

**Indaver Ireland Limited**

## IE Licence Review Application

Maximum Waste Accepted Calculations

Reference: LA010332

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This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.




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# 1. Introduction

## 1.1 Overview

The purpose of this attachment is to outline the maximum quantities of certain wastes as set out in Section 4.3. of the application form. Maximum quantities of hazardous and non-hazardous wastes are requested as well as maximum quantities of municipal, construction and demolition and other wastes.

The proposed development includes an increase in the amount of hazardous waste accepted at site to 25,000 tpa, an increase in the total waste accepted at site for treatment in the waste to energy facility to 250,000 tpa and an increase in the acceptance of 30,000 tpa of third-party boiler ash and flue gas cleaning residues ash which will be treated in the pre-treatment facility.

Overall, the total amount of waste to be accepted at site will be 280,000 tpa (250,000 tpa will be incinerated and 30,000 tpa of third-party boiler ash and flue gas cleaning residues will be pre-treated).

Given third-party ash may be hazardous or non-hazardous this is accounted for in both maximum acceptances (280,000 tpa and 55,000 tpa respectively, Table 2). This does not mean that Indaver intends to process 335,000 tpa in total but depending on wastes that are available in the market in any given year of the 30 year operational life of the facility, it is conceivable that we may not receive any hazardous waste in one year and in others we may receive up to 25,000 tpa for incineration and up to 30,000 tpa of third party ash residues for pre-treatment. Changing legislation can also have an impact on this and wastes that may be classified as non-hazardous today may become hazardous in the future without any physical change to the type of waste concerned. As a result, the mix of waste will vary but will not exceed the total annual tonnage of 280,000 tpa of waste accepted including the 30,000 tpa of third party ash residues. In any given year the split of hazardous and non-hazardous can be at either end of the spectrum.

The same principle is applied to the maximum tonnages for municipal, construction & demolition and “other” wastes (Table 1). The explanation as to why the maximum tonnages of each stream chosen is outlined below. Municipal waste is understood to mean municipal wastes and other commercial and industrial wastes of similar composition and can also contain mechanically treated waste.

## 2. Maximum Waste Accepted Total Calculations

Based on maximum totals<sup>1</sup> provided in the IE Licence W0167-03 and the proposed development Table 1 provides a breakdown on the waste sources and tonnages:

**Table 1: Waste Source Calculation for Maximum Waste Accepted**

Waste Source	IE Licence W0167-03 (tpa)	Proposed Development (tpa)	Total (tpa)
Maximum municipal waste accepted	235,000	+15,000	<b>250,000</b>
Maximum construction and demolition waste accepted	50,000	-	<b>50,000</b>
Other <sup>2</sup>	90,000	+30,000 (third-party ash) +15,000 (hazardous wastes)	<b>135,000</b>
<b>Total</b>	<b>375,000</b>	<b>+60,000</b>	<b>435,000</b>

<sup>1</sup> Total figures outlined in Table 1 and Table 2 are populated by Eden. They do not reflect the IE Licence limits for hazardous and non-hazardous waste.

<sup>2</sup> Other wastes include Commercial & Industrial Non-Hazardous Waste, Sewage and Industrial Sludges, Non-Hazardous Aqueous Wastes and Hazardous Wastes.

The proposed development includes the addition of 15,000 tpa of municipal waste, 30,000 third party ash for pre-treatment and 15,000 tpa of hazardous wastes.

As previously mentioned, third- party ash may be considered hazardous or non-hazardous and has therefore been added to each waste type. Refer to Table 2 below.

**Table 2: Waste Type Calculation for Maximum Waste Accepted**

Waste Type	IE Licence W0167-03 (tpa)	Proposed Development (tpa)	Total (tpa)
Hazardous	10,000	+15,000 +30,000 (third-party ash)	<b>55,000</b>
Non-Hazardous	235,000	+15,000 +30,000 (third-party ash)	<b>280,000</b>
<b>Total</b>	245,000	+90,000	<b>335,000</b>

## 2.1 Combinations and Scenarios of Incoming Wastes

As can be seen from the scenarios outlined in Table 3 and Table 4, combinations of waste types accepted can differ. A lot is dependent on the calorific value (CV) of the main incoming waste stream which in all scenarios is Municipal Solid Waste (MSW). The lower this value is, the more capacity that is available for other higher CV waste streams (whilst keeping the annual tonnage limited at 250,000 tpa). The higher this value is, the more capacity that is available for other lower CV wastes.

Looking at the Existing Scenario, Scenario 1 and Scenario 2 outlined in Table 4, the CV value of incoming MSW can vary, depending on the waste types accepted at the site.

One example is given in Scenario 1, where a theoretical maximum of 218,000 MSW and 20,000 tonnes of hazardous aqueous waste could be treated at the facility. Comparing this with the Existing Scenario, the CV value changes for MSW which effects the total CV value.

Equally, in Scenario 2, where a theoretical maximum of 225,000 MSW and 15,000 hazardous wastes are accepted, the effect of the varying CV value of the incoming MSW and the total capacity of the plant to treat a certain tonnage of waste can also be seen.

These scenarios are purely for demonstrative purposes and in any given year the total amount of waste accepted will not exceed 250,000 tpa.

**Table 3: Example of two typical scenarios based on the existing and proposed waste to be accepted**

Waste	Existing Example (tpa)	Scenario 1 Proposed (tpa)	Scenario 1 Increase (tpa)	Scenario 2 Proposed (tpa)	Scenario 2 Increase (tpa)
Hazardous aqueous waste	8,000	20,000	+ 12,000	15,000	+ 7,000
Other hazardous waste (solid)	2,000	5,000	+ 3,000	3,000	+ 1,000
Non-hazardous waste	225,000	225,000	0	232,000	+ 7,000
<b>Total waste accepted</b>	<b>235,000</b>	<b>250,000</b>	<b>+ 15,000</b>	<b>250,000</b>	<b>+ 15,000</b>

**Table 4: Calorific Values for Existing Scenario, Scenario 1 and Scenario 2<sup>3</sup>**

Existing Situation	Waste stream	Tonnes	CV (MJ/kg)	MW	% of Total
	Residual Municipal Waste	218,000	9.65	73	92.77%
	Hazardous Aqueous Waste	8,000	3	1	3.40%
	Hazardous Solids	2,000	13	1	0.85%
	Hazardous Sludges	-	1	-	0.00%
	Non Hazardous Sludges	6,000	1	0	2.55%
	Non Hazardous Aqueous Waste	1,000	1	0	0.43%
	Non Hazardous C&D Waste	-	1	-	0.00%
	<b>Total</b>	<b>235,000</b>	<b>9.2</b>	<b>75</b>	<b>100%</b>
Scenario 1	Waste stream	Tonnes	CV (MJ/kg)	MW	% of Total
	Residual Municipal Waste	218,000	9.5	72	87.20%
	Hazardous Aqueous Waste	20,000	3	2	8.00%
	Hazardous Solids	5,000	13	2	2.00%
	Hazardous Sludges	-	1	-	0.00%
	Non Hazardous Sludges	6,000	1	0	2.40%
	Non Hazardous Aqueous Waste	1,000	1	0	0.40%
	Non Hazardous C&D Waste	-	1	-	0.00%
	<b>Total</b>	<b>250,000</b>	<b>8.8</b>	<b>76</b>	<b>100%</b>
Scenario 2	Waste stream	Tonnes	CV (MJ/kg)	MW	% of Total
	Residual Municipal Waste	225,000	9.35	73	90.00%
	Hazardous Aqueous Waste	15,000	3	2	6.00%
	Hazardous Solids	3,000	13	1	1.20%
	Hazardous Sludges	-	1	-	0.00%
	Non Hazardous Sludges	6,000	1	0	2.40%
	Non Hazardous Aqueous Waste	1,000	1	-	0.40%
	Non Hazardous C&D Waste	-	1	-	0.00%
	<b>Total</b>	<b>250,000</b>	<b>8.8</b>	<b>76</b>	<b>100%</b>

<sup>3</sup> All figures are based on a Boiler Thermal Load of 76MW and 8,000 operating hours per annum.

### 3. Summary

The facility will accept no more than 250,000 tpa of waste for incineration and up to 30,000 tpa of third party residues, in line with the planning permission granted by An Bord Pleanála in March 2022. The tonnages of the categories and types of waste will vary from year to year but no more than 25,000 tpa of hazardous waste will be accepted for incineration and up to 30,000 tpa third party residues for pre-treatment in any one year.

As it is impossible to predict what quantities and waste streams will be suitable for treatment and available in the waste market and how this will change and evolve in subsequent years, Indaver respectively suggests that any conditions imposed by the Agency on the acceptance of specific waste types is restricted to the two limits (250,000 tpa total waste accepted for incineration and 30,000 tpa of third party residues for pre-treatment).