

Indaver Ireland Limited

IE Licence Review Application

Waste Hierarchy

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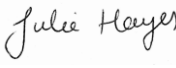





This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1. Waste Hierarchy

1.1 Introduction

Under the European Waste Framework Directive (WFD) and Landfill Directive, Ireland is committed to recycling a large proportion of its waste. Any residual waste which is unsuitable for recycling is currently disposed of to landfill. Ireland is committed under these European Directives to recovering as much residual waste as practically possible prior to final disposal. Indaver's waste-to-energy plant provides a sustainable way of managing this residual waste.

Indaver currently accept, treat, recover and dispose of hazardous, non-hazardous and inert wastes and is licensed to carry out the following activities:

Disposal or recovery of waste in waste incineration plants or in waste co-incineration plants

(a) for non-hazardous waste with a capacity exceeding 3 tonnes per hour, and

(b) for hazardous waste with a capacity exceeding 10 tonnes per day.

In addition, the existing facility has been designed to meet the R1 efficiency criteria in Annex II of the WFD Directive for *Use principally as a fuel or other means to generate energy.*

The contribution of Indaver towards the Circular Economy and Miscellaneous Provisions Act 2022 is described in Attachment 1-2 Non- Technical Summary.

1.2 Waste Hierarchy

Waste hierarchy is implemented on site by identifying opportunities to firstly prevent waste from being produced, and secondly minimise the amount of waste produced. Where prevention and minimisation are not feasible, ways to reuse or recycle waste are sought, preferably on-site to avoid the effects arising from transportation. If this is not feasible, opportunities to reuse or recycle the waste off-site are investigated. If this is not feasible, then waste is sent to an energy recovery facility, and only where there is no alternative, will waste be disposed of to landfill. To achieve this hierarchy, existing waste management programmes and networks are used such as the National Waste Prevention Programme, which is implemented by the Environmental Protection Agency. The hierarchy was established in line with the Waste Framework Directive (WFD) and Circular Economy Package (CEP).

As part of the IE Licence W0167-03, Indaver continues to implement its established waste minimisation and reduction programmes for the purposes of compliance with the waste hierarchy. The waste management programme at the Indaver facility incorporates the following waste hierarchy in priority order:

- Prevention
- Preparing for re-use
- Recycling
- Other recovery e.g. energy recovery
- Disposal.

The waste hierarchy gives priority to the options that deliver the best overall environmental outcome. The waste-to-energy process, which includes thermal treatment coupled with energy recovery, falls within the recovery component of this hierarchy.

The existing facility meets the R1 efficiency criteria in Annex II of the WFD Directive and therefore contributes in moving waste away from landfill disposal to a higher tier of waste hierarchy.

Waste streams that are transferred off-site for treatment elsewhere all fall within the recovery tier of the waste hierarchy apart from three namely, water from boiler draining, foul effluent from a holding tank during annual shutdowns and a small quantity of waste to be disposed of via high temperature incineration. The annual quantities of these three waste streams are outlined in Attachment 8-1 Waste Generated.

As these constitute unavoidable wastes and it is not technically or economically possible to recover or recycle these wastes, they will be disposed of in a manner which will prevent or minimise any impact on the environment and in a controlled manner and in accordance with relevant licence conditions.

All other waste streams will be transferred off site to undergo appropriate recycling, reclamation or recovery operations or will be stored pending recovery or recycling. Such waste streams will be stored separately prior to transfer and will not be mixed with any other waste streams.

1.3 Waste Collection and Segregation

Where hazardous and non-hazardous waste materials cannot be avoided or reused, these waste streams are collected, segregated and transported off-site by permitted waste collectors for appropriate treatment, recycling and/or disposal.

Hazardous waste is stored in designated areas which are appropriately protected against spillages and leachate run-off.

As is the case with the existing facility, adequate provision will be made for the separation of waste at source for the various elements of the proposed development. Office and canteen waste generated on site will be recycled where appropriate or treated on-site in the waste-to-energy facility.

1.4 Waste Disposal

Waste which cannot be prevented, reduced or recycled will be disposed of in a manner which will prevent or minimise any impact on the environment and in a controlled manner and in accordance with relevant licence conditions. The following residues are produced from the waste to energy process:

1.4.1 Bottom Ash

It is the intention of Indaver to identify potential uses for the bottom ash and in this regard consideration of the waste hierarchy has been a key element in this process.

Bottom ash, which will be stored on site for less than 6 months, is currently sent to three main landfill outlets for recovery as daily cover or as a road construction material on the landfill itself. The manner in which this material may be treated and transported is dependent upon how this material is classified and characterised (hazardous or non-hazardous), and accordingly an assessment of each finding is outlined. The bottom ash residues from the plant are currently characterised as non-hazardous.

At present there is no bottom ash recovery plant in Ireland and there are no bottom ash reuse criteria. However, it is the intention of Indaver to proactively identify potential outlets for bottom ash and to work with the EPA in establishing reuse criteria. The reuse of this material would assist in Ireland's envisaged transition to a circular economy as laid down in stated European and national policy positions as all wastes including those that are unavoidable such as residues are regarded as being capable of being transformed into useful and valuable resources. Such reuse is also compatible with the principle of self-sufficiency as laid down in the Waste Framework Directive.

1.4.2 Flue Gas Residues and Boiler Ash Residues

Flue Gas Residues and boiler ash are classified as hazardous and are currently exported for re-use in the remediation of salt mines in Northern Ireland.

1.4.3 Recovered Metals

Ferrous metals recovered from bottom ash are sent off-site to an appropriate and licensed recycling facility. Non-ferrous metals are also recovered using an eddy current separator and the non-ferrous metal fraction is exported for recovery.

All of the above wastes and residues are removed by appropriately permitted waste management contractors and sent for recovery to suitably licensed facilities.