

Consideration by the Health Service Executive's Environmental Health Service, South Lee, of the Environmental Impact Statement for the Proposed Waste to Energy Facility at Ringaskiddy, Co. Cork

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Introduction

This report considers the Environmental Impact Statement (EIS) that accompanied an application by Indaver Ireland for permission to construct a waste to Energy (WTE) facility at Ringaskiddy, Co. Cork.

The Environmental Health Service (EHS) was asked to make a submission as part of the scoping process for the Environmental Impact Assessment (EIA) that resulted in the current EIS. Recommendations of what should be included in the EIA were made to Indaver and a subsequent meeting was held on the 4th November 2008 between Indaver and the EHS to clarify issues raised in the scoping report (see copy attached entitled "Extract of Recommendations from Scoping Report").

Assessment of the EIS

The scoping report prepared by the EHS made 9 recommendations on areas that should be assessed as part of the EIA.

This assessment of the EIS was carried out by considering each recommendation from the scoping report under the following criteria:

1. If the recommended assessment had been undertaken in the EIA and included in the EIS,
2. If the recommended assessment was adequately and accurately carried out using recognised standards and methodology,
3. If the recommended assessment clearly identified impacts and mitigation measures.

Recommendation 1

That a report is provided of the scoping process that clearly identifies who was involved in scoping the EIA/HIA and the decision making process undertaken when considering submissions and deciding what should, or should not, be included in the EIA/HIA. It is further recommended that the evaluation process of local waste strategies and the requirements of other waste producers, a pre-requisite for the application identified by the applicant, is included in this report.

The consultation process undertaken is clearly identified in the EIS with lists of bodies consulted and details of public participation and information.

The EIS only identifies issues raised during the process in general terms as: Human Health and Safety, Air Quality, Landscape and Visual Amenity and Traffic. There is no identification of more specific issues or the decision making processes of what should or should not be included in the EIA and no direct responses to issues identified during the consultation.

Whilst the EIA meets the statutory requirements for the public and prescribed consultation, the recommendation was made to try and create a wider local ownership of the proposal and to prevent future complaints if planning permission is granted.

The recommendation for inclusion of local waste strategies has been included in the EIS.

Recommendation 2

That there is inclusion of meaningful public participation in the scoping process and the subsequent EIA/HIA. This should clearly show how submissions from the public have been assimilated into decisions. Feed back should be provided about actions taken and how the public influenced the decisions.

Some of this is covered above in the comments in relation to recommendation 1.

Human Beings

In the Section on Human Beings (7), the applicants state that they consulted with a number of parties including “the general public at the initial announcement”(1.4.4). In the opinion of the EHS this does not meet with our recommendation at the scoping stage for “meaningful public participation”.

It is stated that the Employment Health Advisers undertook a “health impact assessment of the potential effect on human health...”. The accompanying report clearly considered two methodologies for assessing the effects on human health (a) an environmental baseline assessment & (b) a human health baseline assessment which would have “formed the basis for a complete Health Impact Assessment”. The difficulties of undertaking a human baseline assessment are discussed therein and the company opted to undertake an environmental baseline assessment, not a Health Impact Assessment.

The impact of increased construction and operation traffic on the local community has been assessed in Section 8 Roads and Traffic. Mitigation measures proposed include restrictions on traffic associated with the proposed facility at peak times.

Recommendation 3

That there is an assessment in the EIA/HIA of the predicted impact of noise and vibration, dust generation, waste generation, and the impact on surface water during the construction of the plant.

NOISE

The noise and vibration impacts are covered in Section 11 of the EIS.

The EHS used the following for reference in considering this section:

British Standard BS 5228 (1992) Noise control on construction and open sites, Part 4

British Standard BS 5228 (1996) Noise and vibration control on construction and open sites, Part 1.

ISO 1996-1987 Description and measurement of environmental noise, Part 1: basic quantities and procedures.

British Standard BS 7385 (1993) Evaluation and measurement for vibration in buildings Part 2.

WHO Environmental Health Criteria 12 – Noise

The EHS would be satisfied that the predicted impacts follow standard methodology and the mitigation measure identified follow recognised standards and good practice.

DUST

The dust generation is covered in Section 9 of the EIS

A dust minimisation plan is to be formulated for the construction phase and implemented to prevent a dust nuisance.

The plan follows standard mitigation methods. One omission in the plan is the identification of a responsible person who can be contacted by members of the public experiencing nuisance from dust. This person should keep a record of complaints received and action taken to abate any nuisance.

Waste generation during construction phase is covered in Section 5 of the EIS

The EIS identifies a waste management plan to be implemented during the construction phase. This plan was assessed against the Construction Industry Research and Information Association (CIRIA) (2005) document: *Environmental Good Practice on Site*. The plan follows the model plan identified in that document.

SURFACE WATER

Impact on surface water during construction phase is covered in Section 5 of the EIS.

The main guidance for protection of surface and ground water during construction activities is the CIRIA publication: *Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors*.

The EIS states that this guidance will be followed during the construction phase and details some of the measures to be taken. The practices identified in the guidance would be considered at the highest level of good practice for the protection of ground and surface water during construction activity.

Recommendation 4

That there is an assessment that the proposed plant meets the requirements of Directive 2000/76/EC in its operation and design. This should include the delivery and reception of waste, operating conditions, air emission limit values, discharges to waters, residues, controlling and monitoring and abnormal operating conditions.

A full assessment of the plant operation and design was carried out by the EHS against EC Directive 2000/76/EC. Section 4 of the EIS details design and operation of the proposed plant. The EHS placed Particular emphasis in it's consideration on the process control under the premise that the final impacts are dependant on the process being carried out according to design and operation specifications and these will only be accurate if the process is controlled effectively. The following areas were considered/assessed:

- a) Main Process Building
- b) Turbine Hall
- c) Service Yard
- d) Tank farm
- e) Security Building
- f) Laboratory
- g) Tanker unloading bays and truck loading bays for ash and residues
- h) Tanker sampling bays
- i) Fire water storage tanks and pump house
- j) Storm water retention
- k) Weigh bridges
- l) Radioactive detector
- m) Pipe rack
- n) Nitrogen generator
- o) Fuel oil storage tank
- p) Electrical compound
- q) Emergency access
- r) Public footpath
- s) Effluent pipeline

It is the opinion of the EHS that the design and operating conditions, as proposed, have been drawn up in accordance with the relevant standard. Consideration has also been given to abnormal operating conditions.

Further assessment was made of the following:

- a) Waste Transfer Station
- b) General Operation of the Waste to Energy Plant; including operating hours, design of the moving grate line and fluidised bed and post combustion chamber and the designed operating conditions.

- c) Processes; including waste acceptance, handling and storage for both solid and liquid, furnace lines including fluidised bed incineration, post combustion chamber and the moving grate furnace.
- d) Process Control for the above.
- e) Process Emissions (excluding stack emissions); including Nitrogen Oxides.
- f) Energy Recovery
- g) Flue Gas Treatment (currently two different options under consideration) including plume abatement and discharge. Emission Monitoring: part of the EPA license (and 2000/76/EC) where following will be continuous monitored: total dust, TOC, HCL, SO₂, NO_x, CO, temperature and O₂. Regular monitoring of heavy metals. Continual monitoring of Dioxin to be carried out with 14 day results (not required under 2000/76/EC).
- h) Process Outputs: including bottom ash, boiler ash and flue gas cleaning residues.
- i) Secondary Processes and Activities; including emergency generator, process effluent treatment, storm water retention and monitoring.
- j) Site Management and Health and Safety.
- k) 96/82/EC (Major Accident Hazards)

Recommendation 5

That there is an assessment on the impact of air emissions when operating the plant on the receiving environment; including a cumulative assessment and a baseline air quality assessment. Particularly the impact of NO_x emissions.

This is covered in Section 9 of the EIS. The scope of this assessment was:

- a) A review of the maximum emission levels,
- b) Identification of substances released,
- c) Background air quality,
- d) Air dispersion modelling,
- e) Particulate deposition modelling,
- f) Predicted ground level concentrations at site boundary and sensitive receptors,
- g) Cumulative assessment including from other industry in the area,
- h) Significance of predicted levels,
- i) Other air quality impacts including dust from construction and operation activities.

EHS response to predictions of air emissions

Methodology was standard practice and is discussed in detail in the EIS:

USEPA (2005) Guidelines on Air Quality Models

USEPA (2004) Estimating Exposure to Dioxin-Like Compounds

USEPA (2005) Human Health Risk Assessment Protocol. Air Dispersion and Deposition Modelling.

Environmental Agency (2003) IPPC H1 Environmental Assessment and Appraisal of BAT

EC (2001) 2001/81/EC Relating to National Emission Ceiling for Certain Atmospheric Pollutants.

Directive 2000/76/EC.

The modelling results indicate the following (using air quality standards for protection of human health): The percentage of maximum levels include background concentrations)

NO₂ and NO_x: ground level concentrations (glc) worst case 45% of levels for protection of human health.

SO₂, CO, PM₁₀, PM_{2.5}: glc worst case 10-33% of level for protection of human health.

TOC,HCL, HF: glc worst case 18-31% for TOC and HCL and 42% of levels for HF for protection of human health.

Dioxins/Furans: (no recognised air quality level or deposition level). Worst case facility contributing to 5% of existing levels.

PAHs: glc worst case 23% of EU annual average target.

Hg: glc worst case 4% of annual average limit value.

Cd and Tl: Emission level of 74% of EU annual target for protection of human health.

Heavy Metals: between 33 and 63% of maximum limit at worst case receptor.

It must be noted that the 'worst case' receptor for the above calculations include abnormal working conditions of the plant.

The predicted levels for air emissions do not exceed any levels identified in 2000/76/EC either under normal operating conditions or operating under abnormal conditions.

Recommendation 6

That there is an assessment of the risk to human health, using standard methodology, of Dioxin and Furan emissions during operation of the plant to include a cumulative impact of background and process emissions.

The EIS comprehensively covers this in Section 7. The conclusion from the EIS is that there will be no significant impact on dioxin and furan up take from the proposal. There is no ambient air quality standard or deposition standard for dioxin/furans and in the absence of such standards the EIS has predicted a cumulative impact of background and process contribution. These have then been compared to ambient levels determined nationally and internationally. A risk assessment to human health was carried out by determining the impact as a daily intake to a Maximum At Risk Individual (MARI). The MARI was 0.3 pg I-TEQ/Kg of body weight per day. The current WHO Tolerable Daily Intake is 1-4 I-TEQ/Kg of body weight per day. The EPA considers the MARI calculation to be conservative with likely exposure significantly below this level.

The risk assessment methodology is based on the recommendations of WHO and the US Environmental Protection Agency and would be considered appropriate. The basis being that the MARI is calculated for an individual who lives at the point of maximum deposition, and obtains all their food from this location and should therefore be the worst case scenario.

Recommendation 7

That there is an assessment of the impact of the operation of the plant on surface water.

This is covered in Section 14 of the EIS.

Surface water is to be collected in underground drainage systems that comply with Building Regulations 1997, BS EN 752-4 and BS 6367.

Storage tanks will comply with BS8007. All tanks are to be tested to the satisfaction of the EPA.

The waste bunker and floor of the waste transfer drain to a sump where it will be tested for pollution prior to discharge.

Hydrocarbon inceptors are to be placed on surface water lines draining car parking areas.

There will be no direct discharge to ground water during operation. Surface water will be collected and reused or discharged to the storm water drain if tested as pollution free.

Run off from fire fighting will be collected in storm water retention tanks.

Recommendation 8

That there is an assessment of the impact of solid waste generation during the operation of the plant. To include the storage and transportation of waste together with mitigation to prevent dust blows and impacts from spills.

This is covered in Section 4 of the EIS.

There are three identified solid waste residues:

Bottom Ash

Boiler Ash

Flue Gas Cleaning Residues

Classification of the solid waste is to be made under the EU Waste Catalogue (Directive 91/689/EEC)

Detailed plans are included in the EIS to address storage, transportation and potential public health nuisances from dust blows and spillages.

Recommendation 9

That there is an assessment of the impact of noise during operation of the plant with particular reference to noise sensitive locations and the effect of plant operation and increased traffic movement on these locations.

Noise generation during operation is covered in Section 11 of the EIS. There is no adverse impact predicted.

The predicted impact from noise during operation is from building services and process plant, vehicle movement on site and vehicle movement on public roads.

Standards used in considering the EIS predictions were:

ISO 1996-1987 Description and measurement of environmental noise, Part 1: basic quantities and procedures

Dept Transport HMSO (1988) Calculations of road traffic noise

ISO 9613 (1996) Acoustics – Attenuation of sound during propagation outdoors, Part 2: General Method of calculation.

CONSTRUCTION ACTIVITIES

OUTSIDE NORMAL HOURS ACTIVITY

The EIS references outside normal hours activity during the construction process in both the Non-Technical Summary and in Section 5 Construction Activities. Accurate information should be provided to the nearby residential community in Ringaskiddy via a designated liaison person when it becomes apparent that outside normal hours work is necessary. The EHS recommended that outside normal hours activity should happen only when it is critical to carry out certain works and should not become a regular occurrence.

PEST CONTROL

The construction phase will involve major earthworks excavation and this could result in a risk of infestation of mice or rats for the National Maritime College situated opposite. The EIS in Section 5 Construction Mitigation Measures states that the construction environmental plan will have regard to the guidance contained in the publication Environmental Good Practice on Site CIRIA 2005. The EHS recommend that this should include a pest control plan with scheduled regular inspection.

Conclusion

The EHS made 9 recommendations for inclusion in the EIA in a submission at the scoping stage of the proposal for a waste to energy facility at Ringaskiddy, Co. Cork.

These recommendations have been included in the EIA and the subsequent EIS by the applicant.

The adequacy of the EIA and mitigation of impacts with regard to these nine areas have been assessed by the EHS and found to be satisfactory with one exception.

It is the opinion of the EHS that the only recommendation that has not been adequately addressed is the development of the public participation stage of the process to a visibly meaningful level (recommendation 1). This is not to say that the applicant has not met their statutory requirements in this area but that they have not developed the process to a level that the EHS would recommend.

Summary

A summary of the recommendations of the EHS to an An Bord Pleanála includes;

The Environmental Health Service made a submission to the applicant at the scoping stage with nine recommendations for inclusion in the Environmental Impact Assessment. (Recommendations from the Report Attached). The Environmental Health service is satisfied that these recommendations have been included in the Environmental Impact Statement and the assessments made and mitigation, where appropriate, identified.

The Environmental Health Service would recommend that the following are made conditions of any permission granted:

- a) The mitigation measures for noise and vibration impacts identified in chapter 11 of the EIS are implemented in full.*
- b) The dust minimisation plan identified in chapter 9 of the EIS is implemented in full with an inclusion of a specified responsible person who can be contacted by members of the public experiencing nuisance from dust and who should keep a record of complaints received and action taken to abate any nuisance.*
- c) The mitigation measures for waste generation impacts during construction phase identified in chapter 5 of the EIS are implemented in full.*
- d) Measures identified in chapter 4, 5 and 14 in the EIS for the protection of surface and ground water during construction and operation are implemented in full.*
- e) The mitigation measures identified in chapter 4 of the EIS for the impacts of solid waste generation as a result of the process are implemented in full.*
- f) The construction mitigation measures identified in Chapter 5 of the EIS should include a pest control plan.*
- g) That outside normal hours activity construction activity is limited to activity identified as critical and this is communicated appropriately to the Ringaskiddy community.*

Signed: _____
Andrew Sulley SEHO

Signed: _____
Gerardine Faughnan SEHO

Date: _____

Date: _____

