STRATEGIC INFRASTRUCTURE DEVELOPMENT

APPLICATION TO AN BORD PLEANÁLA

(REG NO. PL04.PA0045)

ORAL HEARING

Ringaskiddy Resource Recovery Centre, RINGASKIDDY, COUNTY CORK

WITNESS STATEMENT OF Conor Jones, Plant Manager

Project Information

## 1. Qualifications and Experience

My name is Conor Jones, I hold a degree in Chemical Engineering from University College Dublin. I have been working in the waste industry for over seventeen years. I am responsible for the operations of the Meath waste to energy facility in Carranstown, Co. Meath.

I have also been involved in the design and construction of the Carranstown facility and the associated planning and licence oral hearings in the past.

In relation to the current application, I have also worked on all of the previous planning and licence applications for Indaver.

## 2. Submissions and Responses

In preparing this witness statement, I am addressing various issues raised in submissions to the Board.

3. Submissions from Cork County Council

3.1. The applicant should be requested to prove that the assertion that the proposed centre can be considered to be a "recovery operation" as no proof appears to have been provided within the EIS to demonstrate same other than it will be designed to meet the R1 efficiency criteria.

Response

Please refer to the letter to the Southern Regional Waste Management Authority that has already been submitted to the hearing.

Under condition 7.1 of the licence for the Carranstown facility, Indaver is required to operate its facility to achieve an energy efficiency of 0.65. The calculation of energy efficiency is required to be carried out in accordance with the formula contained in the licence. The condition states that:

*"The calculation shall be in accordance with the European Commission's Guidelines on the Interpretation of the RI Energy Efficiency Formula for Incineration Facilities Dedicated to the Processing of Municipal Solid Waste According to Annex I1 of Directive 2008/98/EC on Waste."*

Indaver has submitted its calculations to the EPA each year that the facility has been in operation since the completion of the commissioning phase and the EPA has confirmed that the facility is being operated to achieve the required energy efficiency. The Energy Efficiency Audit submitted for 2015 to the EPA, is included as Appendix B to this document.

The proposed facility will be designed to similar technical specifications and can be expected to similarly meet the same energy efficiency criteria.

3.2 Submission by Cork County Council

It is noted in Section 3.4.2.2 of the EIS that rotary kilns have the ability to treat a variety of waste streams and are efficient in the destruction of organic compounds while the fluidised bed system is now the industry standard for the combustion of sewage sludge. However in both instances it is contended that the benefits of using either or both systems do not outweigh the additional financial investment required and are therefore not proposed for this site the subject of the current planning application. Detailed justification of the aforementioned statement needs to be submitted for consideration.

Response

The principle technologies considered for waste combustion are described in Sections 3.4.2.2 and 3.4.2.4. While investment was considered, a number of factors were also taken into account such as feedstock, waste streams available and robust reference sites as

outlined in sections 3.4.2.2 and 3.4.2.4.

Rotary kilns are primarily used for the incineration of highly contaminated chemical wastes including halogenated substances as they can operate at 1200 degrees centigrade. There are no reference sites anywhere in Europe where a rotary kiln is utilised where the waste stream is predominantly municipal waste.

A fluidised bed is suitable for sludges and mechanically treated municipal waste, however, the waste stream available in the market for the Ringaskiddy proposal is predominantly untreated municipal waste. A fluidised bed is therefore not suitable for the waste envisaged for the project proposed.

3.3 Submission by Cork County Council

Sub-section 15.5.7.3 makes reference to availability of landfill space for the acceptance of bottom ash in Ireland. The Applicant should be requested to review the content of this subsection taking account of conditions attached to respective planning permissions pertaining to the referenced landfill sites and verify if the capacities as referenced in Sub-section 15.5.7.3 are accurate and available. If not the respective capacities should be updated and submitted.

Response

There is currently a short-term deficit in treatment capacity for residual waste. This is mainly due to a timing issue regarding reduction in permitted annual landfill capacity and waste-to-energy capacity coming on line as set out in the previous generation of Waste Management Plans. With diversion of residual municipal waste from landfills from 2017 onwards (when c. 600,000 tonnes additional waste-to-energy capacity comes on line), permitted capacity will be available for bottom ash. Similarly, if the proposed RRRC treatment capacity were to come on line, further additional permitted landfill capacity will become available.

In addition, bottom ash is suitable for use as daily cover, profiling and internal road ways on landfills. Landfills with such requirements and which accept bottom ash for this purpose do not include this material as part of their licensed annual tonnage for the landfill void. For example, the majority of bottom ash from the Carranstown waste-to-energy facility is currently accepted at four landfills for use as daily cover, profiling and internal road ways and it receives a recovery code.

3.4 Submission by Cork County Council

The applicant should be requested to submit a map showing what routes will be used by HGV's disposing of material from the site during the construction phase.

Response

Please see attached in Appendix A, the map of the permitted sites with the indicative routes to each site marked in green.

3.5 Submission by Cork County Council

The applicant should be requested to submit a surface and groundwater management plan for the construction phase.

Response

Details on surface and groundwater management has been detailed throughout the EIS in various sections. Please refer to Section 5.13.4 in particular. A management plan will draw together this information and will be submitted to the planning authority in the course of compliance with the pre-construction conditions.

3.6. Submission by Cork County Council

It is noted that sporadically throughout the EIS that an incorrect reference is made regarding the Waste Management (Facility & Registration) Regulations i.e. the aforementioned regulations are being referenced as the Waste Management (Collection Permit Regulations). Once such example is in the last paragraph of page 9 Chapter 5 of the EIS. The Applicant should be requested to update the relevant sections of the EIS and resubmit.

Response

The correct reference is Waste Management (Facility Permit and Registration) Regulations 2007 and (Amendment) Regulations 2008, 2014, 2015, when referring to permitted facilities.

3.7. Submission by Cork County Council

It is stated under Subsection 3.2.9.13 of the EIS that recovered ferrous metals from the proposed development would be suitable for recycling by Hammond Lane. The applicant should be requested to submit details pertaining to same including end use.

Response

The recovered ferrous metals from the proposed facility will be suitable to send to Hammond Lane where the material is further processed and sent onwards for recycling. Typically the material is exported to smelters in Europe.

3.8 Submission by Cork County Council

It should be clarified who will have responsibility for the implementation and enforcement of the dust mitigation measures proposed during the construction phase of the proposed development.

Response

The contractor will be required to develop, implement and maintain the dust minimisation mitigation measures set out in section 5.12.2 of the EIS as part of the construction phase of the project. A dust minimisation plan based on those mitigation measures will be agreed in writing with the planning authority.

This will be audited and monitored by the Indaver construction team on site to ensure that the agreed measures are implemented.

3. Submission by CHASE

'It would appear that Indaver must develop a hazardous waste transfer station at the incinerator to facilitate a full service offering to the Pharamachem waste producers.'

Response

The facility does not require a transfer station facility. The waste to energy facility in Carranstown accepts the same waste streams as is proposed for the Ringaskiddy facility and no transfer station is located on the site.

**Submissions by topic**

**3.1 Submission of Pat McCarthy, Shanbally, Co. Cork dated 18 February 2016 and others regarding increasing capacity**

Submission 1.

Mr. McCarthy raises the issue of capacity at the facility being increased in the future.

Response:

If a need was identified for further capacity, Indaver would have to submit a further planning application.

### 3.2 Submission of Pat McCarthy, Shanbally, Co. Cork dated 18 February 2016 and others regarding the import of waste

Submission 2

Due to its port location, Indaver may import waste from abroad to address shortfalls.

Response:

Indaver is of the view that there is sufficient waste in Ireland without the need to import waste from abroad. We do not anticipate any shortfall in light of the needs identified in the Waste Plans. Indaver is not intending to import waste through the Port of Cork.

### 3.3 Submission of Pat McCarthy, Shanbally, Co. Cork dated 18 February 2016 and others regarding renewable energy

Submission 3

Due to the fall in the amount of biodegradable waste (paper, cardboard, domestic waste) due to recycling etc. the amount of electricity generated that can be classified as being "renewable" may fall well below expectations and be stopped.

Response:

There is no reason why a change to the renewable fraction of the waste would lead to the facility being stopped.

The renewable fraction may change over time but that portion of the energy generated from that fraction (whether it increases or decreases) will still be classified as renewable.

### 3.4 Submission of CHASE, Mamie Bowen and Chris Ramsden and others regarding incineration and Best Available Techniques

Submission 1.

CHASE observe that the technology is not the best available techniques (BAT) and that it other European countries like Denmark are moving away from incineration and may export their waste to Ireland. The opening of Poolbeg in 2017 will result in their being not enough waste for both three waste-to-energy facilities in the Republic.

Response:

I refer to Chapter 4.20.1 which defines what BAT is. The proposed development will be built in accordance with the EU's Best Available Techniques Reference Document on Waste Incineration and Appendix 4.4.

In identifying a shortfall of 300,000tpa, the Southern Region Waste Management Plan assumes that the Poolbeg facility will be delivered in 2017 .

### 3.5 Submission of CHASE, Mamie Bowen and Chris Ramsden and others regarding need for further energy generation

Submission 3:

CHASE are of the view that there is no need for energy generation in the area due to the Clean Energy Windmills built by the local pharmaceutical companies.

Response:

Indaver has applied to the ESB for a grid connection offer subsequent to an initial feasibility study carried out by the ESB. The feasibility study is contained in Appendix 3.2 of the EIS. The ESB are satisfied that a connection to the grid at this location and at the stated output capacity is appropriate.

Section 2.3. in the EIS, dealing with energy policies, addresses this point.

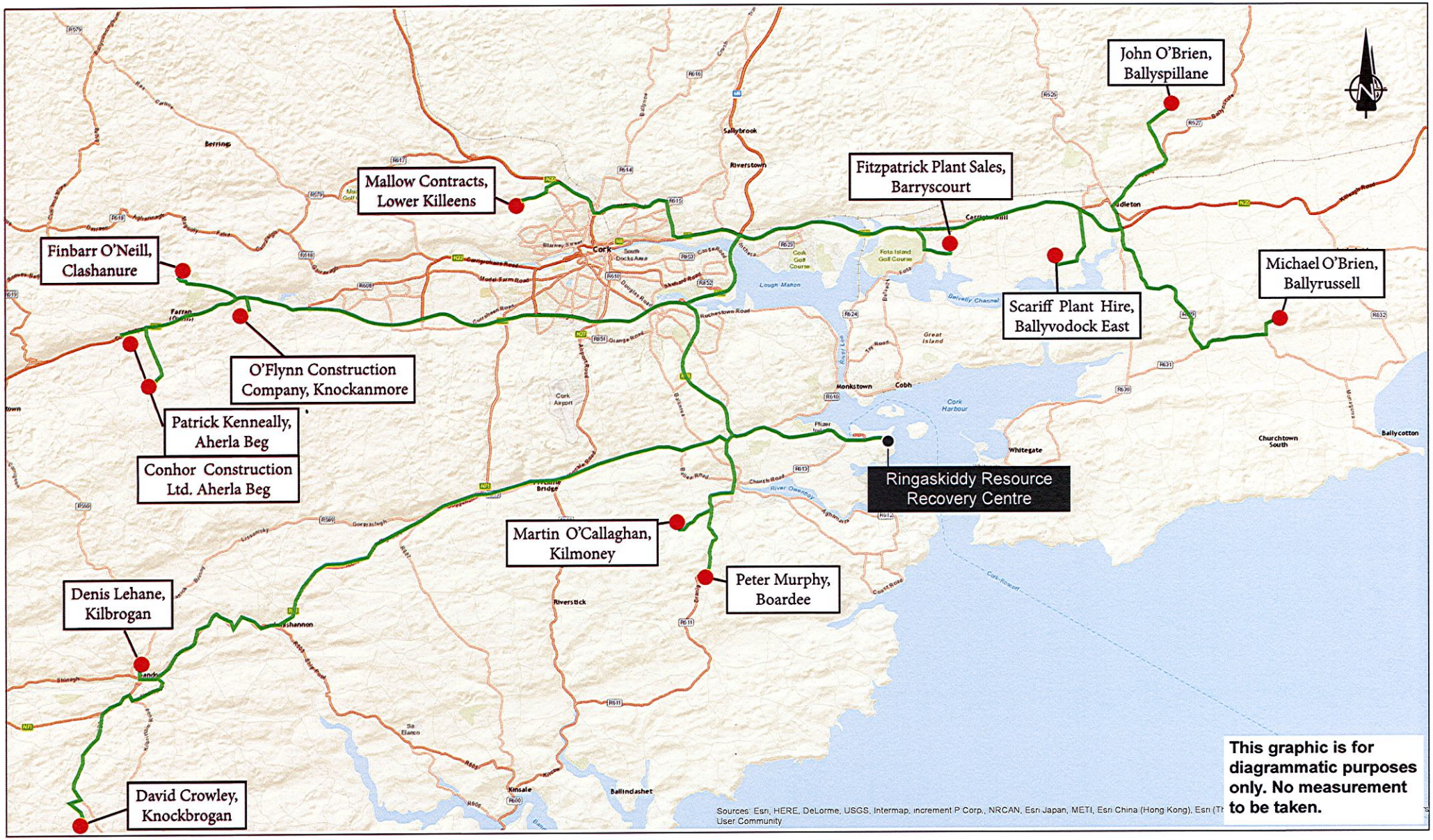
The proposed facility aligns with and contributes towards meeting European and National energy policy objectives. Ireland is coming under pressure to meet its 2020 renewable energy target and any additional renewable energy capacity would be welcomed.

Appendix A

To the

WITNESS STATEMENT OF Conor Jones

Figure 1.1 Permitted sites and routes for the disposal of construction materials from the proposed development




ARUP

INDAVER

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# Routes to Permitted Sites

## Ringaskiddy Resource Recovery Centre

238129-00 | April 2016 | Figure 1.1

Appendix B

To the

WITNESS STATEMENT OF Conor Jones

Report to the EPA on Energy Efficiency Audit 2015

# Indaver Ireland

# Energy Audit

# Waste Licence W0167-03

2015 Energy Audit

# Introduction

This document reflects the licence requirement in Condition 7.3 to demonstrate the energy efficiency of the site. Energy Efficiency must be, as a minimum, 0.65. This document reports the result of 0.77.

# Audit

## *Audit period*

1st January 2015 to 31st December 2015

## *Audit personnel*

The persons involved in the audit where the Process Engineer Joe Crawley, , the Maintenance Manager, Rory Murphy, , Electrical and Instrumentation Supervisor Eoin Wright and the Quality and Environmental Manager, Grace McCormack.

## *Scope of audit*

The scope of the required energy audit is as defined by the 'Guidance Note on Energy Efficiency Auditing', published by the EPA, Johnstown Castle, Co. Wexford, Ireland.

Additional requirements re the energy audit are contained in Condition 7.1.2 and Condition 7.1.3 of the Waste Licence. The scope of the audit includes these conditions which read as follows

7.1.2 The licensee shall build and operate the facility to achieve an energy efficiency of, as a minimum, 0.65 using the formulae below to calculate Energy Efficiency:

Energy Efficiency = [Ep– (Ef + Ei)]/0/97 x (Ew + Ef] where

Emission point = annual energy produced as heat or electricity (GJ/year) (heat produced for commercial use is multiplied by 1.1 and electricity is multiplied by 2.6)

Ef = annual energy input to the system from fuels contributing to the production of steam (GJ/year)

Ew = annual energy contained in the waste input using the net calorific value of the waste (GJ/year)

### Energy Efficiency

Condition 7.1.2 of the Waste Licence sets minimum energy efficiency. The achievement of this parameter is reviewed.

## Energy Performance

Condition 7.1.3 requires a calculation to be determined for the net usable energy produced per tonne of waste. This calculation was performed and the result is as shown:

| | |
|---|---|
| Net Usable Energy Per Tonne of Waste Processed | 0.67 M Wh/Tonne |

Condition 7.1.3 also requires a full breakdown of the calculation of each parameter in the equation and the results for this is shown below:

$$\text{Energy efficiency} = \frac{E_p - (E_f + E_i)}{0.97 * (E_w + E_f)}$$

*In which:*

*$E_p$ means annual energy produced as heat or electricity. It is calculated with energy in the form of electricity being multiplied by 2.6 and heat produced for commercial use multiplied by 1.1 (GJ/year)*

*$E_f$ means annual energy input to the system from fuels contributing to the production of steam (GJ/year)*

*$E_w$ means annual energy contained in the treated waste calculated using the net calorific value of the waste (GJ/year)*

*$E_i$ means annual energy imported excluding $E_w$ and $E_f$ (GJ/year)*

*0.97 is a factor accounting for energy losses due to bottom ash and radiation*

*In addition, Annex II of the WFD highlights that this formula shall be applied in accordance with the Reference Document on Best Available Techniques for Waste Incineration (BREF WI).*

Data used: 1st January 2015 to 31st December 2015.

| | | |
|---|---|---|
| **Total waste treated 01/01/15 to 31/12/15** | 227524 | **Tonnes** |
| **Total electricity produced 01/01/15 to 31/12/15** | 151608 | **MWh** |

| **Type of energy** | **Unit** | **Tonne** | **NCV (kJ/kg)** | **Energy (MWh)** |
|---|---|---|---|---|
| Adjusted amount incinerated waste | | 224,632 | 9,460 | 590,283 |
| Amount sewage sludge | | - | | |
| Amount used activated carbon | | - | - | - |
| **$E_w$ Energy input of waste** | **MWh** | | | **590,283** |
| Ef: Light fuel oil used for startup / keeping temperature | tonne | 179.6 | 42,000 | 2,095 |
| Ef: Natural gas used | | - | - | - |
| **Ef: Energy input by imported energy with steam** | **MWh** | | | **2,095** |
| Ei: Light fuel oil used for startup / shutdown | tonne | 179.6 | 42,000 | 2,095 |
| Ei: Natural gas used | - | - | - | - |
| Ei: imported electricity (multiplied with equivalence factor 2.6) | - | - | - | |
| Ei: imported heat | - | - | - | - |
| **Ei: Energy input by imported energy without steam** | **MWh** | | | **2,095** |
| Ep: Adjusted electricity produced and internally used for incineration process | MWh | 16,202.00 | - | 151,405 |
| Ep: electricity delivered to a third party | MWh | 135,406.00 | - | |
| **Ep: Electricity produced** | **MWh** | **151,506.40** | | **151,404.80** |
| Ep: Heat exported | MWh | - | - | - |
| **Ep: Heat exported** | **MWh** | **-** | **-** | **-** |
| Ep: heat used internally for steam driven pumps, backflow, heating flue gas, liquid APC residues | | - | - | - |
| Ep: for soot blowing without backflow | | - | - | |
| Ep: for heating buildings, deaeration, NH4OH injection | | - | - | - |
| **Ep: Heat used internally** | **MWh** | **-** | **-** | **-** |
| **Ep** | **MWh** | | | **393,652** |
| **R1** | | | | **0.678** |
| **R1 with Climate Correction** | | | | **0.77** |

## R1 Adjustments: Curtailment

| | |
|---|---|
| Objective: | Omit periods where NCC constrains / curtails plant as energy must be spilt during these periods. |
| Data affected: | MWh produced, waste tonnes processed |
| Obtaining data: | MWh produced and waste treated during constraints from NCC |
| affect of data | Tonnes of waste in 1.1 reduced to exclude contraint periods |
| | Ep Electrity produced in 5 reduced by electricity producted during contraint |

Frequency of processsing data: monthly

**Curtailment**

| | MWh | t waste |
|---|---|---|
| Jan-15 | 6 | 164 |
| Feb-15 | 0 | 0 |
| Mar-15 | 3.5 | 76 |
| Apr-15 | 0 | |
| May-15 | 0 | 0 |
| Jun-15 | 0 | 0 |
| Jul-15 | 6 | 171 |
| Aug-15 | 6 | 159 |
| Sep-15 | 1 | 26 |
| Oct-15 | 9 | 240 |
| Nov-15 | 16.3 | 457 |
| Dec-15 | 53.8 | 1,598 |
| **Total** | **101.6** | **2892** |