ARUP

Indaver Ireland Limited

IE Licence Review Application

Non-Technical Summary (NTS)

Reference: LA010332

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Ove Arup & Partners Ireland Limited
One Albert Quay
Cork
T12 X8N6
Ireland
arup.com

ARUP

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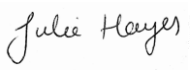
		Signature			
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		Name	Julie Hayes	Naoimh O'Regan	Dan Garvey
		Signature			
		Filename			
		Description			
			Prepared by	**Checked by**	**Approved by**
		Name			
		Signature			

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1. Introduction

Indaver Ireland Limited (Indaver) currently operate a Waste to Energy (WtE) facility in Carranstown, Duleek, County Meath. The existing facility has been in operation since August 2011 and is licensed under an Industrial Emissions (IE) Licence (No. W0167-03) by the Environmental Protection Agency (EPA).

Indaver propose to carry out a new development, hereafter referred to as the proposed development, which will include the following main elements:

1. Increase in the amount of hazardous waste accepted at the facility for treatment in the waste to energy (WtE) plant from the current permitted 10,000 tonnes per annum (tpa) up to a maximum of 25,000 tpa;
2. Increase in the annual total waste accepted at the site for treatment in the WtE facility from the currently permitted 235,000 to 250,000 tonnes per annum (tpa) to include up to 15,000 tpa of additional hazardous waste;
3. Development of an aqueous waste tank farm and unloading area for the storage and processing of aqueous liquid wastes currently accepted at the facility;
4. Development of a 10 MW_e Hydrogen Generation Unit (HGU) for connection to the natural gas distribution network and for mobile hydrogen transport applications and other potential uses;
5. Development of a bottom ash storage building for the storage of up to 5,000 tonnes of bottom ash which is currently produced on site;
6. Additional waste acceptance capacity and infrastructure to accept up to 30,000 tpa (bringing the site total to 280,000 tpa) of third-party boiler ash and flue gas cleaning residues and other similar residues for treatment in the existing ash pre-treatment facility on site;
7. Development of a warehouse, workshop and emergency response team (ERT)/office building to support existing maintenance activities on the site;
8. Development of a new concrete yard and parking area for up to 10 trucks, tankers or containers on the site;
9. Demolition and re-building of an existing single storey modular office building on site with a slightly increased footprint.; and
10. Other miscellaneous site upgrades.

Indaver are applying to the EPA for a review of their existing IE Licence Ref. W0167-03 to incorporate the proposed development. The application considers any changes that have been made on site since the current IE Licence (Reg. No. W0167-03) came into force on the 2nd June 2015 and will incorporate applicable Technical and Clerical Amendments of the same.

This Non-Technical Summary (NTS) forms part of the IE Licence review application.

2. Classes of Activity

The Indaver facility's current IE Licence addresses the following activities, as outlined in the First Schedule of the Environmental Protection Agency (EPA) Act 1992, as amended:

11.3: 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,

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

The main activities carried out at the installation are specified in Annex I of the Industrial Emissions Directive (IED) (Directive 2010/75/EC) as Class:

5.2: 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;

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

Construction of the proposed development will facilitate two new activities as outlined in the First Schedule of the EPA Act 1992, as amended,

5.13 (a) The production of inorganic chemicals, such as gases, such as ammonia, chlorine or hydrogen chloride, fluorine, or hydrogen fluoride, carbon oxides, sulphur compounds, nitrogen oxides, hydrogen, sulphur dioxide, carbonyl chloride (production means the production on an industrial scale by chemical or biological processing);

11.6 Temporary storage of hazardous waste, (other than waste referred to in paragraph 11.5) pending any of the activities referred to in paragraph 11.2, 11.3, 11.5 or 11.7 with a total capacity exceeding 50 tonnes, other than temporary storage, pending collection, on the site where the waste is generated.

3. Existing Facility

The Indaver site, with an area of approximately 9.9 hectares, is located in Carranstown, Duleek, County Meath. The site is bound to the south by the R152 regional road and Irish Cement Platin is to the north of the site. The remaining surrounding land is used for industrial, agricultural and residential purposes.

The main hydrological feature near the site is the River Nanny, approximately 2km to the south. Stormwater/surface water runoff from the site discharges to a semi-dry ditch draining to the Cruicerath stream c.130m to the west of the site, which leads to the River Nanny.

The existing facility has operated as a WtE facility since 2011. The facility operates 24 hours per day, 7 days per week for approximately 8,000 hours per annum (46 weeks), with c. 60[1] personnel on site.

The site is not a Seveso site as the EC (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2006 do not apply.

The existing site includes the following infrastructure:

- Facility entrance, weighbridge, gatehouse (security) & staff car park;
- Waste to energy process building which includes:

[1] The operation of the proposed development will result in the addition of 20 employees.

  - Waste tipping hall and waste bunker for solid waste acceptance and storage
  - Furnace and boiler hall for waste treatment and recovery of energy
  - Steam-condensate area with associated steam turbine and electricity generator
  - Flue gas cleaning area and 65m high stack complete with emissions monitoring system
  - Bottom ash hall for metals removal and storage
  - Boiler ash and flue gas cleaning residue tanker loading area
  - Boiler ash and flue gas cleaning residue pre-treatment area
  - Control room and office accommodation for Indaver staff
- Air-cooled condenser for re-circulating low pressure steam from the turbine as condensate to the steam-condensate system;
- 38kV import/export compound for electricity;
- 70m^3 mobile tank and associated aqueous waste unloading area;
- 44m^3 Fuel oil tank for fuelling the burners used for start-up and maintaining the minimum temperature of 850°C in the furnace when required;
- 60m^3 Aqueous ammonia tank which is used for NOx reduction in the flue gases.

An overview of the Indaver site with existing and proposed features has been illustrated in **Figure 1.**

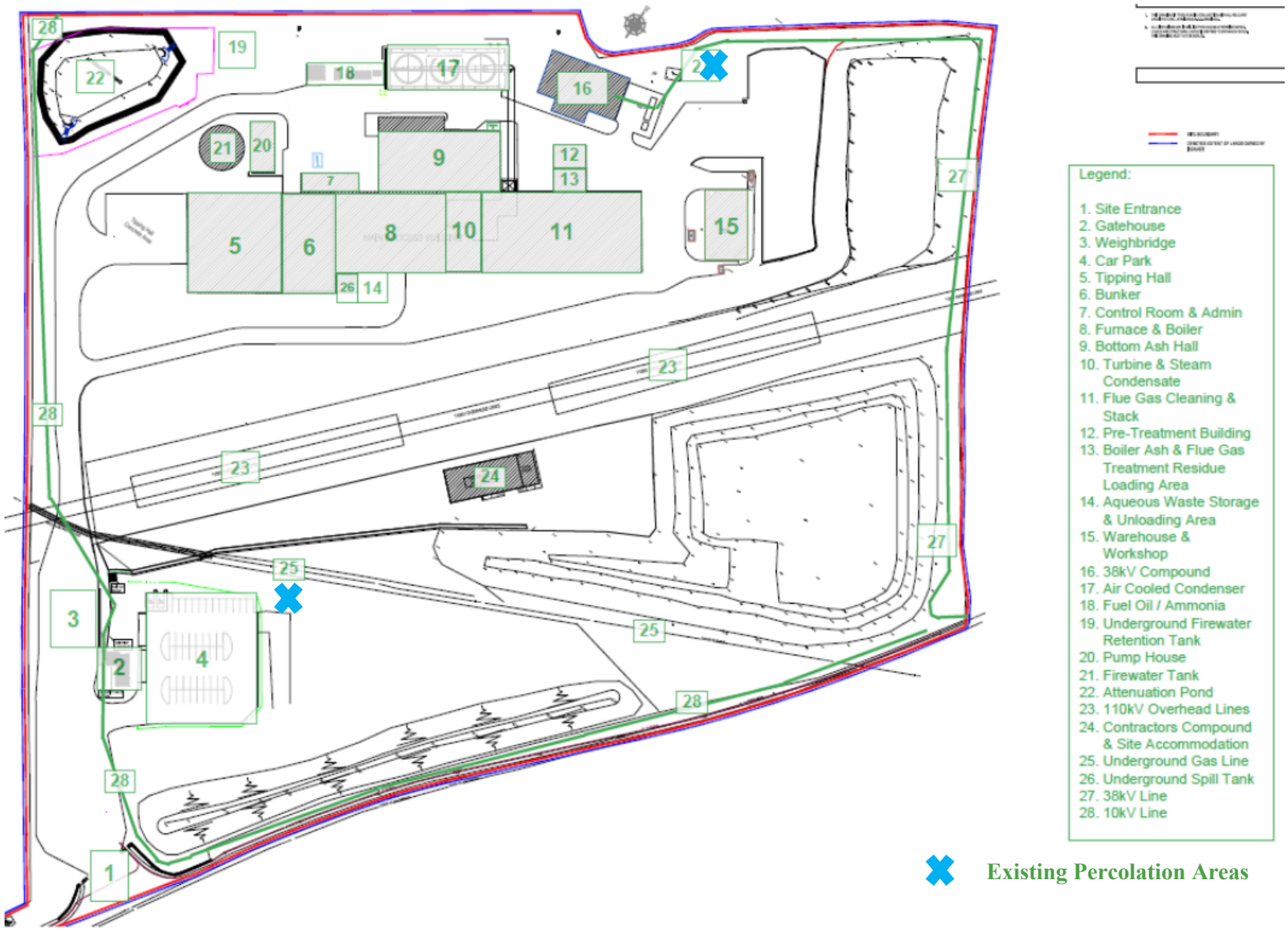

Figure 1: Existing Site Layout | not to scale

4. Environmental Conditions of the Site

4.1 Land and Soils

As identified in the baseline report, which is included as Attachment 4-8-2 of the IE Licence review application, the site lies within an area consisting of three principal soil types: deep well drained mineral, alluvial mineral to the north and poorly drained mineral to the mid-north. The site has a relatively flat topographical gradient, sloping slightly from east to west with an overall fall to the southeast towards the River Nanny. The site is underlain by Lower Carboniferous Limestone and a bedrock aquifer classified as Regionally Important and Karstified (diffuse) (Rk^{d}) with areas of Moderate vulnerability. The site is located within the Bettystown Groundwater body which is "at risk" of failing to meet the Water Framework Directive (WFD) objective.

Domestic wastewater arising from site, such as sanitary wastewater from toilets, washrooms and the canteen, is treated onsite by proprietary treatment systems - Puraflo systems. The two existing onsite effluent collection and discharge systems comprise a septic tank, pump / sump, a modular[2] Puraflo unit and associated percolation area. Effluent from the septic tank is passed through the Puraflo unit before being discharged to the percolation areas. One effluent treatment area is located on the northern boundary of the site and consists of an eight-modular system. The second smaller effluent collection and discharge system is a two-modular Puraflo system located at the gatehouse building. Refer to **Figure 1**.

There are three monitoring boreholes within the facility; one upgradient (AGW1-1) and two down-gradient (AGW1-2 and AGW1-3) in relation to the site activities.

Regular groundwater sampling and analysis for the Indaver site is required as part of the IE licence (W0167-03). The analysis includes chloride, metals, ammonia, TOC and nitrates.

The results of the baseline report confirm that there is no evidence of any residual contamination beneath the site, nor evidence of historical contamination across the site. No exceedances of the most conservative threshold value for Human Health Risk Assessment were detected in the soil and the material sampled across the site has been classified as non-hazardous.

4.2 Water

4.2.1 Storm Water

The site has no emissions to surface water or sewer on site. There is one stormwater discharge point draining to the Cruicerath stream c.130m to the west of the site, which leads to the River Nanny.

Stormwater/surface water runoff from the site passes through a Class 1 interceptor before draining into the attenuation pond. Prior to entering the pond, the rainwater is analysed by an automated analyser at the inlet chamber for compliance with pH, conductivity and Total Organic Carbon (TOC). The water is subsequently monitored at outlet chamber before being released into a drainage ditch which joins to a tributary of the river Nanny. In the event trigger levels are exceeded, water is redirected to an underground fire retention tank and is either sent off-site for disposal or used in the process.

No water can enter the attenuation pond when the readings are outside the trigger levels. Water that is outside of the trigger levels is redirected to an underground storage tank, and is either sent off site for disposal to an appropriately licensed or permitted facility or used in the process. The water is also analysed at the outlet of the pond before it is discharged from the site. No water can be discharged when the readings are outside the trigger levels. The system is monitored 24/7 at the Distributed Control System (DCS) by the operators. The discharge is checked daily.

[2] The number of modules is dependent on the hydraulic and organic loadings exerted on the system.

4.2.2 Wastewater

There are two types of wastewater that can be produced on site. These include:

- Process wastewater produced from the activities; and
- Sanitary wastewater from toilets, washrooms and canteens.

Wastewater arising from process activities is reused in the process or in rare cases tankered offsite for treatment in an appropriately licensed facility. Domestic wastewater produced onsite (sanitary wastewater from toilets, washrooms and the canteen) is treated onsite by two Puraflo systems which then pass through a percolation area to ground.

All effluent generated from toilets, showers, and utility areas (with the exception of the modular offices and portacabins in the contractors' compound) is collected in a domestic type of effluent collection system, as described in **Section 4.1.** Wastewater from the modular offices and the contractors compound will drain to a holding tank and subsequently sent off site for treatment in a licensed facility in the Republic of Ireland.

The site has no emissions to surface water or sewer on site.

4.3 Noise

In accordance with IE Licence W0167-03, the facility is subject to noise limits as outlined in **Table 1.** Noise surveys are undertaken annually at four noise sensitive locations which are located at the site boundary (AN1-1 to AN1-4). Surveys are carried out in accordance with Condition 6.2 of the IE Licence using methodology specified in the *'Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)'* as published by the Agency.

Table 1: Operational Noise Limits for the Indaver Ireland Limited Facility

Daytime dB $L_{Ar,T}$ (30 minutes)	Daytime dB $L_{Ar,T}$ (30 minutes)	Daytime dB $L_{Aeq,T}$ (15-30 minutes)
55 Note 1	50 Note 1	45 Note 1

Note 1: There shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at any noise-sensitive location.

4.4 Air Quality and Climate

The facility is located outside of Drogheda town and is classified as *Zone D: Rural Ireland* under the S.I. No. 180 of 2011 air quality zoning system for area of Ireland.

Background level pollutants, as measured by the EPA for Zone D in 2021, 2020, 2019 and 2018 (EPA 2022, 2021, 2020 and 2019), are in compliance with Air Quality Standards. Refer to **Table 2**.

Table 2: Background Concentrations for Pollutants Assessed.

Pollutant	Annual Mean 2021	Annual Mean 2020	Annual Mean 2019	Annual Mean 2018	Average annual mean
NO_2	7.5 µg/m^3	7.6 µg/m^3	5.67 µg/m^3	4.67 µg/m^3	**6.36 µg/m^3**
PM_{10}	11.85 µg/m^3	11.17 µg/m^3	14.25 µg/m^3	11.8 µg/m^3	**12.27 µg/m^3**
$PM_{2.5}$	8.71 µg/m^3	7.75 µg/m^3	9.29 µg/m^3	9.4 µg/m^3	**8.79 µg/m^3**
SO_2	4.16 µg/m^3	4.15 µg/m^3	3.1 µg/m^3	2.6 µg/m^3	**3.5 µg/m^3**
CO	0.3 mg/m^3	0.4 mg/m^3	<0.01 mg/m^3	<0.01 mg/m^3	**0.18 mg/m^3**

As per the IE Licence (W0167-03), the facility has one licenced main air emission point, (A1-1; stack emission). Emissions can include dust, gaseous and vaporous organic substances, hydrogen chloride, hydrogen fluoride, sulphur dioxide, nitrogen oxides, heavy metals, dioxins / furans and carbon monoxide.

There are a number of minor and potential air emission points on site, which include air handling units, passive air extracts, fumehood from the laboratory and in the event of a by-pass or pressure relief valves and include smoke vents, safety valves and overpressure relief valves, etc.

Air emission monitoring is carried out in accordance with the current IE Licence. Parameters are monitored on a continuous, monthly, quarterly, bi-annual or 3-yearly basis, depending on the relevant parameter. Annual reporting on air emissions is included in the Annual Environmental Reports (AERs) prepared by Indaver.

4.5 Waste

Indaver currently manage, store and record hazardous, non-hazardous and inert waste generated at the facility. This waste is subsequently treated or disposed of in accordance with the relevant waste regulations.

The IE licence requires that waste is accepted in a manner that does not cause environmental pollution. All incoming and outgoing hazardous, non-hazardous and inert waste is managed stored and recorded, and subsequently treated, recovered, disposed or stored at the facility depending on the licence requirements.

Indaver is currently licensed to accept up to 235,000tpa[3] total waste for treatment in the waste to energy facility, of which up to 10,000tpa[4] of hazardous waste can be accepted. Waste generated on site include bottom ash, boiler ash, flue gas residues and ferrous and non-ferrous metals. Each waste type is recycled, recovered or disposed of in accordance with the Waste Framework Directive and IE Licence requirements.

As part of the treatment process energy is recovered from the incineration of waste in a conventional steam boiler, where steam is fed to a turbine to generate electricity. Residues generated are disposed of offsite or pre-treated with water before disposal offsite. Flue gases are treated on site by the injection of lime and a mixture of activated carbon and expanded clay.

Table 3 shows a summary of waste accepted in 2021 and the percentage increase or decrease on the previous year. The percentage recovery is the amount of total waste accepted that was reused, recycled or recovered.

Table 4 shows a summary of waste generated for 2021 and the subsequent percentage increase or decrease and percentage recovery. A full list of waste generated on site, as well as relevant EWC codes and descriptions is detailed in Attachment 8-1 of this licence review application.

Table 3: Summary of Waste Accepted in 2021

Type	Quantity (Tonnes)	% Increase / decrease on previous year	% Recovery
Hazardous	8,878.739	21.6% increase	100%
Non-Hazardous	208,056.089	1% decrease	100%
Inert	0	N/A	N/A
Total Tonnes	216,934.829	0.2% decrease	100%

Table 4: Summary of Waste Generated in 2021

Type	Quantity (Tonnes)	% Increase / decrease on previous year	% Recovery
Hazardous	15,595.64	5.8% increase	99.4%
Non-Hazardous	38,923.23	10% decrease	10.2%
Inert	0	0	N/A

[3] As part of this licence review application the total amount of waste to be accepted at site is 280,000 tpa of which 250,000tpa will be treated in the waste to energy plant and 30,000tpa will be treated in the ash pre-treatment facility.

[4] As part of this licence review application there will be an increase in the amount of hazardous waste accepted at the facility to 25,000 tpa

Type	Quantity (Tonnes)	% Increase / decrease on previous year	% Recovery
Total Tonnes	54,518.87	5.9% decrease	35.9%

5. The Proposed Development

5.1 Overview

As previously mentioned, Indaver intend to construct a new development at their existing site in Carranstown, County Meath. **Figure 2** illustrates the locations of the proposed development within the site boundary and in relation to existing buildings and facilities within the site.

Features of the proposed development have been outlined in the following subsections.

5.1.1 Increase in overall annual total waste accepted at the site for treatment, including increase in hazardous waste

The proposed development includes an increase in the annual total waste accepted at the site for treatment in the WtE facility from the currently permitted 235,000 to 250,000 tonnes per annum (tpa) to include up to 15,000 tpa of additional hazardous waste.

5.1.2 Liquid (Aqueous) Waste Tank Farm & Unloading Area

It is proposed to develop a tank farm for the storage and processing of aqueous liquid wastes currently accepted at the facility. Three tanks of 300m^3 capacity are proposed. Two will be dedicated to the acceptance and storage of liquid waste. The third will be utilised for the storage of boiler water during maintenance activities.

An upgrade to the existing tanker unloading area is also proposed. The upgrade will provide space for three tankers at a time. Widening a section of the road adjacent to the unloading area will allow the tankers to reverse into the bays.

5.1.3 Hydrogen Generation Unit

It is proposed to develop a hydrogen generation unit (HGU) for connection to the natural gas network and for mobile hydrogen transport and other potential applications for use as a fuel. The proposed HGU has been designed as an alternative means of using energy when the facility cannot export electricity to the national grid. Using a mildly alkaline water solution and electricity, water is split into hydrogen and oxygen. The hydrogen generated from this electricity could either be fed into the natural gas grid (an application to GNI has been made to explore this option) or stored on site for fuelling trucks and buses that have been either designed or retrofitted to run on hydrogen fuel cells. Hydrogen can also be tankered off-site for industrial use or to fuel distribution centres.

5.1.4 Bottom Ash Storage Building

It is proposed to develop a bottom ash storage building for the storage of up to 5,000 tonnes of bottom ash which is produced on site. Storage of bottom ash on site will be less than 6 months. This facility will provide the flexibility to export bottom ash to continental Europe for recovery. This will be done by exporting approximately 3,000 tonnes at a time (on average once per month) over a two or three day period by truck to Drogheda Port and directly onto a ship for export.

5.1.5 Residue Acceptance & Storage for Pre-Treatment

It is proposed to increase the capacity of the existing ash pre-treatment by the acceptance of up to 30,000 tonnes per annum of similar third party residues for treatment.

The additional infrastructure proposed will comprise three silos housed within the existing WtE process building and an unloading area for tankers delivering this material outside the main process building. The

residues will then be processed (with the addition of just water) in the existing pre-treatment plant before exported for recovery.

5.1.6 Warehouse, Workshop & ERT/Office Building

It is proposed that the existing warehouse and workshop building on site will be re-purposed and the warehousing and workshop functions will be re-located to a new two storey building which will also include additional office accommodation for staff on site, Emergency Response Team (ERT) equipment and staff facilities including changing area, toilets and showers. The building will be split into three separate areas to accommodate the warehouse, workshop and office/ERT functions.

5.1.7 New concrete yard area and container/trailer/tanker parking area

This proposed area is to facilitate access and vehicular movements in and out of the bottom ash storage building and for deliveries to the warehouse. Part of this concrete area will be a contained area for the parking of containers, trailers and tankers associated with aqueous waste deliveries and the transport of residues in containers and pre-treated residues in trailers off-site.

5.1.8 Modular Office Re-construction & Car Park Extension

It is proposed to demolish and re-build an existing single storey modular office building on site with a new permanent single storey office and staff welfare building. This new building will have a slightly increased footprint in place of the old building.

The existing modular building was erected for the purpose of housing staff during the construction, commissioning and warranty period of the plant and was made a permanent feature on the site by planning permission in 2014.

5.1.9 Miscellaneous Site Upgrades

As part of the proposed development there will be a series of miscellaneous site upgrades to improve the workings of the site in general. The locations of these upgrades are shown in **Figure 2** as areas marked 3, 7, 11, 12, 13, 17, 18 and 19. A brief description of these areas is as follows:

- Areas 3 and 19 will be weather canopies for the area outside the pre-treatment building for handling and loading of bags and for performing maintenance activities for on-site vehicles respectively;
- Areas 7, 11, 12 will be extensions to hardstanding areas to facilitate improved HGV movements for the pre-treatment building, tipping hall and to provide a layby for trucks queueing for entry to the tipping hall respectively;
- Area 13 will provide for a personnel access route from the process building to the proposed office building, hydrogen generation building and the contractors compound;
- Area 17 will be for repurposing of the existing temporary trailer park to a dedicated permanent contractors compound, complete with welfare facilities and space for contractor cabins during maintenance and construction works in the future. Personnel access to the site will also be provided via a new security turnstile serving the compound; and
- Area 18 will provide additional car parking spaces for staff and contractors on site.

5.2 Alternatives to the Proposed Development

A number of alternatives have been considered by Indaver during the design process for the proposed development.

5.2.1 Alternative Locations

As part of the design process, five alternative locations within the site were assessed for the location of the proposed tank farm, HGU and bottom ash storage building. Each area was considered based on environmental factors. The tank farm location was chosen based on its proximity to the furnace and existing tanker unloading area. The bottom ash storage building and HGU were equally suitable for the same two

locations, however, the bottom ash storage building location was chosen based on the least visual impact, and the HGU located based on its proximity to the proposed injection point to the natural gas grid.

5.2.2 Alternative Processes

A series of alternative processes were assessed for the acceptance of addition hazardous waste for on-site treatment, the pre-treatment of boiler ash and flue gas treatment residues, and the storage of aqueous wastes. Existing processes were considered the optimum methods for these processes. For the HGU, alternative processes were explored for the for the utilisation of waste steam or the resultant waste electricity when power is not required by the grid, such as flywheel technology for energy storage, electricity battery storage, users for steam off-take and use of electricity for hydrogen generation. The chosen method was considered the reasonable approach considering demand and project characteristics.

5.2.3 Alternative Design

A number of alternative designs were also considered for the storage of aqueous wastes, HGU and bottom ash storage.

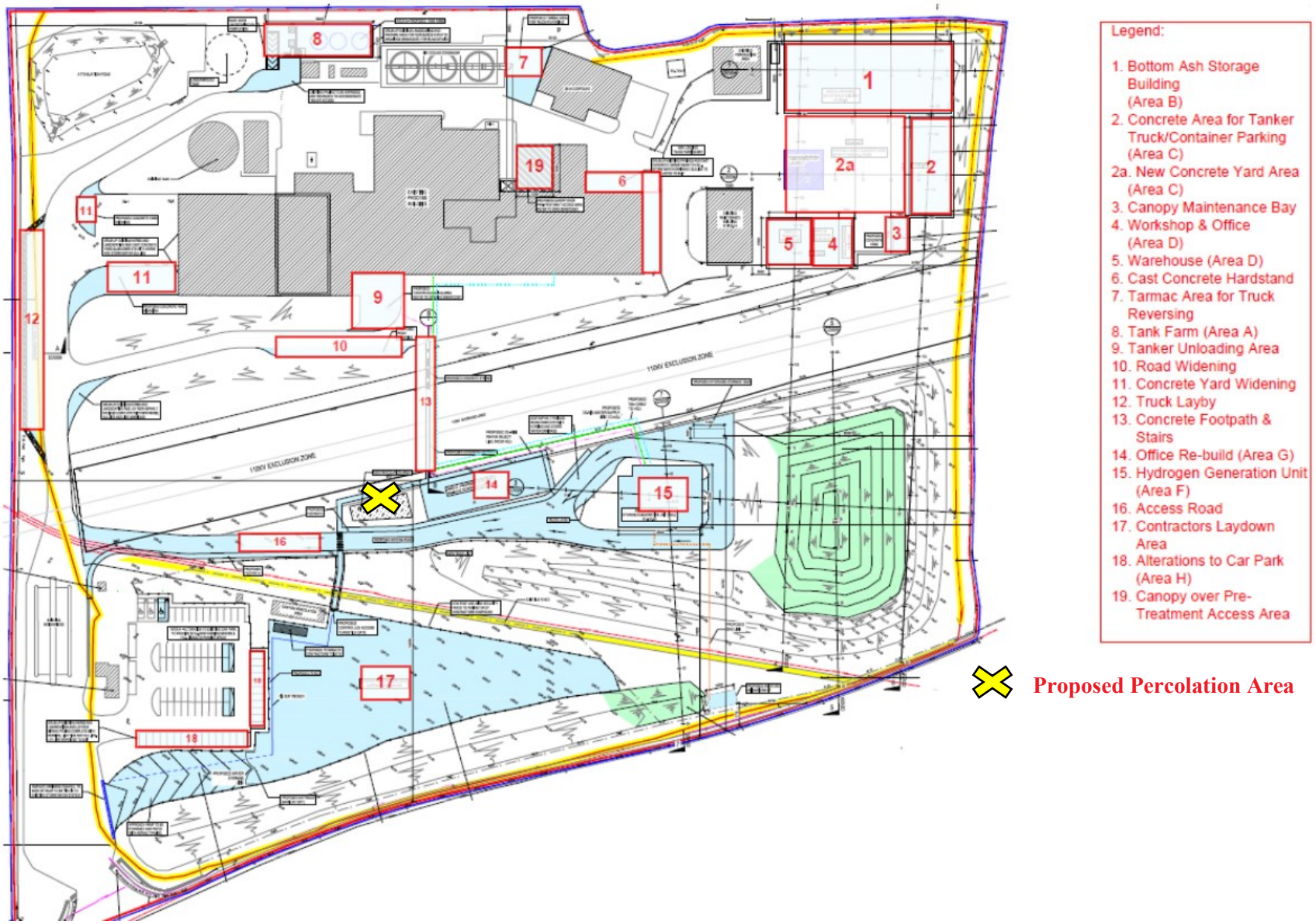

Figure 2: Location of proposed development in relation to existing buildings and facilities | existing buildings shown in grey, proposed development shown in red | not to scale

6. Planning and Environmental Assessment

Under Section 37(B) of the Planning and Development Act, 2000, as amended, the proposed development was considered a Strategic Infrastructure Development and evaluated for an environmental impact assessment. It was determined that there is potential for impacts to arise during the construction phase on the public road network, however these will be mitigated to minimise air and noise emissions. The proposed development also had the potential for positive impacts on the environment, resulting from the increase in national capacity to treat hazardous waste and production of hydrogen to contribute to the transition to a low carbon circular economy. No other significant adverse environmental effects were identified with the proposed development.

Under Section 37E of the Planning and Development Acts, 2000, as amended, An Bord Pleanála granted consent for the construction of the proposed development at Indaver (PL Ref.: ABP-307433-20) as described in Section 5. A copy of the EIAR has been uploaded as part of this IE Licence review application, refer to Attachments 6-2-5-1 to 6-5-2-3 (PL. REF. ABP-307433-20).

Considering the proximity of the proposed development to the River Boyne and River Blackwater SAC and SPA with Qualifying Interests of *Lutra lutra* (otter) and *Alcedo atthis* (kingfisher), respectively, a Natura Impact Statement (NIS) was prepared. This concluded that the operation of the proposed development would not adversely affect (either directly or indirectly) any European site, either alone or in combination with other plans or projects. A copy of the NIS has been uploaded in support of this IE Licence review application, refer to Attachment 6-2-1- AA Screening and NIS.

A copy of the determinations, EIAR, EIA Screening Report, Appropriate Assessment (AA) Screening Reports, and Natura Impact Statement (NIS) prepared with respect to the proposed development and the facility are included in this IE Licence Review application as Attachment 6-1 Stakeholder Engagement.

7. Contribution towards Environmental Policy and Legislation

7.1 Introduction

By 2030 Ireland's electricity demand is forecasted to rise by up to 50%. To manage this demand Ireland has set out a commitment whereby 80% of electricity used will be generated from renewable energy sources (RES-E) by 2030.

In relation to circular economy, Ireland has set a commitment to reduce food waste by 50%, increase the capacity for recycling of packaging waste by 70% and reduce the quantity of waste going to landfill, all by 2030.

The following sections describe how the Indaver facility[5] will contribute to the objectives set out in the relevant policies, acts and regulations relating to Ireland's climate objectives.

7.2 Climate Action Plan 2023

7.2.1 Objectives

In May 2019, the Irish Government declared a climate emergency. This means that the climate baseline must be considered sensitive to any increase in emissions of greenhouse gases. The objective of the Climate

[5] This includes the proposed increase in the waste being accepted and treated at the facility and the construction of a hydrogenation generation unit.

Action Plan (CAP) 2023 is to half the country's emission levels by 2030 (relative to 2018 levels) and achieve net-zero no later than 2050. The CAP sets out the carbon budgets, sectoral emissions ceiling and the actions required to achieve these goals.

The CAP also acknowledges the need to regulate the materials that go to landfill in order to meet the target of just 10% going to landfill by 2035. Through the continued diversion of municipal waste from landfill to a higher tier of the waste hierarchy and the recovery of valuable resources from the waste to energy process and the treatment of hazardous wastes, Indaver will contribute to the achievement of the new and enhanced Circular Economy targets as set out in the CAP 23 and Circular Economy and Miscellaneous Provisions Act 2022 discussed below.

The Indaver facility falls under the sectoral headings of Electricity, Industry and Circular Economy.

7.2.2 Annex of Actions

Further details on the delivery of CAP were published in March 2023, including an Annex of Actions for Ireland's commitment to the CAP 23. Actions to which Indaver's activities (i.e. waste-to-energy; hydrogen production) relate and a timeline for delivery have been included in the sections below.

7.2.2.1 Electricity

7.2.2.1.1 Overview

Electricity will play an important role in the decarbonisation of other sectors through electrification, including transport, heating, and industry. One of the critical measures in the CAP is to increase the proportion of renewable electricity to up to 80% by 2030.

Themes under the area of "Electricity" that apply to the Indaver facility include Accelerate Renewable Energy Generation. This theme includes the following Key Performance Indicators (KPIs):

- Increase in renewable energy share of demand from 50% (2025) to 80% by 2030; and
- Green Hydrogen in production from surplus renewable electricity.

According to the Sectoral Emission Ceilings as approved by Government on 28 July 2022, electricity emissions must be kept within 40 $MtCO_{2eq}$ between 2021 and 2025, and 20 $MtCO_{2eq}$ between 2026 and 2030.

Renewable energy generation has been identified as one of Ireland's decarbonisation opportunities. One of the measures to achieve the acceleration of renewable electricity generation is to ensure that renewable energy generation projects and associated infrastructure are considered to be in the overriding public interest, and therefore prioritised in planning and consenting processes.

The Indaver facility will continue to generate renewable energy. This is in alignment with the CAP objectives for the generation of much needed renewable energy to assist with the State's 2030 target.

Actions arising from "Electricity" which are applicable to the Indaver facility include:

- EL/23/5: Complete analysis to update Shaping Our Electricity Future to accommodate 80% renewables and align with carbon budgets and sectoral emissions ceilings for electricity. (Timeline Q2 2023).
- RE/23/11: Stimulate research, development and demonstration projects across industry and enterprise sectors with a focus on accelerating energy decarbonisation e.g., innovative approaches to decarbonising heat and electricity, energy storage solutions, renewable energy and energy efficiency solutions. (Timeline Q4 2023).

7.2.2.1.2 Further measures for the third carbon budget (2031-2035)

Further measures to be incorporated in subsequent CAP (2031-2035) were identified in the CAP 23. Measures relating to energy and green hydrogen include:

- Increased supply and use of green hydrogen;
- Policies to ensure zero carbon gases like hydrogen are utilised in the electricity sector to provide zero carbon dispatchable electricity at sufficient scale;

- Policies to support the development of inter-seasonal storage of hydrogen; and
- Implementation of measures on green hydrogen following publication of the Hydrogen Strategy and Roadmap.

The CAP recognises the significant role for green hydrogen in meeting high temperature heat demands post 2030, and carbon capture and storage potentially addressing the emissions from large point sources such as a those associated with industrial and energy production.

7.2.2.1.3 Indaver Facility

Indaver operate a waste-to-energy facility which generates approximately 21.5 MW_e of renewable energy annually. This contributes approximately 2.5 MW_e to the facility for the running of plant equipment and approximately 19 MW_e is available annually for export to the national grid.

In addition, the facility currently accepts and treats hazardous and non-hazardous waste streams which prevents waste export to Europe and facilitates an increase in Ireland's self-sufficiency for waste treatment.

To accelerate energy efficiency measures at industry level, the CAP 23 has set out a number of measures for higher energy usage companies. Energy management systems will now be mandatory for organisations that use more than 100TJ of energy per annum and energy audits for organisation with more than 10TJ of energy usage. This measure is likely to apply to Indaver, who have a typical annual energy usage of 16,849 MWh, which equates to 60.65 TJ.

Indaver has an existing programme of energy auditing in place which is implemented on-site in accordance with the current IE Licence and agreement with the Agency.

Indaver is already implementing waste-to-energy with the recovery of steam from the waste incineration process. This, along with the generation of 2.5 MW_e per annum to run the facility has enabled Indaver to save more energy usage annually. Typically, the facility produces 16,849 MWh (60.65 TJ) energy for use on-site and exports 129,698 MWh (466.91 TJ). Approximately 19 MW_e are available for export to the national grid each year. Approximately 50% of this electricity is generated from the biodegradable fraction of industrial and municipal waste and is therefore considered to be energy from renewable sources.

7.2.2.2 Industry

7.2.2.2.1 Overview

Industry emissions of greenhouse gases arise from two main activities: combustion for heat required during manufacturing, and process emissions. Reducing these greenhouse gas emissions associated with non-renewable fuels requires improvement in energy efficiency, and the increased use of biomethane and green hydrogen to displace combustion of natural gas. The CAP recognises that decarbonised gases such as these are a critical component for Ireland's energy system. Complying with energy savings and reduction in fossil fuel demand requires changes in the way goods and services are produced, consumed and designed.

To facilitate investment, the Department of Energy and Climate Change (DECC) has committed to bringing forward policies and regulatory frameworks to stimulate domestic biomethane production and use, and the development of a sizeable hydrogen sector. One such measure includes the development of a policy and regulatory roadmap for green hydrogen as part of the Hydrogen Strategy for Ireland. This is stated as a future measure going forward from 2031-2035.

The CAP also considers relying on more emerging technologies, such as hydrogen, for closing of gaps in unallocated emissions. One key area highlighted in the CAP 23 includes the production of green hydrogen from surplus renewable electricity. It is stated that *"longer term, green hydrogen can play a significant role in sector coupling (the increased integration of energy supply and end-use sectors), and in minimising the overall cost of decarbonisation across all sectors".*

Themes under the area of Industry which apply to the Indaver facility include:

- Reduction in fossil fuel demand reduction through energy efficient measures, and
- Increase in use of zero emission gas.

According to the sectoral emission ceilings as approved by Government on 28 July 2022, industry emissions must be kept within 30 MtCO2eq between 2021and 2025, and 24 MtCO2eq between 2026 and 2030.

Actions arising from "Industry" which will apply to the Indaver facility include:

- EN/23/7: Develop a Policy / regulatory road map for green hydrogen use. (Timeline: Q1 2023).
- RE/23/11: Stimulate research, development and demonstration projects across industry and enterprise sectors with a focus on accelerating energy decarbonisation e.g., innovative approaches to decarbonising heat and electricity, energy storage solutions, renewable energy and energy efficiency solutions. (Timeline Q4 2023).

7.2.2.2.2 Indaver Facility

Indaver will construct a hydrogen generation unit (HGU) which will either connect to the natural gas distribution network or be used for mobile hydrogen transport and other potential applications. This HGU will play a role in facilitating future energy demands and contributing towards Ireland's CAP 2023, which aims to reduce non-renewable energy consumption by 80% by 2030.

It is anticipated that the HGU will be used as an alternative means of energy generation during times of curtailment. Presently, when the facility is curtailed or prevented from exporting power generated from the steam turbine to the national grid (approximately 1,000 hours per year) which can be due to the lack of demand or excess wind generation, this "excess" electricity is destroyed. With the construction of the HGU the "excess" electricity will be used to generate hydrogen which will either be fed to the natural gas grid or be stored on-site for trucks, buses and other transport sectors which have been either retrofitted or designed to run on hydrogen. Alternatively, the hydrogen will be tankered off-site for industrial use or to fuel distribution centres.

The HGU has the potential to provide a low-carbon solution for both heat and transport. This aligns with existing policy frameworks at national and regional level which highlight the pressing need to facilitate the development of enhanced electricity and gas supplies in order to support the State's transition to a low carbon economy, as well as contributing towards Ireland's long-term for a climate neutral economy by 2050.

In line with RE/23/11, Indaver are taking innovative steps towards the generation of hydrogen in Ireland and are one of the first organisations to transition to the generation of green hydrogen. Through this generation, Indaver will contribute towards objectives of energy and resource efficiency.

7.2.2.3 Circular Economy

One of the main themes of circular economy referred to in the CAP is waste. Currently, Ireland's material consumption is well above the EU average, indicating that there is a need for savings in greenhouse gas emissions through maximising the efficiency of our material usage and waste disposal / recovery.

2025 KPIs in the CAP 2023 for waste include obligations for the separation of waste collection. This has been extended to include bio-waste and commercial waste by the end of 2023, hazardous household waste by the end of 2024, and textiles by the end of 2024. In addition, measures to reduce waste sent to landfill have also been included such as reducing the amount of municipal waste landfilled to 10% by 2035.

Sources of waste emissions include solid waste disposal, composting, waste incineration (excluding waste to energy), open burning of waste, and wastewater treatment and discharge. Landfills are the largest source of these emissions.

Further information relation to the Indaver facility and Circular Economy is provided below.

7.3 The Circular Economy and Miscellaneous Provisions Act 2022

7.3.1 Overview

The Circular Economy and Miscellaneous Provisions Act 2022 defines Circular Economy for the first time in Irish domestic law. The Act incentivises the use of reusable and recyclable alternatives to a range of wasteful single-use disposable packaging and other items.

The Act tackles a number of topics such as illegal dumping and littering, environmental levies, phasing out of disposable coffee cups, waste recovery, segregation of commercial waste, ending the exploration and mining of coal, lignite and oil shale.

The Act will help with streamlining the process for decisions made by the EPA on End-of-Waste and By-Product applications, which allow materials which might otherwise be treated as waste to be recycled or re-used in other applications (where safe to do so).

7.3.2 Indaver Facility

Indaver operate a Waste-to-Energy facility which produces both renewable and non-renewable energy. Indaver is already preventing export of waste materials to the EU by treating and pre-treating these materials on-site for disposal and recovery within Ireland.

The increase in the hazardous waste accepted for incineration will contribute to preventing further amounts of hazardous waste being exported outside of Ireland.

The pre-treatment of third-party ash on-site facilitates the recovery of waste materials in an authorised facility in Northern Ireland. The expansion of recovery and treatment capacity for waste to energy fly ash and residues can be achieved through this process.

The establishment of a bottom ash storage building, which will have a storage capacity of up to 5,000 tonnes of bottom ash, will allow flexibility to export bottom ash to continental Europe for recovery, if required, in the event that a dedicated recycling facility for this material is not developed within the State in the medium to long term. Indaver is keen to reuse this material in a sustainable and environmentally sound manner, reduce export and contribute towards Priority Action 13.2 (EPA/ LAs) as set out in the Draft National Waste Management Plan for a Circular Economy: *Investigate the potential for circularity of Incinerator Bottom Ash using the by-product or end of waste regulatory mechanisms.*

As part of a waste to energy process, bottom ash and boiler ash / flue gas cleaning residues are produced, such residues and third-party residues are segregated on -site into distinct areas: bottom ash for recovery; boiler and ash and flue gas cleaning residues for pre-treatment and ferrous and non-ferrous metals.

Part of the bottom ash segregation process also includes the recovery of ferrous and non-ferrous metals from bottom ash using overband magnets and an eddy current separator. Ferrous metals are sent for recovery in Ireland and non-ferrous metals are sent to mainland Europe for recovery also. This further prevents waste to landfill and allows for the isolation of valuable wastes for recovery.

The operation of the hydrogen generation unit (HGU) will be powered by the 1,000-hour annual curtailed electricity generated in the steam turbine. Here, thermal energy generated from the waste-to-energy process that may otherwise have been destroyed will be used to produce hydrogen by electrolysis on-site using renewable energy. The hydrogen generated will either be fed to the natural gas grid, stored on-site for vehicles, tankered off-site for industrial use or transported to fuel distribution centres.

7.4 Climate Action and Low Carbon Development (Amendment) Act 2021

7.4.1 Overview

The Climate Action and Low Carbon Development (Amendment) Act 2021 commits the Irish Government to moving towards a climate-resilient and climate-neutral economy by the end of 2050. One of the main elements of this Act was the proposed introduction of carbon budgets and climate reporting. The Government are now required to introduce carbon budgets for three five-year periods from 2021.

In the amended Act, significant changes have been made to enable Ireland to meet the Government's plan to become climate-resilient, biodiversity rich and climate neutral by 2050:

"3. (1) The State shall, so as to reduce the extent of further global warming, pursue and achieve, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy (in this Act referred to as the 'national climate objective')."

In line with the Act, Ireland has committed to halving greenhouse gas emissions by 2030 and reaching net zero by 2050. Ireland's Climate Action Plan 2023 lays out the detailed measures to reduce this and meet forthcoming EU targets.

7.4.2 Climate Reporting

Section 15 of the Climate Action and Low Carbon Development (Amendment) Act 2021, amends Section 14 of the Principal Act (Climate Action and Low Carbon Development Act 2015) and relates to climate reporting:

"14A. (1) The Minister shall, in each year after the publication of the annual report and the Agency's reports, at the written request of a joint committee, attend before it to give an account, for the period of the annual report, of the following matters:

> *(a) progress under the most recent approved climate action plan, including the policies, mitigation measures and adaptation measures that have been adopted;*
>
> *(b) whether there has been a reduction or increase in greenhouse gas emissions based on the Agency's reports;*
>
> *(c) compliance with the carbon budget and any measures envisaged to address any failure to so comply;*
>
> *(d) the implementation of adaptation policy measures under the most recent approved national adaptation framework.*

(2) Each Minister of the Government shall, in each year after the publication of the annual report and the Agency's reports, at the written request of a joint committee, attend before such committee to give an account of the matters specified in subsection (3).

(3) For the purposes of subsection (2), each Minister of the Government shall, in relation to the sector for which the Minister of the Government has responsibility, give an account, for the period of the annual report, of the following matters:

> *(a) sector specific progress under the most recent approved climate action plan, including the policies and measures that have been adopted and any significant failure to implement such policies and measures, or to achieve sector specific targets;*
>
> *(b) whether there has been a reduction or increase in greenhouse gas emissions based on the Agency's reports;*
>
> *(c) compliance with the sectoral emissions ceiling and any measures envisaged to address any failure to so comply;*
>
> *(d) the implementation of adaptation policy measures and any adaptation policy measures envisaged, where a sectoral adaptation plan has been prepared.*

(4) The joint committee may, where it considers it appropriate, having received an account from the Minister under subsection (1) or a Minister of the Government under subsection (2), prepare a report on the recommendations of the committee with regard to any of the matters specified in paragraphs (a) to (d) of subsection (1) or in paragraphs (a) to (d) of subsection (3), as the case may be, and where the committee prepares such a report, it shall provide a copy of the report to the Minister of the Government concerned.

(5) A Minister of the Government shall consider any report provided to him or her under subsection (4) and that Minister shall provide a response in writing to the joint committee within a period of three months of the receipt of that report.

(6) In this section, 'the Agency's reports' means the national greenhouse gas emissions inventory and the projection of future greenhouse gas emissions prepared by the Agency.".

7.4.3 Compliance

In accordance with Condition 11.9 and Schedule D of IE licence (W0167-03), Indaver submit an Annual Environment Report (AER) to the Agency which covers data from the previous calendar year. The Agency compiles the relevant climate data from licensed sites, including Indaver's facility, to meet their obligations under Section 15 of the 2021 Act.

Indaver report the following information:

- Data on emissions from the facility and compliance with parameters;
- Environmental complaints, incidents and financial provisions;
- Pollutant Release and Transfer Register (PRTR) for the previous year;

Typically, these AERs report on the compliance of environmental emissions (including emissions to air, waste, ground, stormwater, sewer and noise); annual energy generation, and energy and water consumption; environmental goals and energy efficiency projects; environmental complaints such as noise, odour or dust etc; environmental incidents; and waste acceptance, generation and management details.

Typically the site produces 240,000GJ of renewable energy each year. The proposed development will further contribute towards the increased generation of renewable energy and consequently, a reduction in greenhouse gas emissions for the facility.

7.5 National Adaptation Framework and Sectoral Adaptation Plans

The Climate Action and Low Carbon Development (Amendment) Act 2021 requires the development of National Adaptation Framework (NAF), under Section 5, and Sectoral Adaptation Plans under Section 6 of the Act.

The NAF sets out the actions Ireland is taking to reduce the vulnerability to and increase resilience in response to climate change. The current NAF was developed in 2018.

Under the Act, the NAF must avail of adaptation measures across different sectors to:

Section 5 (2) (a)

(i) reduce the vulnerability of the State to the negative effects of climate change, and

(ii) avail of positive effects of climate change that may occur.

The NAF recognises identifies 12 sectors requiring Sector Adaptation Plans. These Plans were approved by the Government and published in 2019. An updated NAF will be published in 2023. The revised NAF will underpin the development of a new cycle of Sectoral Adaptation Plans.

The current plans include:

- Agriculture, Forestry and Seafood;
- Biodiversity;
- Built and Archaeological Heritage;
- Transport infrastructure;
- Electricity and Gas Networks;
- Communications Networks;
- Flood Risk Management;
- Water Quality and Water Services Infrastructure; and
- Health

The sector which is applicable to Indaver is the Electricity & Gas Networks Sector. The Adaptation Plan for Electricity and Gas Networks Sector (Energy) examines the impacts of climate change and weather-related events, both past and projected, on energy networks (gas and electricity).

The Plan identifies that EirGrid are currently examining the next steps required to go beyond 40% renewable electricity. In addition to supplying approximately 152GWh of energy (approximately 50% of which is renewable) to the grid each year, the Indaver facility is contributing to this objective with the construction of the Hydrogen Generation Unit (HGU).

7.6 Conclusion

The Indaver facility is contributing to the relevant EU and national policies and objectives relating to the climate action, the sustainable management of waste and circular economy, and is as a plan-led development based on the overarching principles of proper planning and sustainable development.

As the facility will continue to generate and use renewable electricity for its own operational activities, the existing low site demand for power sourced from fossil-fuel based generation will be maintained. Additionally, the construction of a hydrogen generation unit (HGU) for connection to the gas transmission/distribution network and/ or for use in mobile transport applications will improve the overall energy efficiency and sustainability of the facility's operations.

The treatment of additional hazardous waste at an existing installation provides an associated environmental benefit of avoiding the transport of the hazardous waste over longer distances or via export, which in turn is compatible with wider climate mitigation policy positions and the envisaged transition to a low carbon economy as set out in the CAP 2023.

The increase in waste accepted and treated at facility also contributes towards the reduction in reliance in European transport and improved self-sufficiency in the management of hazardous wastes in the State.

Overall the Indaver facility will contribute towards the following areas:

- supportive of national and regional policy which underlines the pressing need to facilitate the development of enhanced electricity and gas supplies in order to support the State's transition to a low carbon economy;
- supportive of emerging policy on the generation of hydrogen and the role that this innovative and versatile technology can play in the decarbonisation of the transport and other sectors;
- self-sufficiency in hazardous waste treatment within the State and reducing the carbon emissions associated with the export of hazardous waste, through the increase in hazardous waste acceptance up to a maximum of 25,000 tpa and the treatment of hazardous residues;
- compliance with circular economy policy and amended Directives on Waste and Landfill, and the CAP 2023;
- more ambitious recycling targets as set out in circular economy policy, by extracting ferrous and non-ferrous metals from bottom ash;
- sustainable, secure and competitive energy generation in line with energy policy objectives;
- delivering the expansion of infrastructure of strategic importance with private sector investment; and
- contribution towards the enhancement of regional economic development through employment creation and provision of ancillary benefits to the wider region.

8. Contribution to Security of Energy Supply

The Meath waste to energy plant contributes to Ireland's goal for energy independence, energy security and the stability of the electricity grid.

The primary purpose of a WtE facility is to provide a treatment solution for residual waste - with electricity being produced as a by-product. The facility must operate 24 / 7 to adequately fulfil its purpose. Therefore, the energy produced at waste-to-energy facility is reliable baseload power – providing security of supply from an indigenous fuel source. It can provide Ireland with a domestic supply of energy, reducing our reliance on imported fuel, contributing to diversity of energy supply in addition to supporting national energy objectives of security and competitiveness of generation.

The electricity generated from the facility is partly renewable, as circa 50% of the feedstock is categorised as biodegradable waste and therefore biomass according to the Renewable Energy Directive. The exported electricity therefore contributes to Ireland's renewable electricity targets.

Ireland's electricity system is being developed around intermittent renewables. Supply within this sector fluctuates significantly and the increased penetration of renewable electricity further drives the need for more robust sources of renewables to achieve net zero carbon targets. Energy from waste satisfies this demand for more consistent green energy levels when the sun isn't shining or the wind blowing. It is an indigenous source of renewable electricity, backing Ireland's energy independence all while fulfilling a hygienic task – the treatment of non-recyclable waste.

9. BAT and BREF

Based on the existing and proposed activities to be carried out at the Indaver facility, as described in **Section 2** a review of BATC, BREF and National BAT guidance notes was undertaken.

The results are set out in Attachments 4-7-1 to 4-7-6 of the IE Licence Review application and are summarised as follows:

- BAT conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration;
- BAT conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste treatment;
- The EU Commission Reference Document on Best Available Techniques for Energy Efficiency February 2009;
- The EU Commission Reference Document on Best Available Techniques on Emissions from Storage July 2006
- JRC Reference Report on Monitoring of Emissions to Air and Water from IED Installations; and
- The EU Commission Best Available Techniques Reference Document for the Production of Chlor-alkali, 2014.

10. Derogation Under Section 86A(6)

No derogation is being requested [or pursued] under Section 86A(6) of the Environmental Protection Agency Act 1992, as amended.

11. Emissions Overview

Assessments of potential environmental effects for the proposed development have been carried out in order to support the IE licence application. These include assessments of potential environmental effects to ground, water, air, noise and waste.

11.1 Emissions to Ground

Domestic wastewater arising from site, such as sanitary wastewater from toilets, washrooms and the canteen, is treated onsite by proprietary treatment systems (Puraflo systems) which then pass through percolation areas, to ground. This results in minor emissions to soil.

Domestic sewage is collected in an onsite domestic-type effluent collection treatment system, where effluent from the septic tank is passed through the Puraflo unit before being discharged to the percolation areas. There are two existing systems onsite which comprise a septic tank, pump/ sump, a modular Puraflo unit and associated percolation area. One effluent treatment area is located on the northern boundary of the site and consists of an eight-modular system. The second smaller effluent collection and discharge system is a two-modular Puraflo system located at the gatehouse building. Refer to **Figure 1**.

As part of the proposed development, a new treatment system will be installed which will be similar to the existing effluent collection and treatment process on site. Domestic wastewater arising from the new emergency response team building will drain to the existing treatment system and percolation area whilst wastewater from the new office rebuild and contactors facilities will drain to the new treatment system and percolation area. This will be used in addition to the holding tank. Overall, there is sufficient capacity to manage wastewater arising from site. Refer to **Figure 2**.

11.2 Emissions to Water

11.2.1 Storm Water

There are no direct discharges to surface water on site.

There is one stormwater discharge point (SW-1) which drains to the Cruicerath stream c.130m to the west of the site, which in turn leads to the River Nanny.

For the proposed development, rainwater from the new areas will discharge into the existing stormwater system on site. The current system is attenuated at the point of discharge to the watercourse located at the northwest corner of the site. Any spills or wash waters generated within the hydrogen generation unit building will be contained and directed to the existing spilled water tank on site. Rainwater from the new concrete yard will drain to a new attenuation tank before connecting into the site wide drainage infrastructure. The existing infrastructure has the capacity to attenuate the additional run-off.

Contaminated run-off arising from firefighting operations is contained by collection in the stormwater drainage system and draining to both the underground contaminated water tank and by overflow when full to the attenuation pond. Contaminated run-off arising from firefighting operations associated with the proposed development will be managed as per existing fire water drainage infrastructure.

11.2.2 Wastewater

There are no direct discharges to sewer on site.

As mentioned in **Section 4.2.2,** process and sanitary wastewater are produced on site. Wastewater arising from process activities is reused in the process or tankered offsite for treatment and sanitary wastewater is treated onsite by Puraflo systems which then pass through a percolation area to ground.

Domestic wastewater arising from the new emergency response team building will drain to the existing treatment system and percolation areas and wastewater from the new office rebuild and contactors facilities will drain to a new treatment system and percolation area (**Figure 2**). Wastewater arising from process activities will tie into the existing infrastructure.

11.3 Emissions to Air

As part of this licence review application, no new main emission points to air are proposed.

As part of the licence review process, a review of minor and potential emissions was carried out for the existing and proposed development. These emission points relate to air handling units (AHUs), passive air extracts, vents, valves, pumps and filters across the site. These adjusted emission points have been reflected in Attachments 7-4-1 and 7-4-2, concerning emissions to air.

An Air Emissions Impact Assessment (Attachment 7-1-2) assessed the impact of the main emission point whose parameters include dust, gaseous and vaporous organic substances, hydrogen chloride, hydrogen fluoride, sulphur dioxide, nitrogen oxides, heavy metals, dioxins / furans and carbon monoxide. To accommodate fluctuations in the thermal load of the plant and the associated changes in the flue gas flowrate, Indaver is applying to increase the maximum average daily flue gas flowrate from 183,700 Nm^3/hr to 200,000 Nm^3/hr. An updated air dispersion model was carried out in 2023 (Attachment 7-1-2) to reflect an updated air volume flow rate of 200,000 Nm^3/hr. Both the EIAR and updated air modelling assessment conclude that all results are in full compliance with all relevant ambient air quality standards and the proposed development will have an imperceptible impact on air quality.

11.4 Noise Emissions

Noise modelling was carried out at four noise monitoring positions as part of the application for the proposed development, located at the boundary of the site (AN1-1 to AN1-4).

The result of the assessment confirms that cumulative noise levels associated with existing and proposed operational noise sources are within the noise emission limits for the facility during the day, evening and night-time periods.

In accordance with the existing IE Licence (W0167-03), a noise monitoring survey will be carried out annually to demonstrate operations of the site does not exceed the noise levels.

11.5 Waste

Waste streams arising from the existing facility include the following process wastes:

- Bottom Ash (non-hazardous)
- Boiler Ash
- Flue Gas Cleaning Residue
- Ferrous metals
- Non-ferrous metals

Typical volumes have been outlined in **Table 4.** Other wastes generated include minor quantities of waste from facility operations and staff and visitor facilities.

12. Raw Materials and Energy

12.1 Raw Materials

Typical raw materials for the waste-to-energy process include lime, activated carbon / clay and water for flue gas cleaning. In addition. water is used for boiler water, general site cleaning and firefighting activities; fuel oil is consumed in burners for start-up and shutdown; and aqueous ammonia is used in the Selective Non-Catalytic Reduction (SNCR) process for the reduction of nitrogen oxides.

Raw materials, intermediates and products are predominately stored at the following locations:

- The main process building, for the storage of quick lime, hydrated lime, activated carbon and clay in separate silos;
- Bottom ash hall, for the storage of bottom ash, ferrous and non-ferrous metals;
- Flexible Intermediate Bulk Containers (FIBCs), for the storage of boiler ash, flue gas cleaning residues and water mixture;
- Temporary mobile storage tank (south of main process building) for the storage of aqueous wastes; and

- Designated bulk tanker unloading and storage area, for the storage of fuel oil and ammonia tanks.

The proposed development will include additional storage capacity for the following elements:

- Development of an aqueous waste tank farm and tanker loading area for the storage of aqueous wastes;
- Development of a bottom ash storage building, for the storage of bottom ash;
- Development of three new silos in the main process building for the acceptance and storage of third-party residues and construction of a concrete area for tanker unloading of third party ash for pre-treatment;
- The re-purposing of the existing warehouse and workshop building on site will and re-location of warehousing and workshop functions to a new two storey building.

12.2 Energy

There are three sources of energy predominantly used on-site: electricity, light fuel oil and renewable energy which has been generated on-site. Electricity is supplied to the site from the national grid.

The existing facility generates up to 21.5 MW_e from its waste to energy treatment process. Approximately 19 MW_e of this is exported to the national grid and the remaining 2.5 MW_e is consumed by the equipment in the plant. 46.3% of the electricity generated from the waste-to-energy process is renewable. Heat from waste that has been burnt in the furnace is used to generate steam from water in the boiler. This steam powers the turbine which is used to generate the electricity. The remaining 53.7% of the electricity generated is considered non-renewable.

The proposed development will include a 10 MW_e hydrogen generation unit for connection to the natural gas transmission / distribution network for mobile hydrogen transport and other potential applications.

13. Emission Abatement and Containment of Accidental Spillages

A significant level of existing infrastructure is in place to minimise the potential for operations at the Indaver site to result in impacts to the surrounding environment.

Indaver employ a range of abatement, treatment and recovery systems for minimising emissions to air, surface water and ground, including the following:

- All waters produced and any leaks / spills within the process building are directed to an underground containment tank with a capacity of 50m^3. Water from this tank is either treated on site or used to supplement process water requirements or transported off-site for treatment or disposal to an appropriately permitted or licensed facility. The aqueous waste tanker unloading area is graded towards this underground tank.
- Hazardous materials are stored in bulk tanks which are double skinned and equipped with interstitial leak detection or single skinned and appropriately bunded. Tanks are fitted with level monitoring.
- The designated bulk tanker unloading area for diesel and ammonia is graded towards a surface drainage channel.
- Prior to unloading, a diversion valve on the stormwater drainage system is activated which diverts the drainage from the surface drainage channel to a 2m^3 holding tank. This ensures that during tanker unloading any spills/leaks are contained within the unloading area. Any contained spills of hazardous materials will be pumped out and either treated on site (trace contamination) or sent off-site to an appropriately licensed or permitted facility.

- Aqueous liquids are accepted and stored in a 70m^3 storage tank, which is double skinned, with leak detection and located in a contained area. Any potential spills are captured in the underground tank. All other hazardous materials are stored in smaller quantities (e.g. 200L drums, IBCs) in individual bunded areas, such as spill pallets or trays, to contain any spills / leaks.
- A surface water drainage system is in place which includes an oil interceptor to retain any oil / hydrocarbons present in surface water runoff; pre-attenuation pond monitoring chamber which diverts any contaminated runoff to an underground diverted water tank with a capacity of 300m^3; and surface water attenuation system which prevents the discharge of any contaminated runoff from the site in the event of accidental leaks/spills or emergency situations.
- Fire suppression is provided by an on-site firewater storage tank with an effective fire-fighting storage volume of 2,185m^3. Of the total tank capacity 330m^3 is provided for process water requirements with 1,855m^3 fully reserved for firefighting.
- Spill response materials such as spill mats, absorbent materials, brushes, non-sparking shovels are located in designated locations in the plant.
- Lightning conductors and protection are in place, roofs designed for abnormal volumes of snow.
- Back up diesel generator in place and checked routinely.
- Conservation vents on bulk tanks to prevent overpressure.
- Tanks elevated on concrete plinths to prevent vehicle collision.
- Pipework from tanks is located over-ground over paved areas and undergoes regular visual inspection.
- Specific procedures are implemented for the transport of raw materials and wastes to and from the main waste building and staff carrying out the task are trained to reduce the likelihood of spillage or accidents.
- Personnel are adequately trained, with staff receiving training on chemical awareness and spill response where appropriate.
- Deliveries are supervised so any spillage is detected quickly. Employees are trained to deal with spills and spill kits are readily available on site.
- Contractor approval process and site induction for drivers and contractors in place; site operative accompanies driver during unloading process.
- All equipment and pipework containing hazardous materials undergoes appropriate maintenance and inspection as part of maintenance management system.
- Labelling of storage container and vessels as to identify contents and hazards.
- Other than bulk tanks, all other hazardous materials on site are stored in smaller quantities (e.g. IBCs, 200L drums, 25L containers) in appropriate location e.g. chemstores, bunded pallets.
- Bunds and pipelines are regularly inspected, and integrity tested every 3 years in accordance with the IE licence conditions.
- All hazardous materials are stored in individually bunded areas as appropriate to their size and contents e.g. all single skinned tanks are bunded for 110% of their capacity unless the tanks are double skinned with leak detection.
- Waste handling procedures in place for all operational activities.
- All works on site is controlled by a permit system which ensures that a valid method statement and risk assessment is carried out to prevent any damage and, therefore, leakage / spills.
- Samples are taken from hazardous liquids and a chemical analysis is carried out before aqueous waste is unloaded into a storage tank to ensure it can be treated appropriately.

- Waste acceptance procedure is in place and is adhered to in order to prevent non-approved waste entering the facility.
- Gas Cylinders secured in upright position with chains or straps in place to prevent release of hazardous gaseous materials.
- Fire prevention system in place which includes dry deluge sprinkler system around the plant; wet sprinkler system on burners; hose reels, fire extinguishers and fixed fire hoses located throughout the plant; fire hydrants located outside tipping hall; water cannons in bunker area which can be operated remotely from the control room or manually locally, and heat detection is in bunker area.
- Negative pressure in tipping hall which draws odours into bunker.
- The majority of the noise generating equipment is housed internal to the main building. Practicable noise control measures are employed, and acoustic attenuators are employed where practical.
- Constant monitoring of air emissions from stack with alarm system to detect measurements outside of the monitoring limits. The EPA is informed of any incidents.

The existing abatement systems, which are in operation at the Indaver site will also be adopted for the proposed development, where required. In addition, the following risk reduction measures will be employed as part of the proposed development:

New Aqueous Waste Tank Farm

- Tanks will be fully bunded, in accordance with the 110% rule and 25% rule (i.e. bund is large enough to retain at least 110% of the volume of the largest tank and 25% of the total inventory stored at the bund).
- Tanks will be fitted with shielding to protect against the risk of a release outside of the bund due to tank failure.
- Tanks will operate with a nitrogen blanket on the vapour space, to protect against the potential for evolution of flammable vapours from the liquid surface.
- Welded pipelines to minimise the use of flanged connections.
- Preventative maintenance regime to ensure integrity.
- Design to incorporate measures to protect against siphoning of the tank contents in the event of line failure.
- Permit to work system to control potentially invasive works on site.
- Impact protection at tank farm and at tanker loading area.
- Deliveries will be manned activities carried out by trained operators.
- Hoses will be inspected prior to transfers taking place.
- Visual inspection of tankers prior to acceptance on site.
- Overfill protection system on tanks (level gauges, level switches).
- Personnel protective equipment (PPE) for operators involved in carrying out deliveries, as required.
- Contents of the aqueous waste tank are dilute (>90% water), thereby reducing the fire hazard.

New Hydrogen Plant

- Interlocks on system, to enable a leaking section of line to be isolated, reducing the potential quantity released to atmosphere.
- Pressure reduction at connection for vehicle fuelling.

- Siting of facility and separation distances to other plant, equipment, buildings, etc. in accordance with NFPA 55.
- Preventative maintenance system on plant and equipment, to ensure integrity and fitness for purpose.
- Forced ventilation at indoor area of plant, to prevent risk of hydrogen accumulation at ceiling level.
- Impact protection on hydrogen plant.
- Speed limit in place on site.
- Road tanker movements supervised by trained Indaver operator.
- Visual inspection of road tankers prior to acceptance on site.
- Transfer hoses inspected prior to use.
- ATEX zoning, with control of ignition sources.

14. Assessment of Potential Effects

14.1 Assessment of Effects to Air Emissions

An air modelling assessment was carried out in 2019 using the EPA-approved Breeze AERMOD computer package (Version 19191) as part of the EIAR Chapter 8 – Air accompanying this application. This model was based on a maximum emission flow of 183,700 Nm^3/hr. To accommodate fluctuations in the thermal load of the plant and the associated changes in the flue gas flowrate, Indaver is applying to increase the maximum average daily flue gas flowrate from 183,700 Nm^3/hr to 200,000 Nm^3/hr. An updated air modelling assessment was undertaken in 2023 using the updated AERMOD (Version 22112) (included as Attachment 7-1-2).

Air modelling results, which are provided as Attachment 7-1-2 Air Emissions Impact Assessment, demonstrates that with a volume flow rate of 200,000 Nm^3/hr the proposed development will be fully compliant with all relevant ambient air quality standards even when modelled at the maximum emission limit values as per W0167-03.

The EPA-approved Breeze AERMOD computer package (Version 21112) was released in 2021 and may result in variations in predictions as compared to previous modelling studies. The model predicts the highest Ground Level Concentrations (GLCs) caused by emission of various pollutants at receptors in the vicinity of the site. The model requires data on:

- Emission sources;
- Neighbouring buildings;
- Location and elevation of receptors;
- Meteorological data.

The input data to the AERMOD model was the same as the previous assessment in 2019 with the exception of the following:

- The maximum normalised volume flow was increased from 183,700 Nm3 /hr to 200,000 Nm^3 /hr,
- Meteorological data from Dublin Airport has been updated from years 2014 – 2018 to 2017 – 2021.

The model was used to calculate 1-hour, 8-hour, 24-hour, monthly and annual average GLCs of relevant pollutants and represents the most conservative or worst-case concentrations which could arise. Several worst-case conditions are assumed to be coincident:

- Emission sources are operating at maximum flow rates;

- Emission sources are operating at maximum permitted emission concentrations;
- Emission sources are operating continuously over the period of assessment;
- The assessment is based on the meteorological conditions that give rise to the maximum predicted concentration over a three-year period; and
- The receptor location which experiences the maximum predicted concentration is presented.

The proposed development will not include any additional main emissions to air, however, several minor and potential emissions will occur.

Air modelling of the revised volume flow of 200,000 Nm^3/hr and use of AERMOD Version 21112 have not impacted the conclusions of the EIAR Chapter 8 – Air. The impact of the proposed development on air quality is predicted to be imperceptible with respect to the operational phase.

14.2 Assessment of Effects of Noise Emissions

Baseline noise levels were obtained from Noise Monitoring Survey Report for the Indaver Meath site undertaken in 2018 and 2019. Supplementary monitoring was conducted (October 2019) via an unattended monitoring device along the south-eastern boundary of the Indaver facility, at the approximate location of AN1-1. This was to gain additional noise monitoring data over day, evening and night -time periods.

Once operational, the potential noise sources associated with the proposed development will be from:

- Mechanical and electrical equipment;
- Vehicle movements / activities on site, and
- Additional vehicular traffic to and from the site.

Results from the noise modelling confirmed that with the addition of the proposed development the Indaver site will continue to operate within the noise emission limits as set out in IE W0167-03, during day, evening and night-time periods.

Operation of the proposed development will be in accordance with BAT principles, and in compliance with the IE licence for the site to ensure that inputs to and subsequent impacts to the ambient environment does not occur during normal and / or emergency conditions. Where required, acoustic enclosures will be provided to operate in accordance with the noise limits as set out in IE licence W0167-03.

Noise monitoring will be carried out in accordance with the licence provisions to demonstrate operations of the site does not exceed the noise levels.

The assessment has concluded that cumulative operational noise levels associated with the existing and proposed development can continue to operate within the facilities IE licence noise emission limits. The overall effect is imperceptible to not significant when added to the prevailing noise environment.

14.3 Assessment of Effects of Waste Emissions

The proposed development includes the increase in hazardous waste treatment capacity at the site of 15,000 tonnes per annum (tpa), giving a new total 25,000 tpa of hazardous waste treatment. This will lead to small increases in raw materials, as the majority of this 15,000 tpa to be treated will be aqueous hazardous waste / contaminated water.

The site will also accept an additional 30,000 tpa of third-party boiler ash and flue gas cleaning residues for pre-treatment at the pre-treatment plant. This will result in 39,000 tpa of treated residues being sent off-site for recovery each year..

The additional residues will be similar in composition to the boiler ash and flue gas cleaning residues from the existing facility. The total amount of additional pre-treated residues from both the waste to energy plant and that accepted from third parties, will be sent for recovery to salt mines licensed to accept this type of waste.

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. A beneficial reuse will be sought for the bottom ash. Metals will be recovered from the bottom ash.

The proposed development will have a beneficial residual impact as it will reduce the quantity of hazardous waste being exported to Europe for disposal. This is reflected in the reports included in Attachment 6-3-1.

14.4 Assessment of Effects of Emissions to Storm Water

The existing site stormwater drainage system has been designed in general accordance with Sustainable Drainage Systems (SuDS) principles and collects rainwater from all roofs, hardstands, roads and landscaped areas. Storm water runoff from the site passes through a Class 1 petrol interceptor before being collected in an attenuation pond. Two continuous monitoring points in the system measure TOC, pH and conductivity, prior to the attenuation pond and at the outfall of the attenuation pond. Stormwater must be below set trigger levels before it can enter either the pond or before it can be discharged at the outfall and ultimately draining to the Cruicerath stream which leads to the River Nanny via a semi-dry drainage ditch.

Storm water runoff arising from the construction and operation of the proposed development will be managed and controlled as per the site's existing stormwater drainage system. Where required, new drainage infrastructure will be provided in order to collect runoff from new hard standing areas. The existing storm water system has sufficient capacity to accommodate the proposed development.

The proposed development is predicted to have an overall neutral long-term impact on water quality and hydrology. Accordingly, there are no mitigation measures required and as such there will be no significant residual effect on hydrology, drainage characteristics of the site or water quality during operation. There is no impact expected to the public sewer as a result of the proposed development.

14.5 Assessment of Effects of Emissions to Ground

Domestic sewage is collected in an onsite domestic-type effluent collection treatment system. There are two existing systems on site which comprise a septic tank, pump/ sump, a modular Puraflo unit and associated percolation area. Effluent from the septic tank is passed through the Puraflo unit before being discharged to the percolation areas. One effluent treatment area is located on the northern boundary of the site and consists of an eight-modular system. The second smaller effluent collection and discharge system is a two-modular Puraflo system located at the gatehouse building.

As part of the proposed development, a new treatment system will be installed which will be similar to the existing effluent collection and treatment process in that it will include a septic tank, pump/sump and a Puraflo unit before discharging to a percolation area.

Domestic wastewater arising from the new warehouse/workshop and emergency response team building will drain to the existing treatment system and percolation area, whilst wastewater from the new office rebuild and contactors facilities will drain to the new treatment system and percolation area. This will be used in addition to the holding tank. Overall, there is sufficient capacity to manage wastewater arising from site.

There are no planned discharges to ground or likely changes to the current groundwater regime. As such, for the proposed development the residual impact is considered to be 'neutral' in terms of quality, 'negligible' in terms of magnitude and of 'imperceptible' significance as a result of this proposed development on the surrounding soils, geology and hydrogeology.

15. Environmental Management Systems and Energy Efficiency

15.1 Environmental Management Systems

Indaver operate an environmental management system (EMS) which is certified to the international standard ISO14001:2015. The site undergoes annual surveillance audits and re-certification audits every three years. The site successfully completed a recertification of the ISO14001 international standard in May 2023 which remains valid until May 2026.

The environmental management system is based on a combination of technical measures and documented environmental management programmes and procedures; whose objectives include:

- Complying with all environmental legislation including the requirements of the site IE licence;
- Eliminating the risk of accidental events which could give rise to significant releases to the environment; and
- On-going continuous improvement of site environmental performance.

Indaver also retains certification in Occupational Health and Safety Management System (I.S. ISO 45001:2018) and Quality Management System (I.S. EN ISO 9001:2015), which are equally audited and recertified every three years. These also remain valid until May 2026.

15.2 Energy Efficiency

Indaver carry out an annual in-house energy efficiency audit, however every four years (or as otherwise agreed with the Agency) an audit in accordance with SI 426/2014 (as amended) is undertaken by an external party.

Currently, the site implements the following Best Available Techniques to optimise energy efficiency:

- Minimising flue gas heat losses by optimising primary and secondary air distribution to minimise excess air requirements; minimising the boiler exit temperature to ensure the maximum transfer of energy from the flue gases to steam; and selecting a flue gas treatment technique that does not require reheating at any stage (i.e. where the temperature decreases from the boiler exit to the stack);
- Ensuring the thermal conversion efficiency of the boiler is greater than 80%;
- Selecting a turbine suited to high energy efficiency and maximum expansion of steam to a very low pressure (0.1 bar, in vacuum);
- Selecting low energy systems, such as the SNCR system for NOx abatement;
- Minimising the use of primary fuels by using energy produced onsite;
- Sourcing secondary combustion air from the main process building where it is effectively pre-heated;
- Installing variable speed drives on fans and pumps;
- Reviewing in-house energy and resource usage by conducting electrical inspections; conducting regular energy efficiency audits; and establishing Key Performance Indicators (KPIs) for these resources; and
- Developing energy reduction initiatives including awareness campaigns; energy management systems; and installing motion detectors for lighting.

16. Amendments to Existing Licence (W0167-03)

16.1 Technical Amendments

There are three existing Technical Amendments associated with the existing licence:

- Technical Amendment A, which alters Condition 8.11.6 of the existing licence.
- Technical Amendment B, which includes additional the List of Waste codes for hazardous aqueous wastes accepted on site.
- Technical Amendment C, removed a footnote which restricted the tonnage to 220,000T per annum up after 31/12/2019.

16.2 Proposed Amendments to Conditions

The proposed amendments to conditions in the existing licence (W1067-03) requested by Indaver are included in **Table 5.**

Table 5: List of Proposed Amendments to Conditions (W1067-03

Condition / Schedule No.	Existing Condition	Proposed Amendment	Addressed in Application
3.19.4	*The test programme shall be repeated as necessary or as may be directed by the Agency as new wastes of different EWC codes are proposed to be accepted.*	*The test programme shall be repeated as necessary **or as otherwise agreed with the Agency** as new wastes of different EWC codes are proposed to be accepted.*	Section 4: Attachment-4-11-6
3.20.2	*The nominal capacity of the plant shall be 26.7 tonnes per hour.*	*The nominal capacity of the plant shall be **31.25** tonnes per hour.*	Section 4: Attachment-4-3-4
3.20.12	*Liquid wastes shall be introduced to the furnace by way of direct injection.*	***Bulk liquid wastes arriving in tankers for treatment** shall be introduced to the furnace by way of direct injection.*	Section 4: Attachment-4-11-6
3.22	*Shut Down* *In the event of a shutdown of the incineration plant or process line, any waste: -* *a) arriving at the facility shall be transferred directly to an appropriate facility,* *b) sorted or awaiting processing at the installation shall, subject to the agreement of the agency, be transferred to an appropriate facility within three days of shutdown unless otherwise agreed with the Agency.*	Indaver propose to remove this condition as it is already captured in Condition 9.4.1. Indaver do not stop taking waste when in a planned or un-planned shutdown.	Section 9: Attachment-9-1
7.1.3	*The licensee shall carry out an audit of the energy efficiency of the site annually. The audit shall be carried out in accordance with the guidance published by the Agency, 'Guidance note on energy efficiency auditing'. The energy efficiency audit shall include:* *(i) A review of opportunities for increasing the overall energy efficiency of the installation.* *(ii) Progress with those opportunities identified in the previous report.* *(iii) The net usable energy produced per tonne of waste processed (i.e. energy consumption of the installation and*	Given the energy efficiency of the site, the following condition is proposed. ***The licensee shall carry out an audit of the energy efficiency of the site every four years. The audit shall be carried out in accordance with SI 426/2014 (as amended) or as otherwise agreed with the Agency.***	Section 9: Attachment-9-1

Condition / Schedule No.	Existing Condition	Proposed Amendment	Addressed in Application
	unused energy discharged from cooling operations to be deducted). *The report shall include a full breakdown of the calculation of each parameter in the equation referred to in Condition 7.1 and the net usable energy produced per tonne of waste processed.*		
8.2	*All waste handling and treatment shall be undertaken within the installation building, with the exception of storage of non-conforming waste at the outdoor waste quarantine area.*	*All* ***incoming waste for*** *handling and treatment shall be undertaken within the installation building, with the exception of storage of nonconforming waste at the outdoor waste quarantine area* ***or as otherwise agreed with the Agency.***	Section 9: Attachment-9-1
8.11.1	*Incinerator Residues* *Bottom ash shall be stored at dedicated areas within the ash handling building on concrete hardstanding with contained drainage, or other buildings agreed by the Agency.*	*Bottom ash shall be stored at dedicated areas within the ash handling building* ***and tipping hall,*** *on concrete hardstanding with contained drainage or other buildings agreed by the Agency.*	Section 4: Attachment-4-11-4
8.11.6	*Metals for recycling that are recovered from the bottom ash shall be stored at a dedicated area, within the bottom ash handling building on concrete hardstanding with contained drainage.*	*Metals for recycling that are recovered from the bottom ash shall be stored at a dedicated area, within the bottom ash handling building on concrete hardstanding with contained drainage,* ***or other locations agreed by the Agency.***	As per Technical Amendment A
9.4.1	*Emergencies* *In the event of a complete breakdown of equipment or any other occurrence which results in the shutdown of the incineration plant or process line, any waste:-* *(a) arriving at the installation shall be transferred directly to an appropriate facility;* *(b) stored or awaiting processing at the installation shall, subject to the agreement of the Agency, be transferred to an appropriate facility within three days of shutdown, unless otherwise agreed with the Agency.*	*In the event of a complete breakdown of equipment or any other occurrence results in the shutdown of the incineration plant or process line* ***which is of a significant duration to impact on compliance with the relevant conditions in the Licence,*** *any waste* *a) arriving at the installation shall be* ***diverted in consultation with collectors/customers*** *to an appropriate facility,* *b) stored or awaiting processing at the installation shall, subject to the agreement of the Agency, be transferred to an appropriate facility within three days of shutdown unless otherwise agreed with the Agency.*	Section 9: Attachment-9-1
11.9.1	*Annual Environmental Report* *The licensee shall submit to the Agency, by the 31st of March each year, an Annual Environmental Report (AER) covering the previous calendar year. The AER shall include as a minimum:* *(a) The information specified in Schedule D: Annual Environmental Report, of this licence and shall be prepared in accordance with any relevant written guidance issued by the Agency.* *(b) A report of annual audits undertaken by the licensee of the waste disposal, treatment and recovery sites for the incinerator residues and other wastes dispatched from the installation.* *(c) Pollutant Release and Transfer*	*The licensee shall submit to the Agency, by the 31st of March each year, an Annual Environmental Report (AER) covering the previous calendar year. The AER shall be* ***completed in line with the latest template or instructions issued by the Agency.*** ~~*(b) A report of annual audits undertaken by the licensee of the waste disposal, treatment and recovery sites for the incinerator residues and other wastes dispatched from the installation.*~~ ~~*(c) Pollutant Release and Transfer Register (PRTR).*~~ ~~*(d) Calculation of the energy efficiency of the incinerator in accordance with Condition 7.1.2.*~~	N/A

Condition / Schedule No.	Existing Condition	Proposed Amendment	Addressed in Application
	Register (PRTR). *(d) Calculation of the energy efficiency of the incinerator in accordance with Condition 7.1.2.*		
11.10	*Records of off-site waste profiling and characterisation shall be retained by the licensee for all active customers and for a ten-year period following termination of licensee/customer agreements.*	*Records of off-site waste profiling and characterisation shall be retained by the licensee for all active customers* ~~*and for a ten-year period following*~~ ***until*** *termination of licensee / customer agreements.*	Section 4: Attachment-4-11-6
11.11	*The licensee shall maintain a record/log of the use of the emergency generator. A summary of the record/log shall be included as part of the AER.*	*The licensee shall maintain a record/log of the use of the emergency generator,* ***which will be available on site for inspection by the Agency****.*	N/A
Schedule A.1 & Technical Amendment C	A.1 Waste Categories and Quantities for Acceptance for Incineration	Increase in the waste quantities accepted for incineration. • Total : 250,000 • Hazardous Waste : 25,000	EDEN & Attachment 4-3-4
Schedule A.2 & Technical Amendment B	A.2 Hazardous Waste Categories and Quantities for Acceptance for Incineration	Increase in the maximum mass flow (tpa) for aqueous wastes to 20,000 tpa. Include the following LoW codes. • 07 07 01* • 16 10 01* • 16 10 03* • 19 02 08* Addition of a new code for toner cartridges/ toner waste to include the LoW code. • 08 03 17*	EDEN & Attachment 4-11-2
Schedule A.3	Waste Categories and Quantities for Acceptance for Treatment other than Incineration	Increase Maximum Quantity to 30,000 tpa. The annual quantity to be accepted for treatment other than by incineration shall not exceed 30,000 tonnes. Following LoW codes to be included: • 19 01 07* • 19 01 13* • 19 01 15*	EDEN and throughout application
Schedule B.1	Emissions to Air Volume to be emitted: Maximum rate per hour: 183,700 m3	Indaver propose to amend the volume to be emitted to: • Maximum rate per half-hour: 250,000 Nm^3/hr • Maximum Daily Average: 200,000 Nm^3/hr	Addressed throughout application.
Schedule C.1.2	Monitoring of Emissions to Air for A1-1 (Stack) Monitoring Frequency for HF, Cd, Tl, Hg and Metals	Indaver propose to align the monitoring frequency with the IED. Biannual measurements to be sampled for a minimum of 30 mins to a maximum of 8 hours for HF, Cd, Tl, Hg and Metals.	Section 7: Attachment-7-4-1

17. Cessation of Site Activities

In accordance with IE Licence W0167-03, Indaver Meath has prepared a Decommissioning Management Plan (DMP) in accordance with Condition 10 of the IE Licence and the EPA's Guidance on Assessing and Costing Environmental Liabilities (2014). The DMP, which outlines the measures to be implemented to minimise and avoid the risk of environmental pollution, includes a Closure Plan which describes the decommissioning and decontamination of above and below ground structures – including management of residues arising – at the main site.

Various stages and specific tasks involved in the decommissioning and closure of the site include the following:

- Phase I – Cancellation of existing waste feed contracts, incineration of waste already on site, removal of unused raw materials and removal of quarantined waste.
- Phase II – Decontamination of all process equipment and services equipment.
- Phase III – Decommissioning of all process equipment and service equipment.
- Phase IV – Removal of all process equipment and facilities from spare parts warehouse.
- Phase V – Cleaning of all underground drainage lines, tanks, and surface water attenuation pond.
- Phase VI – Removal of equipment and facilities from offices, collection of remaining waste materials and decommissioning of wastewater treatment system.

An independent closure audit (ICA) will be undertaken prior to cessation of the operations and decommissioning of the facility. This will include the compilation of an inventory of all the plant, equipment and wastes on site and will be used as a benchmark against which successful decommissioning will be assessed.

It is anticipated that once waste acceptance finishes at the facility and all resulting residue streams have been removed and disposed off-site, continuous monitoring of air emissions, which may arise due to decommissioning or decontamination works for closure, will be conducted upon request by the Agency.

It is anticipated that following closure, no noise monitoring will be required.

Surface water monitoring will continue during the closure period, and it is anticipated that it will no longer be required following a clean closure.

It is expected that groundwater monitoring will continue for two years following closure.

A final validation report for the site will be submitted to the Agency within three months of execution of the plan. An aftercare plan will include ambient dust, surface water, groundwater and soil sampling and analysis as a minimum.