any impact on the environment”*

Section 2.5.6b of the E.I.S. does not refer in any way to bottom ash or any other ash or residue.

Section 2.5.4b of the E.I.S. does however state “It is the intention of Indaver Ireland to proactively identify potential uses for the bottom ash. This material is suitable for use in road construction and as such a use would be in accordance with government policy on re use of waste.

*It is noted that there is no hazardous waste landfill capacity in Ireland. Given this fact and our existing difficulties in meeting EU directives with regard to hazardous waste, we would submit that it is ill advised to initiate a waste processing facility which generates additional hazardous waste.*

It is an objective of the EPA National Hazardous Waste Management Plan to develop hazardous waste landfill capacity in Ireland, however if at the time of commissioning there is no such facility, the hazardous waste will be exported for final disposal by Indaver or another party. To this end Indaver own 60% of Minchem Environmental Services Ltd., a hazardous waste management company operating an EPA licensed Hazardous waste transfer station in Dublin Port, who export such material from Ireland overseas for recovery, disposal and treatment. The low quantities of the hazardous material to be disposed of amount to between 3,000 to 5,000 tones per annum, this material is suitable for disposal at facilities on the continent.

The thermal treatment of waste at the plant condenses waste to be disposed of to ca. 25% by weight and 10% by volume. This significantly reduces the amount that would have required corresponding landfilling in the absence of this proposal. Due to the inert nature of the bottom ash and probably the boiler ash, it will have less adverse impacts than untreated waste that is currently disposed of to landfill.

*We would submit that it is unacceptable that the treatment of this gypsum waste is not being specified at application stage.*

Indaver Ireland believes that to establish a market for gypsum, that to date has not been manufactured by this process in Ireland, would be premature. However, once the gypsum has been produced and proven suitable for reuse, Indaver Ireland will pursue a market for this material.

**Submission 17: Margaret Smyth, Duleek - 5<sup>th</sup> March 2002**

*1. Being next door to such a development will greatly increase the noise level for the proposed six days a week-24 hour operation (six lorries per hour around the clock).*

Attachment H8 of the licence application discusses the noise impacts as a result of the development.

As discussed above, the waste to energy facility will operate 7 days /week- 24 hours/ day. The total annual running time will amount to 7500 hours.

Waste will be accepted at the facility at the following times (Attachment E3.1):

- Community Recycling Park: Monday to Friday – 8hrs /day and Saturday mornings.
- Materials Recycling Facility: Monday to Friday – 8am to 6:30pm and from 8am to 2pm on Saturdays.
- Waste to Energy Plant: Monday to Friday – 8am to 6:30pm and from 8am to 2pm on Saturdays.

As discussed in the traffic report submitted with the E.I.S., the hourly maximum number of two-way trucks arising from the proposed facility will amount to 19 H.C.V.'s.

*2. The smoke and noxious fumes from chimneys will adversely affect my health.*

The impact on health from incineration and the results of the air dispersion modelling for the facility have been discussed above.

*3. I will find myself completely surrounded on all sides by industrial activity, which will have a negative impact on my daily life.*

The impact on the Human Environment during both the construction and operation of the proposed facility has been discussed in attachment H5 of the licence application.

In addition, the site will have a total area of 25 acres of which 17 acres will be developed. Indaver have ensured that through architectural design and suitable landscaping, the impact on residents in the area will be minimal. The landscaping proposal includes the planting of 50,000 native tree species.

*4. There will doubtless be litter and waste materials that would find their way onto my land.*

Attachment F5 of the licence application discusses litter control for the propose development.

**Submission 18: Liam & Mary Leonard, Duleek - 5<sup>th</sup> March 2002**

*Already we have Cement limited and the proposed marathon power plant. The traffic will increase greatly, also the fumes.*

The impact on the local road network has been discussed above in response to submissions 12, 13, 14 and 15 above.

The impact on air quality as a result of the proposed development is discussed in attachment H1 of the licence application.

**Submission 19: - Irish Doctors Environmental Association- 12<sup>th</sup> March 2002**

Sections A) and B) of this submission have been responded to in Submission 4 above from the Irish Doctors Environmental Association.

*C) We are concerned that the required frequency for testing for dioxin emissions from incinerators may not be adequate. We understand that more accurate estimations of dioxin emissions may be achieved with prolonged testing (two weeks) than the more usual six to eighteen hour time interval.*

As discussed in attachment J1.1 of the licence application the flue gases from the waste to energy facility will be continually sampled for PCDD/ PCDF using the AMESA sampling system. The sample cartridge will be sent for independent analysis every two weeks, with turn around times expected to be between 10-15 days.

**Submission 20: John Behan, Drogheda- 10<sup>th</sup> May 2002**

*Indaver failed to assess the impact of daily production operations in the quarry to the proposed site and also the impact the quarry has on the air dispersion modelling sizing the emission stack, its GLC's, and plume dispersion.*

The air dispersion modelling input data consists of detailed information on the physical environment (including building dimensions and terrain features), design details from all emission points on-site, a full year of worst case meteorological data and existing background levels. Using this input data, the model predicts ambient Ground Level Concentrations beyond the site boundary for each hour of the modelled year.

The model next post processes the data to identify the location and maximum of the worst –case GLC in the applicable format for comparison with the relevant limit values. This worst-case concentration is then added to the existing background concentration (including predicted traffic emissions) to give a worst case predicted

concentration. Therefore, the quarrying activities are taken into account for this exercise.

As the region around the proposed site is partly industrialised and thus has several other potentially significant sources of pollutants, a detailed cumulative assessment has been carried out using the methodology outlined by the USEPA (See Table 1.4 of Attachment H1.2).

An appropriate stack height has been determined based on ensuring that ambient air quality standards will not be approached even under worst case operating scenarios. The stack height determined by air dispersion modelling which will lead to adequate dispersion was 40meters.

*There are routine daily explosions in the quarry to extract limestone. Indaver have failed to assess the impact of these explosions on their incineration process.*

The adjacent quarry is operated under an IPC licence (No.268) issued by the Agency. The licence specifies limits on noise, vibration and overpressure resulting from explosive activity in the quarry. The limit for vibration i.e. 12mm/sec is sufficiently low to prevent interference with monitoring equipment and items of plant proposed for the facility.

A copy of a report into this matter undertaken by Eanna O'Kelly- Noise and Vibration Engineers is attached as Appendix 14.

*This rainwater will accumulate from roof surfaces and operational access and services areas of the plant. At times of heavy rainfall they can periodically discharge this effluent to a nearby ditch which drains into the river nanny...*

The waste to energy facility will use rainwater collected on site as a source for process water. The rainwater will pass through interceptors before entering the storage tank removing hydrocarbons and silt. In the event of a 1 in 20 year storm (that is the most rainfall over a day that will occur once in twenty years) rainwater will be surplus to the requirements of the process and will be discharged to the ditch and eventually to the river.

The rainwater will not have any contact with the waste at the facility; in addition any chemical storage tanks on site will be bunded thus preventing contamination of the water.

Attachment D2.1 –Section 5.3 discusses rainwater runoff in detail.

*Air Dispersion Modelling; The EIS has failed to take into consideration the impact of the adjacent quarry and size and congestion of the cement silo farm on the dispersion model.*

See reply to the first observation of this submission above.

*Under certain climatic conditions the GLC's will stay on site, be consumed through the air intake system again, and result in the creation of saturated and higher levels of GLC.*

The maximum ground level concentrations for certain parameters will occur either within or just outside the site boundary under worst case climatic conditions as displayed by the air modelling exercise.

The flue gas emissions from the waste to energy facility have been previously stated and will be well within the current limits as specified in the incineration directive 2000/76/EC. The flue gas emission levels are independent of the ambient air intake. (i.e. If in theory the intake air concentrations were higher than the emission levels – the plant will still be required to emit according to limits set down in the operating licence, regardless of the feed air quality.)

*If the situation arises that the above material (boiler ash) fails the leachate test and is classified as toxic or Class 9. Then the inventory of this material on site falls into the category of exceeding the lower Tier Threshold and is thus classified as a Seveso Site under SI 476 of 2000.*

As discussed in the Attachment B9.1 of the licence application the facility is not classified as a Seveso site. This is common with municipal waste incinerators operating throughout Europe.

*Natural Gas: The potential for a sudden mass release of gas at 60 Bar pressure and subsequent catastrophic event qualifies this facility as a Seveso site under SI 476.*

A document prepared by Byrne O'Clairgh – Engineering Consultants regarding the above observation is attached as Appendix 15.

*The waste licence (application) does not detail how water used for the purpose of cleaning will be disposed of.*

Attachment D2.1 –Section 5.1 states “There will be small quantities of waste water generated throughout the waste to energy plant for the process and wash waters, which will be recycled for use in the evaporating spray towers”.

*Odour Suppressant chemicals used in the waste bunker when the facility is not operational are not listed in section E5.1. It does not discuss the effects of these chemicals on start up.*

As stated in the licence application odour suppressant chemicals that may be used in the waste storage bunker will be forwarded to the Agency prior to use at the facility.

As stated in the submission above these chemicals will only be used when the facility is non operational i.e. the induced fan is shut down. These chemicals will not be used during the operation of the facility and certainly will not have any adverse effects



*Evaporating Spray Tower: During preventative maintenance the nozzles and atomiser are removed- the licence does not address what happens in the interim period to the combustion gases when these nozzles are removed and the cooling efficiency is reduced.*

Evaporating Spray Towers operate a number of nozzles that are placed throughout the tower; typically, there can be up to six nozzles in the tower. During the preventative maintenance program nozzles will be removed for cleaning/ replacement etc, this will be done on an individual basis thus avoiding any negative impact on the gas cooling. All other nozzles will continue to operate during this time.

In the event that the tower will operate an atomiser, this will be only be removed during planned maintenance shutdowns and thus will not impact on the process. In the event of a failure of the atomiser during the operation of the plant, a shutdown will occur and a replacement will be fitted.

A decision on whether the plant will operate nozzles or atomisers will be made during the final design stages of the facility.

#### **Submission 21: Drogheda Borough Council- 14<sup>th</sup> May 2002**

*The principal matters expressed by the Elected Members of this local Authority at their meeting on the 4<sup>th</sup> of March, 2002 related to the health effects on the residents adjacent to the site and surrounding areas and also the atmospheric pollution that the facility will cause. Significant concerns were also expressed about the close proximity of the Incinerator to the town of Drogheda.*

The health impacts, emission levels and location of max ground level concentrations from the proposed facility have all been addressed above. However, to clarify the point made above, it has been demonstrated from the air dispersion model that after 2-3 km concentrations from the facility will be indistinguishable from background levels. As stated in the EIS, the facility is located 3km to the North East of Duleek village and 5 km to the south west of Drogheda.

#### **Submission 22: No Incineration Alliance - 15th May 2002**

This submission consists of five sections namely:

- 1) General – Who the alliance are, why they are opposed to incineration etc.
- 2) The licence specifically – Points relating to the licence application
- 3) Incineration- Pollutants and health- plus enclosures
- 4) Health Review Board Submission – made by a resident of Drogheda.
- 5) The NIA's submission to Meath Co. Co. and An Bord Pleanala.

In response to the above submission, Indaver Ireland will concentrate on 2 above – licence specific details. In response to 3 and 4 above, a copy of Indaver Ireland's submission to the Health Review Board is attached as Appendix 4. Finally, in response to 5 above a copy of Indaver Ireland's response to third party appeals to An Bord Pleanala is attached as Appendix 16.

- *We contend that this site qualifies under (SI 476, 2000) Seveso regulations:  
Due to:*
- *A limited number of named substances, which have been taken into account.*
- *A quantity of Household hazardous waste is involved*
- *Levels of non-hazardous municipal waste and industrial waste types are not clearly quantified.*
- *Ash laden with dioxin will be stored on site, it is not specified in what volume, nor for how long.*
- *There is an existing natural gas pipeline from Drogheda to Navan which runs under the proposed site. Natural Gas is listed as one of the 51 substances under the first schedule of the Regulation in Site SI 476.*
- *There is less than 100 meters from a main gas line supply and the furnace*
- *If there is a spillage of corrosive material in the service turning yard for the warehouse, there is a likely hood that the material will enter the surface water drains and penetrate through to rupture the gas main.*

A background to the “Seveso” Directive is provided below.

The European Union Council Directive 96/82/EC on the Control of Major Accident Hazards Involving Dangerous Substances (‘Seveso 2’ Directive) came into force in February 1997 and has been implemented in Ireland under SI 476 of 2000.

The new directive required the repeal of the original ‘Seveso’ Directive (82/501/EC), which was adopted following a series of accidents involving dangerous substances, such as the accident that occurred at Seveso, Italy in 1976.

The Directive defines a major accident as:

*'an occurrence such as a major emission, fire, or explosion resulting from uncontrolled developments in the course of the operation of any establishment covered by this directive, and leading to serious danger to human health and/or the environment, immediate or delayed, inside or outside the establishment, and involving one or more dangerous substances.'*

Hazard is defined as:

*'the intrinsic property of a dangerous substance or physical situation, with a potential for creating damage to human health and/or the environment.'*

This second Seveso directive revises the previous directive on the basis of experience acquired during its implementation with the aim of preventing major accidents, limiting their consequences and ensuring a high level of protection throughout the European Union in a consistent and effective manner. The directive covers all establishments having quantities of dangerous substance equal to or in excess of the thresholds.

*A limited number of named substances, which have been taken into account.*

Indaver Ireland has examined all substances that are proposed to be used at the facility in regard to "Seveso" regulations. This examination was carried out in conjunction with Byrne O'Clairigh (Independent Specialist Technical Consultants). Only substances listed in the First schedule of SI 476 and each of the generic categories of dangerous substances are required to be examined under the "Seveso" Directive. As a result of this, the site does not classify as a Seveso site.

*A quantity of Household hazardous waste is involved.*

"Hazardous" is not a category listed under Part 2 of the First Schedule of SI 476. As stated in the licence application Household hazardous waste may be accepted at the community recycling park, this waste may be stored temporarily prior to going offsite for recovery/disposal. This waste will include materials such as Detergents, Aerosols etc. These materials are common throughout homes in this country, however their status under Seveso is not applicable in this circumstance as it not for the community-recycling park.

*Levels of non-hazardous municipal waste and industrial waste types are not clearly quantified.*

Attachment B8.1 of the licence application provides details on the nominal and maximum tonnages of non-hazardous/ hazardous waste to be received at the Community Recycling Park, the Materials Recycling Facility and the Waste to Energy Plant. Non-hazardous municipal waste is not a listed substance under the "Seveso" regulations; if this were the case all non hazardous landfill sites would also be classified as "Seveso" sites, which they are not.

*Ash laden with dioxin will be stored on site, it is not specified in what volume, nor for how long.*

Attachment H11 of the licence application provides details on ash and residue storage on site. Municipal waste incinerators in Europe are not classified as "Seveso" sites.

*There is an existing natural gas pipeline from Drogheda to Navan which runs under the proposed site. Natural Gas is listed as one of the 51 substances under the first schedule of the Regulation in Site SI 476.*

The gas pipeline under the site does not qualify the facility under Seveso II. See response from Byrne O'Clairigh – risk Assessment Engineers attached as Appendix 15.

*There is less than 100 meters from a main gas line supply and the furnace.*

Natural gas will be used for start-up and auxiliary firing of the waste to energy plant. Gas connections will be made directly into the plant and will be operated in accordance with all relevant safety requirements.

As conditioned by Meath Co. Co. all construction activities in the area of the Bord Gais pipeline will be carried out in accordance with Bord Gais requirements. The proximity to a gas line does not classify a site as Seveso". If this were the case, many homes and businesses throughout this country would also require "Seveso" status by virtue of their location to the gas pipelines

*If there is a spillage of corrosive material in the service turning yard for the warehouse, there is a likely hood that the material will enter the surface water drains and penetrate through to rupture the gas main.*

Deliveries of corrosive liquids (HCL /NaOH) will made directly to storage tanks located within the process building. All storage tanks for corrosive or hazardous materials will be contained in bunded areas, as will all piping connections for loading purposes.

*Waste as a fuel to generate energy is not taken into consideration the energy used in this total process (sic)*

Section 4.5 of Attachment D2.1 discusses the energy recovery process at the facility. Energy generated as a result of the incineration process will amount to approximately 14MW, approximately 3 MW will be used on-site, leaving approximately 11 MW available for export.

*The replacement energy cost to provide for the replacement materials that are recoverable are not accounted for.*

The proposed plant will have a capacity to handle 30% of the waste generated in the North-East region that will not be suitable for recycling. Therefore the process recovers energy from waste that otherwise would be lost.

*Energy production based on conventional grate incineration technology when analysed produces negative energy.*

The heat recovered from the incineration of waste at the facility will provide an electrical output of about 14MW. The facility will require approximately 3MW of electricity to operate; therefore, the net electrical output from the plant will be approximately 11MW.

*Energy consumption from transportation to and from the site aren't taken into consideration.*

Whether the waste is destined for recovery/disposal it will still require transportation, therefore the energy consumption from haulage to this facility is no different than to any other waste handling facility.

*There are no laboratory facilities based at or in close proximity to this facility.*

The waste-to-energy plant will have online sampling and monitoring of the gas emissions leaving the stack. All other analysis required such as ash, dioxins, ground waters etc. will be undertaken by independently accredited laboratories.

*Only a restricted level of monitoring can be processed within this facility.*

As stated in Attachment D1.1 continuous monitoring of emissions from the stack will include: Total Organic Carbon, Hydrochloric Acid, Sulphur Dioxide, Nitrogen oxides, Oxygen and Carbon Monoxide. Continuous sampling of dioxins will be carried out at the stack.

*Ireland has no facilities for dioxin sampling- Queen's University in Belfast has some experience in this, but it is likely that the AMESA components will need to be analysed abroad.*

Indaver Ireland will sample the flue gases of the waste to energy plant for dioxins using the AMESA equipment described in Attachment J1.2.

Unless an approved dioxin measuring laboratory is in operation at the time of plant commissioning, samples will be sent to the U.K. for analysis as discussed in the licence application. Typical turn around times for such analysis will be 10 – 15 days. The dioxin sampling is to provide a record of emissions rather than a process control. The plant will operate a two-stage dioxin removal process that will ensure levels are well below the EU limits.

*There is no provision to monitor the waste stream input into this process.*

Attachment D1.1, Sections D1.H and D1.I provide details on monitoring the input waste stream. There will be a level of inspection of incoming waste to ensure compliance with waste acceptance procedures. Any waste deemed to be unacceptable will be prevented from entering the process and will be held in quarantine before being removed from site.

*What types of analysis will be done on the ash, how often and for what purpose?*

Details on the parameters and frequency of testing for the ashes are described in attachment H11.1 of the licence application. As discussed above a draft Commission Decision (EWG 02/086) establishing criteria and procedures for the acceptance of waste at landfills pursuant to article 16 and Annex II of the Landfill Directive (91/13/EC) has been issued by the EC. The criteria specified in the final version of this document will be adopted by Indaver in agreement with the agency in establishing the type of landfill required for each waste stream. Currently this draft Decision specifies three types of landfill i.e. Inert, Non-Hazardous and Hazardous. The document also specifies the (leachate test) limit values for waste streams that will define the type of landfill from the three listed.

*Groundwater contamination is a huge issue with regard to the resting site of ash. If, as observed by many groups who visited Belgium, the ash is left uncovered, above ground, for extended periods, there is a high probability of contamination from runoff.*

The bottom ash discussed above was not in storage but is however located in a licensed non hazardous waste landfill. The proposed facility has no proposals to construct such a landfill site.

The control of surface and groundwater has been discussed in detail in this document in response to various submissions.

Indaver Ireland has provided details and locations for the storage of ash on site. At no time has it been proposed that ash from the process will be stored outside. See Attachments H1.1 and H11.4 of the licence application.

*The commercial waste, sewage sludges, industrial sludges and industrial waste- these are not homogenous (Indaver maintain that they are homogenous)- if the industries aren't specified, there's no way of knowing the content (Table E2.1)*

Information will be supplied to Indaver on all incoming waste streams prior to acceptance at the facility. In particular, analysis of sludges will be requested prior to

acceptance. The Grate Incinerator is capable of burning a wide range of waste types and forms.

*There is no hazardous waste collection system in operation in the North East, nor any indication that there will be – therefore to “assume” that there will be in place is presumptuous and irresponsible.*

Section 8.3.10 of the North East Waste Management Plan discusses the Policy for Hazardous Waste in the region. Specifically the plan states the following regarding the collection of this material:

- Provision will be made at each of the Waste Recycling Centres for the reception of household hazardous wastes such as batteries, waste paint, etc. Similar facilities may be in place at other suitable "bring bank" facilities or local authority sites where possible.
- Pending the success of the collection systems described above, the Local Authorities in the Region will consider the establishment of mobile collection service servicing local communities in the region on a regular basis. This system may be most cost effective on a regional basis.

*Non-Infectious Health Care Waste how will this be separated? How will this be policed/ validated? Table E.2.3*

This material will be accepted at the Waste to Energy plant as indicated on page 14 of Attachment E.2.3. This material will be accepted only after prior notification has been received and agreed by Indaver Ireland.

*Septic Tank Sludge- this matter is known to be high in Heavy Metals and low in calorific value.*

Septic Tank sludge will be accepted in the waste to Energy plant only. As described in Attachment D2.1 of the licence application the mixing of waste in the bunker will produce a relatively homogenous stream thus ensuring the calorific value levels of the waste entering the bunker are uniform during operation.

The plant will operate well below the current limits for Heavy Metals. This will be achieved by the installation of a two-stage carbon cleaning step and a wet scrubbing system.

*Standard Contract allows waste material of a hazardous nature enter the system.*

As stated previously visual inspections of incoming waste deliveries will be carried out to ensure that the facility will not accept unapproved waste types. Standard contracts will be issued to waste collectors that provide regular streams of waste to the facility.

*A high degree of homogeneity of waste does not take into consideration the changing nature of waste and the chemical compounds that are within it, allowing for unknown reactions and emissions to take place.*

The facility will accept non hazardous waste for incineration. The process control and the final emissions from the stack will be continually monitored to ensure compliance with all limits set by the licence. Indaver are experienced at operating incineration plants and will carry this experience into the operation of the Carranstown facility.

The advantage of using a Grate incinerator allows for a relatively mixed waste stream to be disposed without impacting the final emissions at the stack.

*Bulky waste shredder allows for the dispersal and disguise of any (in) appropriate waste (E4.2)*

The bulky waste shredder in the Materials Recycling Facility described in E4.2 will be used to reduce the size of specific large items that would be too large to place on the conveyor system.

*There is no procedure to remove inappropriate waste when located.*

As discussed in section D2.1 of the licence application any materials discovered in the waste storage bunker will be removed by a crane and placed in the quarantine area before being removed off-site.

*E5.1- Raw Materials & Energy- Where will the raw materials be stored for operation beyond 10 days operation? How will the quantities be policed? What will happen for extended periods, such as over Christmas?*

Raw materials will be purchased for the facility as dictated by stock levels for each substance, the checking of these levels is a standard aspect of operating any industrial facility. Only areas designated for the storage of raw materials will be used for this purpose.

During periods such as Christmas, the facility will have adequate supplies to continue operation. The plant will have set re-ordering levels for all raw materials used on site. The reorder levels will typically depend on usage and delivery times. As the plant will be computer controlled, level indicators on storage vessels will alert the plant operators to such reordering levels

*F.1.1.3 – “no liquid waste will be accepted at the waste to energy plant” –liquid is an integral part of the municipal waste, especially when there is no source separation of organics in particular. Therefore, it is highly likely that there will be liquid waste.*

It is expected that liquid residues from municipal waste will form part of the incoming material at the waste to energy plant.

Attachment F.1.1.3 discusses Aerosol Control at the facility. In this context, it is discussed that Indaver Ireland will not accept liquid only waste deliveries at the facility.

*2,000m<sup>3</sup> capacity of water allows for what type of fire?*

The capacity of each water cannon in the waste bunker will be approximately 300 m<sup>3</sup>/hr. This would then equate to a fire fighting duration of over 3 hours.

*There is no emission control on fire or smoulder from the waste bunker.*

The waste storage bunker will be continually viewed by the grab crane operator. In the event that the operator discovers a smouldering/smoking amount of waste, they will place this into the hopper of the waste furnace where it will be incinerated. Due to the negative pressure maintained in the bunker any smoke generated because of a fire would enter the main gas stream treatment process at the facility.

*A lower explosive limit detector is not sufficient to deal with the pressure and different mixtures that allow for an abnormal situation where a build up of a large range of substances leads to a major explosive situation.*

As a result of the induced draught through the waste bunker, a negative pressure will be maintained – removing the possibility of an explosive atmosphere. Should the LEL detect a build up of hydrocarbons in the bunker, the process operators will be alerted the I.D. fan speed will be increased and louvers on the roof of the bunker would be opened to allow ventilation. The proposed facility is for the disposal of non hazardous municipal waste and it is unlikely that high pressure/ volatile substances will occur in this waste stream in such volumes as to create a “major explosive situation”.

*The use of mixed waste of unknown quality, as a plug between the bunker and the furnace is not sufficient as a barrier and allows for emissions to leak out with out proper controls.*

The combination of the induced draught, a ram mechanism for moving the waste into the furnace and the waste itself, is sufficient to prevent any leakage of combustion gases from the furnace into the storage bunker.

*The AMESA monitoring system takes a number of samples at different times referred to as continuous sampling.*

The AMESA sampling system will be used for measuring dioxins/furans. In summary, the system will extract a volume stream constantly and isokinetically from the flue gases. Dioxins and furans will be collected in a cartridge filled with adsorber resin. The system will operate automatically and will store all necessary data both internally and on a removable card. The cartridge and card will be then sent for analysis by an accredited laboratory. Turn around time for the samples will be approximately 10-15 days.

*The information is only available after the event – this is unacceptable.*

There is currently no online dioxin monitoring equipment available on the market. This is because quantities to be measured are so low. The dioxin measuring is used for recording purposes and not for process control. The facility will be fitted with a two stage dioxin removal stage- this will ensure that levels are well below those specified by the EC. Indaver Ireland will continually sample for dioxins in the flue gas, this is above the requirements required by the EU waste Incineration Directive 2000/76/EC

*Boiler area produces emissions by the presence of metals, copper in particular.*

The only emission from the boiler will be boiler ash. Approximately, 1,500 to 3,000 tonnes/annum will be produced on a nominal throughput of 150,000-tonnes/ annum. The boiler is a closed system- flue gases passing through this unit will enter the gas cleaning phase upon exiting the boiler.

A typical analysis for boiler ash is included as Attachment H11.4.

*Leakage of emissions before combustion gases of boiler enter the evaporating spray tower.*

The design of the waste to energy facility will ensure that the flue gases generated in the furnace will be contained until discharge through the 40meter stack. The entire



“pathway” for the gases is sealed to ensure leakages do not occur to atmosphere. The Induced Fan will ensure that the gases are continually “pulled” through the process.

*Flue gas cleaning residues figures of 3500 to 5000 tonnes are toxic and no provision for there (sic) management and storage is allowed in Ireland.*

Flue gas cleaning residues are considered hazardous but not toxic. Details on the storage and disposal of the F.G.C. Residues on site are provided in Attachment H11.1 of the application.

*HEPA the high efficiency particulate abatement filters to prevent fugitive emissions from the silo are not effective in respect of ultra fine particles and no monitoring or clean up system is allowed for in the process.*

HEPA filters are commonly used in industry in sectors such as pharmaceuticals, medical devices and electronic components, to provide a clean air environment. Typical HEPA filters operate to 0.3microns however lower limits can be achieved. The installation of these filters thus ensures that fugitive dust particles generated from the ash silos are contained.

Attachment J1.1 (page 1) of the application proposes ambient PM10 monitoring at the facility during operation to ensure airborne dust particulates are maintained within the specified limits.

*Concentration of emissions may not be held under the EU limit values given the mixed and unanalysed quantity of material waste streams used in the process.*

The waste to energy facility will be designed to incinerate non-hazardous municipal solid waste. The plant will be operated to ensure that all emission levels are well below the limits specified in the incineration directive 2000/76/EC and as detailed in Table 2.3 of Attachment H1.1. The waste will be incinerated at greater than 850 Deg C and will operate a five-stage gas cleaning process to ensure that all limits are well below those specified in the new incineration directive 2000/76/EC.

*Air dispersion modelling- there's no mention of the surrounding extensive cement quarry, or huge cement plant works with 2 outdoor kilns. These would have a large impact on localised dispersal-this hasn't been captured.*

The above points have been considered as part of the air dispersion model. See Submission 20 above.

*Indaver have stated in their EIS and Waste Licence that the proposed site location is only 200m from the existing Platin quarry. The quarry is approximately 35 hectares in size and 200ft deep.*

The impact of the quarry both physically and due to the operations undertaken there have been included in the air dispersion modelling report – attachment H1.2.

*There are routine daily explosions in the quarry to extract limestone. Indaver have failed to assess the impact of these explosions on their incineration process.*

The impact of the quarrying operation on the proposed facility has been examined by Eanna O'Kelly – Noise and Vibration Engineers. A full response is attached as Appendix 14.

*Stack height –there is little difference with regard to an “adverse visual impact” between a 40 and a 45 metre stack- should the emphasis not be on a safer dispersal of pollutants than the visual amenity at this stage?*

Indaver Ireland will ensure that the gases leaving the stack are well below the new EU limits for incinerators. The ground level concentrations as predicted by the air dispersion model will be well within all current limit values and guidelines.

Stack height Determination has been discussed in Section 4.3.3 of the E.I.S.

*H2.1 – Impact on Climate –(Pg 3) – “all non recyclable household, commercial and /or industrial waste.” – the calculation of the greenhouse gas output is based on this statement –which is incorrect as there is no certainty that there will be any source separation in place.*

Section 8.3.3 of the North East Waste Management Plan states the following:

#### **Household Waste**

Door to door collection (kerbside system) of recyclables with source segregation to be introduced in all urban areas aiming to eventually cover 50% of the households in the region.

For areas mainly rural , which do not receive door to door collection the bring bank network will be improved in terms of increased numbers (target density of one bank per 500 population) and visual appearance, with the banks being emptied more frequently to avoid litter.

Source segregation and dual collection of organic waste fraction starting from 2004. This will eventually aim to collect from all urban areas with population greater than 500 households. {End Quote}

*H.2.6.7. “ the waste to energy plant will not produce heavy metals but may emit heavy metals if present in the waste stream”. There will be heavy metals in the waste stream, this has to be emitted from the start.*

At the moment, heavy metals are present in the waste stream (sources such as fluorescent tubes and batteries) that is been sent to landfill. The waste to energy plant will capture the heavy metals prior to discharge and ensure that emission levels are well within the specified limits.

*We await a copy of the 3-month PM10 study which is being undertaken/written up at the moment.*

A copy of the 3-month ambient PM10 monitoring for the Carranstown site was submitted to the agency on 06<sup>th</sup> May 2002. A copy of this analysis has also been forwarded to the No Incineration Alliance on 31<sup>st</sup> July 2002.

\* Issues raised in this submission regarding the air dispersion model for the waste to energy facility have been discussed in previous submissions above, specifically submissions 8 and 20.

*The limestone quarry under normal climatic conditions would have a different degree of absorption / radiation – transfer of heat than the surrounding agricultural grasslands. At the interface of the above two systems i.e. Close to the emission stack there is a greater degree of air movement /turbulence. This has not been considered in the dispersion model.*

Input data for the air dispersion model requires details on the local topography including surface types and depths, this data was considered during the modelling exercise. Details regarding the input data is included in appendix 1.1 of the air dispersion model report in Attachment H1.2 of the licence application.

*The lack of a solidification plant on site is a dangerous omission of the total process to maintain safety of the toxic by-products.*

Solidification of hazardous residues produced by the waste to energy process will be required prior to landfilling and not prior to transport, as the materials are considered non hazardous for transport. The solidification process may be in site depending on the destination of the hazardous waste landfill.

*The risk of transport of this toxic material, the ash is of an unacceptable level of risk for the wider environment.*

Indaver Ireland have submitted details on the bottom ash, boiler ash and flue gas cleaning residues to the British Laboratory of Government Chemist (LGC) in respect to the classification of these materials for transport. From the information received the LGC consider these materials non hazardous for transport. See Appendix 17 attached.

*Without a detailed explanation as to the management of ash this whole process should be rejected a licence to produce such ash in the first place (sic).*

Details on Ash Handling regarding – Process Description, Process Control, Emissions, Throughput and Abnormal Situations is included in Attachment D2.1 – Section 4.11.4.

*Contaminated gypsum is cleaned of a number of recovered metals but no analysis of the non-recovered contaminants are stated. (4.11.4)*

It is believed that the above statement maybe an error as section 4.11.4 of Attachment D2.1 mentions metals that are removed from the bottom ash only. As stated in section 4.3.1 this ferrous metal will amount to approximately 2,100 tonnes /annum and will sent for recovery at a licensed facility.

The Gypsum produced will pass through a filter press to increase the solids content, this material will then be either sent to a non hazardous landfill or may be reused if a market exists.

The Gypsum will undergo analysis in line with all other solid residues produced.

*Analysis of boiler ash is not clear or documented.*

Analysis of boiler ash from a similar facility operated by Indaver is included as Attachment H11.4. Details on the proposed sampling frequency and relevant standards are included as Attachment H11.1 and H11.2.

A draft Commission Decision (EWG 02/086) establishing criteria and procedures for the acceptance of waste at landfills pursuant to article 16 and Annex II of the Landfill Directive (91/13/EC) has been issued by the EC. The criteria specified in the final version of this document will be adopted by Indaver in agreement with the agency in establishing the type of landfill required for each waste stream. Currently this draft Decision specifies three types of landfill i.e. Inert, Non-Hazardous and Hazardous. The document also specifies the (leachate test) limit values for waste streams that will define the type of landfill from the three listed.

*Analysis of Flue gas cleaning residues is not clear or documented.*

As above for Boiler ash.

Details on the ash /residue handling and disposal options are discussed in Attachment H11.1 of the licence application.

*The emergency shut down and start up operations significantly reduce the emission control systems. This leaves the local environment exposed to major pollution episodes, when monitoring systems may not be used.*

For clarification on the above remark, there will be no emergency start up situations at the plant.

Details on the process impacts as a result of an emergency shutdown have been detailed in 4.12.3 of Attachment D2.1. It may be noted that in the unlikely event of an emergency shut down occurring, the most important aspect is to ensure the safety of the employees within the facility and members of the public. As stated the monitoring equipment for the flue gases will continue operation during such a situation. A uninterruptible power supply will be supplied to the monitoring equipment for a period of one hour in the event of a power failure.

During a start up situation (as detailed in 4.12.1) all gas cleaning and monitoring equipment will begin operation prior to the ignition of waste in the furnace. This will ensure that all limits on the flue gases are observed.

*Indaver cannot anticipate quantities of waste or waste types with scientific rigor.*

The waste to energy facility will be designed to accept a nominal 150,000 tonnes per annum and a maximum 170,000 tonnes per annum of non hazardous waste. The volume of waste within the above range that will enter the plant will depend on the calorific value (CV) of the incoming waste. For example, if it is found that the waste has a high CV- the plant will process a lower volume of waste (ca. 150,000 tpa), however if the CV is lower the plant will process a higher volume of waste (ca. 170,000 tpa).

The materials recycling facility will be designed to accept 20,000 tones per annum of non-hazardous industrial / commercial waste for recovery/ recycling.

*No rationale as to the management of household hazardous waste.*

As discussed in attachment E2 of the licence application Household Hazardous Waste will be accepted in the community-recycling park. This will include waste oils,

batteries & accumulators, fluorescent tubes etc. This material will be recovered/ disposed at only suitably licensed facilities.

The materials recycling facility will not accept household hazardous waste.

As discussed in table E.2.2. of the application regarding waste to energy plant – “It is anticipated that a household hazardous waste collection system will be in operation to remove household hazardous waste such as batteries from residual waste. However, if there is some household hazardous waste mixed with the incoming waste, the incineration and gas cleaning systems will be able to deal with this”.

*Household hazardous waste is not quantified.*

The EPA published National Waste Database 1998 provides a composition breakdown of municipal waste arising in Ireland, however the percentage of household hazardous waste has not been detailed in this document.

The EPA published National Hazardous Waste Management Plan (p.24) states “Quantities of household hazardous waste arising from individual households are generally small and have generally been mixed with other household waste.” The document goes on to say “It is estimated that 8,750 tonnes of HHW were produced in Ireland in 1996.”

By extracting municipal waste arising figures for 1995 from the National Waste Database (to give a conservative figure) i.e. 1,848,232 tonnes, the quantity of HHW in the municipal waste stream therefore equates to 0.47%.

As discussed above, with the implementation of a household hazardous collection scheme in the North East the amount of this material expected at the waste to energy facility will be minimal. Household hazardous waste typically consists of waste oils, paints, outdated medicines etc.

*Household hazardous waste is to be manage(sic) by the system of gas cleaning is not acceptable.*

As discussed in table E.2.2, this material can be disposed at the facility without affecting the emission levels at the stack. It is not proposed to “manage” household hazardous waste in the waste to energy facility, however, if this material enters the process as part of the incoming waste stream the impacts arising from their combustion can be controlled by the gas cleaning process at the plant.

*Any change in household hazardous waste is not accounted or planned for.*

With the introduction of a separate HHW collection scheme in the North East, it is expected that levels arriving at the waste to energy facility will decrease to even lower levels than those allowed for.

*H2.1- Table 3 – Pg 11- composition of household and commercial waste land filled in Ireland. Approx. 70% of the arisings from these categories can be re-cycled or composted –If the government put in and enforce such a recycling programme, then there will be little need for incineration.*

As stated in section 2.9.4. of the EIS – “ Disregarding agricultural waste, 516,000 tonnes of waste is produced in the four north east counties. The Draft Waste Management Plan (now adopted) for the NE region depicts a number of integrated

waste management strategies. It is projected that the maximum recycling rate ranges from 43% to 51% with between 49% and 57% being left for final disposal or a combination of thermal treatment and final disposal. The proposed waste to energy plant will treat less than 30% of this waste.

In Flanders, recycling levels of 66% are achieved ( the highest for any region in the world); this is coupled with an incineration capacity of 1.1 million tonnes per annum.

*The remaining “others” components of waste which can’t be recycled or composted are more than likely made up of mixed media products of the petro-chemical industry. These are highly toxic when burnt.*

As stated in the footnote to the Table 3 of Attachment H2.1, “Others” mainly consists of composites, fine ash, unclassified incombustibles and classified combustibles including wood waste.

*House holders only contribute 2.6% of Ireland’s waste to the system, if we recycled and composted this would bring the figure down to approximately 1-2% of the national waste. Householders shouldn’t have to bear the environmental/ health damage of an incinerator, when they contribute so a small proportion of the waste stream.*

The recently published EPA document entitled “Environment in Focus 2002” states; “Waste remains one of the most difficult areas of modern environmental management. Despite increasing widespread awareness and concern around the waste issue, almost 2.3 million tonnes of household and commercial waste were generated in Ireland in 2000. This represents an increase of over sixty per cent in five years and is now estimated that almost 600kg of waste is produced by each person in the state each year.

Of the 516,152 tonnes per annum produced in the North East Region (excluding agriculture waste), 104,807 tonnes or approximately 20% of this is household waste (Table 3.1- NEWMP). The proposed waste to energy plant facility will have a nominal capacity of 150,000 tonnes per annum that represents less than 30% of the waste generated in the north east region.

*The incinerator v landfill comparisons illustrate the fact that landfills have been poorly run in Ireland. This can change, and they can be licensed and run properly –if the organic component were taken out of landfill, there would be minimal methane gas production –therefore they would not contribute to greenhouse gases. This should be factored into any components.*

The proposed facility forms part of the integrated waste management policy adopted by the North East Region which includes both thermal treatment and landfill as well as waste reduction and recycling.

*Industrial composters, anaerobic digesters can be used for organic waste (including bonemeal) – the methane they produce can be harnessed and converted to a bio-fuel. This would be a positive energy.*

Composting/ digestion is also part of an integrated waste management policy, this option could treat the organic fraction of the waste. The recovery of energy from such a process would be similar to that of thermal treatment and would have the same standing on the waste hierarchy.

The proposed facility will accept residual waste that will have had the organic or composting fraction removed.

*Non-infective Health Care waste – No monitoring of this type of waste is set out.*

As stated in Attachment E of the application, Non-infective Health Care waste will not be accepted at the community recycling park or materials recycling facility. However, this waste will be accepted for incineration at the waste to energy plant. All incoming waste will be required to meet the requirements of the waste acceptance criteria. As stated in the licence application inspections of incoming waste deliveries will take place for a proportion of vehicles arriving. Any incoming wastes that are found to be unacceptable are removed and placed in a quarantine area before been taken away from the facility.

*No monitoring of any hazardous chemical attached or part of waste streams is allowed for.*

Details of waste acceptance/ handling procedures are included in attachment E3 of the application.

*Indaver will not be sorting residual waste E2.4.*

Table E.2.4. on page 15 of Attachment E2.1 –states that “Indaver will not be sorting residual waste accepted at the Waste to Energy plant. This material should be separated at Source”, thus ensuring a better quality recycle. Also, from a health and safety aspect Indaver Ireland would not expect any employee to sort through incoming “black bags” of rubbish.

Waste Sorting will occur at the Materials Recycling Facility and at the Community Recycling Park.

*With no sorting any unknown quantity of materials can enter the system allowing for the production of unknown emissions which in turn are not looked for or detected.*

The Procedure for accepting waste at the Waste to Energy Plant and Materials Recycling Facility is included as Attachment E3.3 of the licence application. This procedure includes details on the visual inspection of waste.

The proposed facility is for the treatment and disposal of non-hazardous municipal and commercial waste.

*On the grounds of burning unknown quantities of mixed waste this licence should not be granted.*

The waste to energy plant will incinerate only the wastes specified in attachment E2 of the licence application.

*There are no monitoring points in the sorting hall.*

There will be no emissions from the sorting hall of the MRF as this facility will be processing non-hazardous dry recyclable waste.

*There is only one entrance / exit – in the event of any traffic accidents, incidents in the plant, etc. should the entrance be blocked, this would make it impossible for the emergency vehicles to get in and people to get out.*

The site entrance will have two lanes at the entrance/ exit. In addition, there will be a deceleration lane for vehicles approaching the facility from the Duleek direction and a right hand turning lane for vehicles approaching from the Drogheda direction. The road layout has been discussed and approved by Meath Co. Co. and is in accordance with current road safety guidelines.

*A strict decommission date should apply with an allowance for extensions in time or production level.*

A decommission date is not required in the waste licence application form. However, Attachment G1.1 states: "The waste processing facility has a projected life span of a minimum of 20 years. However, this can be extended with maintenance / replacement of items of equipment."

*There should be an aftercare monitoring plan for dioxin levels in the soil, community and milk in the locality. This should be bench marked against the current levels (such an exercise should be undertaken before the plant is licensed).*

Due to the nature of this facility (as no materials will be stored or landfilled on site) there will be no emissions from this facility after cessation of activities and decommissioning, an aftercare plan will not be required.

Baseline dioxin levels have been established as part of the Environmental Impact Assessment, the results of this assessment are included in Attachment 3 of the EIS Attachments.

*An exercise similar to the above should be undertaken for other pollutants Indaver propose to introduce or increase in the locality.*

Baseline air quality, PM10, noise, visual, traffic, soils/hydrogeological, flora & fauna and archaeological surveys were undertaken as part of the EIA, reports on the findings of these assessment were submitted in the EIS for the facility.

*In February 2002 we experienced a 100 year storm on the east coast- the potential for such storms in the future could be higher than anticipated- this plant is prepared only for the 20 year storm.*

Indaver Ireland have contacted Met Eireann regarding the severe flooding caused to the East Coast especially Ringsend, Dublin in February 2002. Met Eireann have confirmed that the principle reason for the flooding was due to exceptionally high spring tides coupled with high on-shore winds, but little rainfall.

The facility will discharge water from the underground water storage tank during a 1 in 20 year storm, however, the amount of water runoff will be less than what would take place without the facility. During a 1 in 50 year storm that facility would have a run off approximately 2.5 litres/ second greater than the current run off. See table below and attachment H9.1 of the licence application.

Rain Event	Runoff from hardstanding area	Natural Runoff	Impact
1 in 20 year	7.57 (l/s)	10.73 (l/s)	-3.16 (l/s)
1 in 50 year	13.29 (l/s)	10.73 (l/s)	2.56 (l/s)



Extreme Rainfall Return Periods for the Duleek area supplied by Met Eireann are attached as Appendix 18.

*The site is in a high limestone area, this is deemed unsuitable in the WHO site selection criteria.*

See Submission 6 – Item 4 above.

*There are many people in the locality on group and single well water schemes, any variation in the water table, or contamination, would have a direct effect on these people.*

Results of draw down tests on the groundwater beneath the site are included in section 8.2.5 of the EIS as submitted. The results show that there will not be a negative affect on the ground water in the area.

*The ash, if left exposed as in the plant in Belgium, is highly transferable through wind and rain to the water systems. This ash is potentially high in heavy metals, dioxin and furans, and is therefore a health risk to people, aquatic systems and animals.*

Details of ash storage and handling have been submitted as Attachment H11 of the licence. All ash storage at the facility will be in doors and not will not be exposed to the elements.

Ash seen in Belgium by members of the “No Incineration Alliance” was in a managed landfill site and was not been “stored” outside the plant.

*The final resting place for the ash (not specified) is stated to be in a licensed landfill in the locality. We’re guessing Kentstown should the superdump be built there. This will be a lined landfill. As stated elsewhere, PVC cracks, tears and wears over time, thus allowing the ash get into solution and into the water systems.*

The ash and residues will be disposed of to a licensed facility. The operation of a licensed landfill will be monitored by agencies such as the EPA in Ireland to ensure that environmental impacts are controlled.

*There was an incident in the US where there was high rainfall, the lined dump acted as a sort of swimming pool (i.e. kept water in), the waste floated around in the water, the water came over the top and spread across the surrounding land. Years later it was realised that this land was highly contaminated. The source of the contamination was isolated to that flooding incident where the landfill when soaked, allowed it’s particulate matter out in solution, thus polluting the surrounding land.*

Indaver Ireland are not proposing to construct a landfill at this site. Any material sent off-site will go to suitable licensed landfill facilities that will be designed, operated and monitored in agreement with the EPA.

*We’ve mentioned previously that any variation in water level could have a negative effect on the Duleek commons.*

The impact on surface water is discussed in attachment H9 of the licence application. The impact will have not have an adverse impact on Duleek Commons.

*We’ve also mentioned that contaminated water, drains into ditches, then into the Nanny, then the Irish sea, already the most contaminated sea in the world. This is unacceptable.*

As discussed above the facility will only discharge rainwater during a 1 in 20 year rainstorm. This water will have passed through oil interceptors prior to entering the tank, ensuring that no hydrocarbons are carried in the stream.

*Indaver have incorrectly ranked the sensitivity of the site with regard to "Coastal wetlands" and "Coastal areas for shellfish and fishing".*

The ranking sensitivity for the proposed site is in accordance with the criteria specified by the WHO guidelines. Many of the criteria specified in the guidelines are obviously designed for landfill sites and the applicability of the criterion to the proposed facility is indicated in Table 2.6 (pg.62) of the EIS.

*In the EIS and waste licence they state that they will utilise an underground water storage tank 1500m cubed for the storage of rain water from 40000 m sq of hard standing. This rainwater will accumulate from roof surfaces and operational access and service areas of the plant. At times of heavy rainfall they can periodically discharge this effluent to a nearby ditch which drains into the river Nanny, this in turn passes through Julianstown and Sonairte (National Ecology Centre) which is adjacent to a large wildlife preservation and wetlands area, and passes onwards to enter the sea at Laytown. Laytown and Bettystown beach is used extensively during the year for coastal trawling.*

As stated previously in this submission the discharge of rainwater from the water tank will occur in a 1 in 20 year storm. The volume of discharge will be less than what would currently run off the site in a similar storm. Only in a 1 in 50 year storm would discharge volumes exceed those from the undeveloped site.

Again it must be emphasised that the discharge will be rainwater that will have passed through interceptors to remove any hydrocarbons, therefore impacts both locally and at sea from these events will be negligible. This rainwater currently enters the surface water system in the locality without oil/petrol interception.

*In reality, this effluent will contain a cocktail of silt, toxic ash and heavy metals from dust accumulations that were washed off roof and paved surfaces (GLC's can accumulate inside site areas from the dispersion model). This in turn will feed into the Nanny system and affect the wetlands and coastal system. The sensitivity of the sites should be ranked.*

The discharged rainwater will not be in contact with ash or residues as this material will be stored inside (see attachment D2). Although the G.L.C.'s for some materials will occur within the site boundary, the deposition of particles on the building's roofs and internal road pavements will be virtually non-existent.

*Noise was flagged during the planning stage as being one of the sensitive areas for non-compliance, especially at night with the background noise of the cement works. These levels exceed those recommended for a rural area.*

Details on the noise limits specified by Meath Co.Co. during the construction period are described in item 27 of Submission 6 above. In addition, Indaver Ireland have carried out a noise modelling exercise based on noise levels from a similar facility in Belgium – this model has shown that noise levels from the facility do not exceed the 55dB(A) daytime or 45dB(A) nighttime limits. A copy of the modelling exercise has been included as part of the EIS – Additional Information submitted with the licence application.

*Ref table 3.1 Daytime and night time noise monitoring results have only been recorded for periods of 30 minutes at each of the monitoring points. This does not give a true representation of a 12 hr period.*

Indaver Ireland commissioned two baseline noise studies for the proposed site. Continuous unattended noise measurement of the existing ambient noise levels over ten 24 hour periods was carried out on site over the period 07/07/2000 to 19/07/2000. In addition as part of the waste licence application a supplementary baseline environmental noise survey was carried out over four 30 minute daytime periods and three 15 minute nighttime periods in February 2001. Details on these surveys are included in Attachment C8 of the licence application and section 5 of the EIS.

*No estimate or extrapolation for noise levels for a power plant was undertaken. This is a serious omission, as the cumulative effect of the 3 plants, plus traffic, could be an area for non-compliance with noise levels.*

The cumulative noise impact from the proposed facility, Platin Cement Works and existing traffic on the R152 were considered as part of the submitted noise survey.

*We didn't notice anything in the submission relating to lighting, where it will be sited, what type, what hours will it be switched on etc. This is a potential source of distress to close neighbours and possibly wildlife (peregrine falcons nesting adjacent to site).* Meath Co. Co. in their notification to grant planning permission have specified the following as Condition No. 19:

“ Prior to commencement of the development the developer shall submit for the written agreement of the Planning Authority, a detailed lighting design and layout on drawing scale 1:1,000 for the lighting of the waste management facility to include all internal roads, storage and hardstanding areas, circulation areas between building and pedestrian walks. Details to accompany the above shall include, inter alia, numbers and type of light fittings, locations and orientation of fittings, wattages and height of lighting standards and a planned maintenance program”.

The proposed lighting is designed to provide for “low light incidence” being visible off site, while providing good quality lighting on site. The lighting design will provide for “zero upward light” thus preventing glows etc from appearing in the area.

A copy of a drawing and accompanying information prepared for Meath Co. Co. in regard to this condition is attached as Appendix 19.

*This is mentioned elsewhere in our submission –it is interesting to note that no mention is made of Duleek Commons, pNHA, in this section, nor the other designated sites in the vicinity.*

Duleek commons is discussed in the Flora and Fauna section of the EIS Attachments also see submission 8 above.

*The EIS for the adjoining Cement Works (2000) has far greater detail regarding the ecology of the area than the one for the proposed incinerator. We therefore question whether this was undertaken to the highest standard.*

The Flora and Fauna study was carried out by Biosphere Environmental Services. This company are full members of the Institute of Ecology & Environmental

Management (IEEM) and Members of the Environmental Sciences Association of Ireland (ESAI). The company specialise in environmental impact assessment and nature conservation related work. Clients include government departments, state agencies as well as commercial and private sectors. In addition, B.E.S. have been independent scientific advisors to the Special Areas of Conservation (SAC) Appeals Board.

The Flora and Fauna study outlines the Study Methodology, the Baseline Environment, Impacts of the proposed development on flora & fauna and the mitigation measures and recommendations.

*There is no mention of the 200+ employees and contractors of Irish Cement Ltd, Platin, who are in the vicinity of area around the clock, all year round.*

The impacts on the human environment have been discussed in Attachment H5 of the licence application. Emissions from the facility will be well within the limits specified in the Incineration Directive 2000/76/EC. These limits are designed to ensure that such facilities do not affect human beings or the environment.

*We have made points regarding site selection elsewhere in the document, many of our points relate to the siting in a limestone area, surrounded by designated limestone reserves (the reason the cement plant got permission to build there); the fact that the area is rural; the fact that we don't agree that this site is the epicentre (geographically or from the point of view of waste arisings) of Louth, Meath, Cavan and Monaghan, and many other reasons.*

The process of site selection and the reasons for the proposed site has been discussed in section 2.10 of the E.I.S. Indaver have not stated the site is geographically central in regard to the four counties of the North East Region. The site selection exercise was carried out over an extended period of time using technical and environmental criteria. The technical criteria included those factors that are seen as essential to the project by Indaver Ireland, namely

- Proximity to centres of waste production- centres of gravity of waste production
- Proximity to transport infrastructure (national roads)
- Proximity to electrical distribution system
- Appropriate zoning/ land use
- Availability of sites

A centre of gravity study in regard to waste arisings was calculated. This is the estimated haul distance to transport all waste from each of the towns to the other. Full details on the centre of gravity study are included in section 2.10.2 of the EIS.

*We find the following statement very difficult to agree with – the reasons have been addressed throughout this and other parts of the submission: ‘the suitability of such sites is generally dependent on the sustainability of the industrial development in terms of its impact on infrastructure, visual amenity, tourism (particularly on the Boyne Valley) and traffic. The sustainability of the development with regard to these and other environmental impacts has been ensured through appropriate design measures.*

Indaver Ireland have undertaken a comprehensive Environmental Impact Assessment for the proposed Facility. The E.I.S. accompanied the planning permission application to Meath Co. Co. – for which additional information was sought and was duly returned- and upon which notification to grant was issued.

The planning decision has been appealed and is currently being processed by An Bord Pleanála.

The EIS and EIS Additional information, plus additional requirements stipulated in the waste licence application are now being processed by the E.P.A.

Therefore, in the event that this proposal successfully passes all stages of planning and licensing, the EIS will have been processed and examined by three independent bodies. It would then be fair to argue that the design measures proposed by Indaver Ireland to mitigate the impacts will be acceptable to these bodies and therefore satisfy the Statutory requirements, EU Directives and all other relevant regulations governing such a development.

*With regard to planning precedents, we believe that the land owners were not granted planning permission to build a house on this land, we therefore find it very difficult to understand how planning permission can be granted by Meath Co. Co. for this proposed development. The inspectors report for Marathon Power Plant stated that this grant should not set a precedent for further industry in the area. The cement Platin works were located there on account of limestone reserves. A planning permission within the proposed area was denied last year for an agri park on grounds that 1) the lands were zoned rural 2) that resources (utilities) couldn't be spared non zoned land, 3) the proposed development wasn't in context with the rural surrounds.*

It is not accurate to compare a planning application for a single house development to a Waste Management Facility required under policy by the North East Region. However, a notification to grant planning permission has been issued by Meath Co. Co., this is currently under appeal to An Bord Pleanála.

The Agri Park was refused permission as it encompassed a significant retail element outside the town of Duleek. Traffic issues raised revolved around site entrance and in that instance the magnitude of the impact was substantially greater than in the current proposal. A further reason for the refusal of the Agri Park was the odour impacts on nearby residents. Finally, the Agri Park was a materially different development and it is misleading to compare it to the current proposal.

*The siting of this development is in contravention to the Meath Development Plan (discussed elsewhere)- but in brief- the development Plan precludes further industrial development in the area.*

Section 2.6.1 of the Meath County Development Plan includes the following principles:

- Encouraging the provision of employment within the county close to housing.
- Concentrating development into those centres that can be economically provided with high quality transport and other services.

- Promotion of relatively compact urban forms with residential densities being increased near town centres and on public transport corridors where a high quality design is proposed.

The Meath County Development Plan (section 3.2.1) discusses Industrial locations as follows:

“ In general such proposals shall be located within the industrially zoned areas of designated development centres. It is accepted that many sites exist in rural areas suitable for industry and industrial expansion. Such locations will be considered where the industry serves adjoining rural communities or is considered to have other locational requirements necessitating a non-central location. Te county council will engage in the development of green field sites outside the development centres to facilitate industrial proposals with specific needs as considered necessary.”

In general, this promotes sustainable urban development principles and encourages suitable nodes for growth. The proposed development does not contravene this policy and is not inconsistent with the principles set out therein.

*Indaver state “Indeed, according to the WHO, modern incinerators may be permitted at distances as low as 300-500 meters from residential areas”. They’re just under the wire in this case, the nearest residential dwelling they list in their application is 400 meters away – we find this very close, is it necessary to take this risk? Ireland doesn’t suffer from a population density issue, therefore why site a facility such as this within such close proximity to houses and a school?*

The WHO pamphlet on Waste incineration (Appendix 5) states: “Modern incineration equipment fitted with air pollution control technology can make waste incineration an environmentally acceptable form of waste treatment which minimises the potential for harm. It can therefore be possible to locate plants near to densely populated areas”.

*In effect, the development (waste to energy plant) is an energy generator- we are unsure as to the negative effects of a mini power plant in our midst, especially as large scale one (sic) is planned for across the road. The issue of force fields, power lines (overground and underground) etc. haven’t been addressed in this application.*

As discussed above, the power generated at the facility will amount to 14MW of which 11MW will be available for export. The emissions from the combustion of the waste have been discussed in detail throughout this document and are included in attachment H1 of the licence application.

In regard to electricity connections, it is expected that the plant will export the power on a 20KV line. These lines are very common throughout the country and normally mounted on wooden poles compared to pylons. In addition, the existing 110 KV line that traverses the site will moved to allow for construction of the plant. As a result, the 110KV line will be further away from the road than it is currently is.

*Up to 60 people were taken to Indaver’s sites in Belgium- we’d be interested to see how many of them felt they would welcome an incinerator. The 12 that went with a group that some of our members joined, were definetly unconvinced, and some, who went out with the idea that incinerator was the “great white hope”, came back sorrily*

*(sic) disappointed. We wonder why this exercise was even undertaken is no account of peoples feedback was taken. Is it merely a PR stunt?*

Indaver Ireland disputes the above submission. Visits to Indaver facilities in Belgium were not confined to Waste to Energy facilities only, indeed most visitors were also given the opportunity to see large scale composting plants, materials recycling facilities and community recycling parks.

To date, over 200 people have now been brought to see such facilities; this includes neighbours, journalists, politicians and other groups. The fact that members of the No Incineration Alliance went on these visits shows that there is no prejudice towards any group that expresses interest in seeing these sites.

The majority of people that went on these trips did so with an open mind and were impressed with how waste is managed on the continent. However, it is Indaver Ireland's opinion that this was not the case with the members of the No Incineration alliance.

Copies of Newspaper articles following these visits are included as Appendix 20.

*The statement regarding property de-valuation is unconvincing.*

In a submission to An Bord Pleanala, Indaver Ireland have stated the following regarding Property Prices.

"In developments of all sizes, types and scales there are short term impacts on adjoining assets and property prices. This is due to the precautionary nature of people to purchase at a time of construction. We would contend that the proposed development affords no actual threat to property prices other than during this period. The perceived belief that there will be long-term negative impact due to the location of the incinerator is based on misinformation regarding its environment effects. We would stress that once the incinerator is operational any impact on property values would be eliminated."

The National Society for Clean Air and Environmental Protection in the UK have issued a document entitled, "The Public Acceptability of Incineration". This document quotes research in North America which has unequivocally shown that: "During the proposal, planning and construction stages for an incinerator (as for any large industrial project) there is a short term impact on property values in the immediate vicinity. Much of this is a result of uncertainty while deliberations continue. Once the facility is operational, property values have been shown to recover."

*WHO Statements-we can bandy these back and forward –there are many WHO statements relating to waste Management –viewed out of context, they can be misinterpreted. Therefore we won't retort with a counter WHO quote –as in this case we believe "the devil can cite scripture to suit himself".*

A full copy of the WHO pamphlet on Waste Incineration is attached as Appendix 5. The World Health Assembly is the supreme decision making body for the WHO. It meets once a year and is attended by delegations from all 191 member states. The Executive Board is composed of 32 members technically qualified in the field of health. Members are elected for three-year terms. The main functions of the board are to give effect to the decisions and policies of the Health Assembly, to advise it and

generally to facilitate it's work. The secretariat of the WHO is staffed by some 3,500 health and other experts and support staff.

*Ireland is not in compliance with the waste hierarchy. Ireland does not have a land scarcity / population density issue. Lomburg in his book The Skeptical Environmentalist advises that "the extent of the necessary landfill are to handle all waste from the US throughput the entire twenty first century: a square less than 18 miles (28km) – this represents less than 0.009 percent of the US area.*

The Government Policy Document on Waste Management entitled "Changing Our Ways" incorporates the Waste Hierarchy principle as the cornerstone objective for the entire policy. In addition the EU Sixth Environmental Program incorporates this policy for the waste management for member states.

The North East Waste Management Plan also adopts the all aspects of the Waste Hierarchy principle, including Recycling and Energy Recovery, both of which are processes in the proposed facility.

*Dioxin emission limits – Indaver are confident that the emissions will be below the EU limits. What about the dioxin in the other outputs (ash, gypsum, AMESA system, etc.)*

Attachment J1.1 – Section 2.4 states " ...a composite sample of each ash (Bottom ash, flue gas cleaning residues, boiler ash and gypsum) will be collected into a sampling container over a period of a week. These samples shall be sent to external consultants for compaction and drying." A list of tests then carried out on these streams is included in table 2.2 of this attachment.

In addition, as discussed above a draft Commission Decision (EWG 02/086) establishing criteria and procedures for the acceptance of waste at landfills pursuant to article 16 and Annex II of the Landfill Directive (91/13/EC) has been issued by the EC. The criteria specified in the final version of this document will be adopted by Indaver in agreement with the agency in establishing the type of landfill required for each waste stream. Currently this draft Decision specifies three types of landfill i.e. Inert, Non-Hazardous and Hazardous. The document also specifies the (leachate test) limit values for waste streams that will define the type of landfill from the three listed.

*C5.1 – the employment figures are from 1996 – the profile of Duleek has changed greatly since then, with the Celtic Tiger, proximity to Dublin, construction of new houses, therefore we question the validity of the figures.*

The employment figures stated in Attachment C5.1 (tables 2.2 and 2.3) are for the years 1999-2000.

The population levels in the area were taken from the 1996 census –the most recent at the time of lodging the application. However, since then, a census has been undertaken and results are now available. A summary of the new population figures are included below. These show that population has increased in the region which is common with most parts of the country and demonstrates the increased demands placed on services such as waste management.



Area	1996	2002	Change
Duleek	2,434	2,934	+500
St. Marys	3,529	5,459	+1,930
Drogheda	25,282	28,308	+3,026

*The issue of “modern” incineration-these have a life span of 20 –25 years. Cars, Computers, televisions etc are modern for how long? Sony launch approximately 250 new products / year- all of which are modern – but for how long? It is very easy to blame all incineration contamination on “old” incinerators –but will the mass burn grate incinerators proposed here be “old” before it is built?*

The proposed Waste to Energy Plant for Carranstown will incorporate technology that will enable the plant to operate not only within the parameters laid down by the latest Directive on Waste Incineration - but well below the limits specified therein.

The conditions specified in this directive not only relate to the emission levels from the stack, but also relate to the operating conditions at the combustion stage. The plant will be controlled by a D.C.S. (Distributed Control System) computer system – which will provide leading edge performance in plant operation. Such systems are now in operation in most pharmaceutical, chemical and hydrocarbon industries –where precise process parameters are required.

It has been stated in the European Dioxin Inventory that if all incineration plants comply with the new Incineration Directive 2000/76/EC, that the contribution of dioxins from incineration plants will amount to just 1% of the total produced.

*A “modern” incinerator has gone into receivership in Scotland (Baldovie – Dundee) – this STG£42 million project was never fully operational since it’s launch 2 years ago. The reasons are technological problems, 2 major fires, public dissatisfaction. The plant was commissioned when Dundee Council were forced to close down the “older” incinerator in 1996 on account of non-compliance with pollution legislation. This is just one example of many scenarios that we have learnt about around the world. Unfortunately, there is no record of the amount of incinerators that close, that never get opened, that are refused licences. This information would be useful for creating a balanced case on why and where incinerators are sited and licensed.*

Indaver Ireland has contacted the Scottish Environmental Protection Agency (ph. 0044 1241 874370) and has been informed that the 120,000 tonne per annum municipal and clinical waste incinerator at Baldovie is in full operation. This plant did have three fires in the waste storage bunker and was required to close for repair works in September 1999. The fires were caused due to the incorrect handling and storage of the waste as compared to the any problems arising from the incineration process itself.

The above submission is correct in that Dundee Council did close and demolish their old incineration because it could not meet the new air emission limits.

*With regard to animals being destroyed or produce un-saleable on account of elevated dioxin levels in the vicinity of incinerators- there have been incidents, as recent as 2001 in France –as reported in the Jan 22 Dairy Newsletter- Indaver are obviously choosing to classify these incinerators as been “older”, therefore aren't reporting the issue.*

The dioxin reduction program in France has required many of the older incineration plants to upgrade the gas cleaning or to close entirely, such as the plant in Albertville. However, these plants are been replaced by modern facilities with increased capacity.

*February's Irish Times (2002) carried stories regarding the “full scale investigation has been launched by the Minister for Agriculture, Mr. Walsh, following the discovery yesterday of one tonne of dioxin-contaminated cattle compound. The Dept said that as yet it did not know the source of the material. Dioxins have major public health implications because they can build up in the body if ingested in meat and cause cancers. The EU Rapid Response team has advised. This illustrates the seriousness of allowing these toxins into our system. We therefore contend that we shouldn't add to Ireland's minute amounts of dioxin, by introducing a known dioxin producing industry.*

A copy of the Article referred to above is attached as Appendix 21. The article refers to dioxin contamination in United States exported cattle feed pre-mix (carbosan copper). Indaver Ireland have contacted the Dept. of Agriculture regarding this matter, they do not know they origin of the dioxins, however the material is still prohibited to enter Ireland until the American authorities are satisfied that the material is dioxin free.

In Belgium over 3 billion dollars worth of damage was caused to the food industry following the deliberate mixture of dioxin-like PCB's with animal foodstuffs. Incineration was used to dispose of the contaminated material that arose during this episode. Indaver's incineration plants were used for the destruction of this material. Dioxin levels in the vicinity were monitored throughout this process and there was no increase in levels recorded.

*Incinerators in Ireland- the ones we have currently are all specific to industry – they are not municipal waste incinerators – this fact isn't clear from their statement.*

The proposed waste to energy plant will also be specific, in that it will only accept non-hazardous municipal and commercial waste. The performance of the proposed plant have been discussed in detail above.

The significance of the highlighting that there are currently 6 waste incinerator sites in Ireland (some sites having more than one plant) was to demonstrate that dioxin levels in Ireland are falling while these plants were in operation. These plants are currently incinerating both liquid and solid hazardous waste streams.

*With regard to emissions in this section-there is no mention of ash and it's clear potential impact in an agricultural area, this is a serious omission.*

Solid waste impacts are discussed in Attachment H11 of the licence application. Ash will not be disposed of in agricultural lands but in properly licensed landfill sites.

*If such a facility is in operation in Belgium – why is there a query regarding whether boiler ash is required to be solidified or not?*

The waste input will determine whether the boiler ash will be hazardous or not- this will therefore lead to the type of landfill requirement. It is items such as batteries, fluorescent tubes and thermometers that when placed into the waste stream cause the boiler ash and residues to become hazardous.

*Solidification plant – why is it not definite whether this will be on site- or whether toxic ash is going to be transported around the country in covered wagons in a loose state?*

As stated previously the ashes are not considered hazardous for transport. All vehicles leaving the facility will be covered to prevent any loss during transfer. Indaver Ireland have stated in Attachment H11.1 –“The boiler ash may require solidification prior to landfill. This will be dependant on the composition of the ash.”

*39,000 (approx) tonne of waste material which will require special handling is a huge amount of potential hazardous waste to create as a by-product from otherwise largely stable, non-hazardous material. This is a huge toxic burden to foist on the people of Ireland.*

As stated in the application the bulk of the waste arising will be Bottom ash – approx 30,000 tonnes / annum. This material is inert and can be either reused in the construction industry or sent to a non hazardous landfill.

The boiler ash may be sent to non-hazardous / hazardous landfill depending on the chemical composition.

The flue gas cleaning residues will require hazardous waste landfill for approx 3,500 –5,000 tonnes/ annum, however the gypsum if not reused can be sent to non hazardous landfill.

As stated previously above the hazardous waste nature of this waste is as a result of members of the community placing items such as batteries, fluorescent tubes etc. in the waste stream. It may be noted that this type of material is currently going to non hazardous landfill (with the possibility of leaching) and therefore cannot be considered a stable / non-hazardous material as stated above. It is important to remove this waste stream from the residual waste stream, however, the proposed waste to energy facility will be capable of safely disposing of such materials.

*Table 1.4 –Other Waste produced at the Waste Management- Annual Production – each category starts with “it is extremely difficult to product(sic) the quantities that will be produced” – as Indaver have already stated that they expect a high level of homogeneity in the matter, and also that they are basing a lot of their calculations and assertions on their experience in Belgium, it is difficult to understand how they can’t offer a better indication of the volumes than –“however, it is expected that only small quantities will arise”.*

A detailed breakdown of the tonnages of waste to be produced at the plant are listed in table 1.1 of Attachment H11.1. The exact quantities of ash and residues to be produced at the facility will be defined when the waste is disposed at the plant, this is due to the fact the municipal waste incineration has not taken place in Ireland

previously. However, the figures supplied are based on Indaver's experience of operating similar plants in Belgium.

*Bottom ash –at the moment there is no market for bottom ash in Ireland, if there was, we'd guess that maybe the ESB would have discovered and exploited it. The suggestion that the ash can be used in road building or construction should be discounted. As evidenced from the Byker, Newcastle incident, and others, exposing people, without their knowledge, to potentially toxic substrates is unacceptable. Also the issue of erosion (as all Irish roads erode over time) would lead to contamination. The reuse of bottom ash in the construction industry is common practise throughout countries that operate waste to energy facilities. A copy of a licence issued by the Flemish authorities to Indaver permitting the reuse of this material is attached as Appendix.3*

The incident referred to above regarding the Byker controversy involved the mixing of bottom ash with the hazardous residues from the facility, and reusing this material in construction. In Belgium, Indaver only recover the bottom ash for recovery. As can be seen from the licence application, the ash streams from the facility will be kept separate from each other at all stages of the process.

This material will be a new material in Ireland and it's use in the construction industry will require to be established.

*We still contend that incineration could become a treat to recycling – if Ireland ever gets to a stage where we start recycling to the extent of our continental peers. Indaver is only one of the incineration companies lying in the long grass, we have been advised of the Herhof one proposed 8 miles south of the site, the Ringsend one for 300,000 tones, a further proposed one for 60,000 tonnes in the Boyne Valley, approx. 6 miles north of the proposed incinerator site. Therefore, there will be a glut of contractors looking for waste. This is a huge disincentive to reduction, diversion, recycling, reuse and composting. Again, we think the incineration route is premature fro Ireland, until we get a proper picture of whether the Renmore (>50% diversion) example can be mirrored throughout Ireland.*

The proposed facility is in accordance with the North East waste management plan as discussed in response to Submissions 6 & 16 above. The waste management plan for the region states that a thermal treatment plant will be required with a capacity of between 150,000 tonnes and 200,000 tones per annum.

*Quality Management System- This is fantastic on paper –we query objectivity and policing though it is very much a self-regulatory procedure.*

The Environmental Management system operated by Minchem and Indaver ensures the company operate in total compliance with all regulatory bodies involved in the companies activities.

Operating such a system ensures that activities set down in waste licences / permits become documented procedures, thus all concerned are aware of their responsibilities in regard to compliance. It also ensures continuous ongoing improvement through a program of environmental objectives and targets.

The Environmental Management System is accredited by S.G.S.- an independent company, who audit the system on a 6 monthly basis to ensure the high standard of

the system is maintained. In addition, the EPA will also audit the performance of the facility on an ongoing basis.

*Would it be possible to have visibility of these internal audits and continuous monitoring?*

Results of audits by bodies such as the EPA will be on the public file. In addition, all emission monitoring results will be forwarded to the agency at a frequency to be specified in the licence and will be made available by Indaver Ireland to all interested parties.

*Would it be possible to have an Internet site with real data of readings, flagging exceptions, which people could log in to to feel assured as to the compliance of the plant standards?*

Results of all analysis will be forwarded to the agency and will be made available to interested groups in the area.

*Do the continuous monitoring of all pollutants give real time data-or; is it up to 6 weeks later, as with the AMESA system?*

Continuous monitoring will provide real time information regarding the specific components been analysed for e.g. Carbon dioxide, oxygen, dust and temperature.

*Is external calibration verification on an annual basis sufficient?*

All instruments requiring calibration will be done so according to manufacturers recommendations. This may be as often as weekly or monthly, or also may be yearly. The calibration frequency will not be determined by Indaver but by the manufacturers instructions, all monitoring and recording instrumentation will be calibrated by external sources.

*Sampling of solid residue – is there a window for distortion or smoothing if a composite sample of bottom ash, flue gas cleaning residues, boiler ash and gypsum are taken on a weekly basis for analysis?*

Composite samples are a representation of a (waste) stream, taking smaller quantities to allow for analysis. The samples of ash sampled over a week will represent that particular week and will indicate the average level of substances contained therein.

*Trade effluent- the waste licence does not detail how water used for the purpose of the following will be disposed of; Cleaning of floors, heat exchanger surfaces, vessels after de-sludging and cleaning or scrubber systems.*

All process waters generated will be recycled in the evaporating spray tower in the waste to energy plant.

### **Submission 23: No Incineration Alliance - 24th May 2002**

*Aftercare Management Plan not required –Why not?*

See submission response to No incineration Alliance pg.46 above.

*Combustion-Disposal of residual ash to construction industry or non-hazardous landfill. No such industry in Ireland.*

The application has stated that the bottom ash will be suitable for recycling in the construction industry, however in the absence of such an outlet this material will be sent to non-hazardous landfill.

*Air Discharge – 40m stack; inhaled intake of dioxins in the immediate vicinity of site cannot be confirmed.*

It is presumed that this statement relates to the dioxin intake report attached as H1.3. As stated in the report this a theoretical model to predict the maximum intake of dioxins through inhalation at the location of maximum ground level concentrations.

*Climate- SO<sub>2</sub>, NO<sub>x</sub> and CO” emissions- the facts are not sustainable.*

The proposed emissions from the waste to energy facility are sustainable and compliance with the incineration directive will be a minimum requirement for the plant.

In relation to the affects on climate, the comparison has been made to current power station emission values in Ireland. This comparison shows that the proposed plant will produce less NO<sub>2</sub> and SO<sub>2</sub> per unit of electricity than current installations.

In addition, the plant will produce less CO<sub>2</sub> emissions than landfilling the same amount of material.

*Surface water – spillages will no doubt occur and the possibility of ground water contamination cannot be ruled out.*

The only liquid effluent discharge that will occur will be to the surface water, this will occur only during a 1 in 20 year storm. The impact of this discharge has been discussed above.

*Traffic-no doubt there will be additional traffic. At minimum additional access/egress should be constructed in the event of an emergency at the plant.*

See response to the No Incineration alliance submission above. In addition, a fire certificate will be required for the facility prior to construction, the emergency access/egress will be examined by the fire officer at this stage.

*Cessation of the activity-Indaver undertake to return the site to satisfactory state. This would be practically impossible bearing in mind the activity.*

Attachment G.1 of the licence application details the Decommissioning strategy for the proposed site.

*Waste to Energy Plant- Technology is proven/ reliable. Not backed up by facts. Look at plant closures.*

See page 5 above.

*Emissions (D2.1- pg.20) - bottom ash only and disposal. This may not be correct and is not backed up facts.*

This section relates to the operation of the furnace and states that bottom ash is the only emission. For a full overview of the solid emissions, please see Attachment H11.

*Abnormal Situations(D2.1 –pg25) – Abnormal situations – Boiler tube leaks consequences. We are faced here with a “what if” scenario that could have detrimental effects.*

The consequences of a boiler tube leak – i.e. an emergency shutdown is discussed in the section quoted.

*Abnormal Situations (D2.1 –pg42) – Removal of SO2.*

Indaver Ireland are unsure as to the nature of this comment.

*Emissions(D2.1 –pg47) –List of same-safe? Again, Indaver makes a claim which is not substantiated or at least unconvincing.*

Indaver Ireland states “the typical emission concentrations from the stack, along with relevant EU limit values. The expected emissions from the stack are well below the new EU limits as set in Directive 2000/76/EU.”

*Bird Control- Not Necessary during operation of plant? – why not?*

There will be no waste exposed on site or available for birds as a food source.

*Dust Control- Minor during construction? From experience of construction work this is untrue.*

See submission 6- Item 27 above.

*Dioxin Inhalation compared to milk in Meath /Dub areas. Again, has any independent study been carried out to back up this serious claim?*

This study has been carried out by AWN Consulting Ltd, who were commissioned by Indaver Ireland. The figures discussed in this report are open to any party for challenge.

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6<sup>th</sup> December 2001

Dear ,

As you are aware Indaver Ireland received planning permission to build a waste management facility in Carranstown, County Meath earlier this year. The permission is currently under appeal to An Bord Pleanála.

On the 5<sup>th</sup> of December 2001, Indaver applied to the Environmental Protection Agency for a licence to operate this facility. They will consider the application in the coming months, during which time they can request further information regarding the operation of the facility.

The following documents have been submitted as part of this Waste Licence Application:

- ☞ Non-technical Summary of the Waste Licence Application – a 35 page document which provides an outline of the waste application, disposal/recovery activities proposed at the site, how these will be operated and all environmental issues.
- ☞ Waste Licence Application – a comprehensive report, published in two large volumes, which includes the application form, details of recovery/disposal activities proposed, and twelve separate attachments which provide in-depth information on existing local environment and environmental control & monitoring, site design, waste acceptance and handling and site management.

If you would like a Non-technical Summary of the Application or the full Waste Licence Application contact us on [info@indaver.ie](mailto:info@indaver.ie) or FreeFone Number 1800 200646.

Yours sincerely,

*Jackie Keaney*

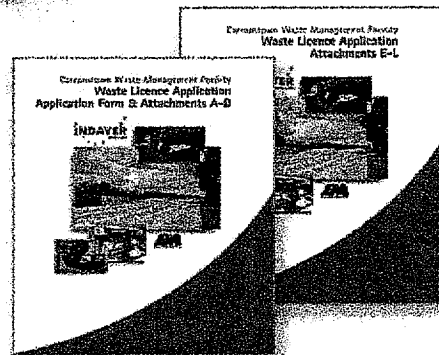
Jackie Keaney  
Communications Manager



# Indaver Waste Licence Application



- ▶ Indaver Ireland has submitted a detailed Waste Licence Application to the Environmental Protection Agency for the operation of a waste management facility at Carranstown, Co Meath.
- ▶ A Non-technical Summary of this application has been made available on our website – [www.indaver.ie](http://www.indaver.ie)
- ▶ For a copy of the Non-technical Summary or the full Waste Licence Application contact us on FreeFone 1800 200 646 or by e-mail at [info@indaver.ie](mailto:info@indaver.ie)



**INDAVER**  
■ IRELAND

**CERTIFICATE OF USE**  
(VLAREA 17.12.1997)

Public Waste Company for the Flemish Region  
Kan. De Deckerstraat 22 – 26  
2800 MECHELEN  
Tel. 015 28.42.84  
Fax 015 28.41.64

FILE NUMBER: BOU-09-90.003/C422

HOLDER:

Indaver NV  
Poldervlietweg  
2030 Antwerp

SCOPE OF USE:

In or as an unformed building material

NAME OF SECONDARY RAW MATERIAL:

Pre-treated soil ash originating from domestic waste incineration facilities.

NATURE, COMPOSITION AND ORIGIN OF SECONDARY RAW MATERIAL:

Sorted and washed granulated soil ash originating from domestic waste incineration facilities.

The granulates are sorted to ensure that they comply with the VLAREA standards concerning leaching. The granulometry of the granulates to be used as building material is determined by the manner in which the sorted granulates are broken further, if at all, and may vary from 0 to 50 mm.

CONDITIONS OF USE:

The granulates can be used as an unformed building material in an approved building work, and specifically for use in sub-foundations of roads or other constructions.

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In a second life, the granulates can again be used in similar applications. It is merely necessary to prevent them from being mixed with the soil and functioning as a soil substrate.

The granulates meet the applicable VLAREA criteria, particularly the applicable leaching criteria. In accordance with VLAREA, they can therefore be used without problem in application heights up to 70 cm, without jeopardising surrounding soil quality, even in the longer term. Temporary exposure to precipitation during the works therefore poses no problem. Any spreading of dust by wind or similar means must, however, be prevented.

For higher application levels, contact must first be made with the manufacturer, who must give approval for them.

Because of the partial fine-grained structure and possible mixing with the soil, the granulates are unsuitable for surface hardenings or any fillings and levelling up where the granulates do not have sufficient physical protection against mixing with the soil.

TERM:

The certificate of use is valid from 16 March 2000 – 15 March 2005.

Issued in Mechelen on 16 March 2000.

[Signed]

Luc Beeckmans  
Director

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# GEBRUIKSCERTIFICAAT (VLAREA 17.12.1997)



OPENBARE  
AFVALSTOFFENMAATSCHAPPIJ  
VOOR HET VLAAMSE GEWEST

Kan. De Deckerstraat 22 - 26  
2800 MECHELEN

Tel. 015/28.42.84  
Fax 015/28.41.54

**DOSSIERNUMMER : BOU-09-90.003/C422**

**HOUDER :**

Indaver NV  
Poldervlietweg  
2030 Antwerpen

**GEBRUIKSGBIED :**

in of als niet-vormgegeven bouwstof

**NAAM SECUNDAIRE GRONDSTOF :**

voorbehandelde bodemas afkomstig van verbrandingsinstallaties voor huishoudelijke afvalstoffen

**AARD, SAMENSTELLING EN HERKOMST SECUNDAIRE GRONDSTOF :**

Uitgesorteerde en gewassen bodemas-granulaten afkomstig van verbrandings-installaties voor huishoudelijke afvalstoffen

De granulaten zijn dermate uitgesorteerd dat ze inzake uitloging voldoen aan de Vlarea-normen. De granulometrie van de als bouwstof te gebruiken granulaten wordt bepaald door de wijze waarop de uitgesorteerde granulaten al dan niet verder worden gebroken en kan variëren tussen 0 en 50 mm.

**VOORWAARDEN VOOR GEBRUIK :**

De granulaten kunnen gebruikt worden als niet-vormgegeven bouwstof in een goedgekeurd bouwwerk, meer bepaald voor gebruik in onderfunderingen van wegen of andere constructies.

In een tweede leven kunnen de granulaten opnieuw in dergelijke toepassingen worden gebruikt. Er moet enkel worden voorkomen dat ze met de bodem worden vermengd en als bodemsubstraat zouden fungeren.

De granulaten voldoen aan de geldende Vlarea-criteria, meer in het bijzonder aan de geldende uitloogcriteria. Conform Vlarea kunnen ze bijgevolg zonder probleem worden toegepast in toepassingshoogtes tot 70 cm, zonder dat de kwaliteit van de omgevende bodem in het gedrang komt, ook niet op langere termijn. Tijdelijke blootstelling aan neerslag tijdens de werken geeft bijgevolg geen probleem. Eventuele stofverspreiding door wind of dergelijke moet wel worden voorkomen.

Voor grotere toepassingshoogten moet vooraf contact worden genomen met de producent die daarvoor zijn goedkeuring moet geven.

Omwille van de gedeeltelijk fijnkorrelige structuur en de mogelijke vermenging met de bodem zijn de granulaten niet geschikt voor oppervlakteverhardingen of allerlei aanvullingen en ophogingen waarbij de granulaten niet afdoende fysisch worden afgeschermd tegen vermenging met de bodem.

TERMIJN :

Het gebruikscertificaat is geldig van : 16 maart 2000 tot 15 maart 2005

Afgeleverd te Mechelen, 16 maart 2000

Luc Beeckmans  
directeur

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Appendix 4: Indaver Ireland's submission to the Health  
Research Board on Waste Management Practises in Ireland is  
attached as a Separate Document

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