

# EPA Application Form

## 9.1 - Environmental Management Techniques - Attachment

**Organisation Name: \***

Indaver Ireland Limited

**Application I.D.: \***

LA010332

*Authorisation Application Form*

**Amendments to this Application Form Attachment**

<b>Version No.</b>	<b>Date</b>	<b>Amendment since previous version</b>	<b>Reason</b>
V.1.0	July 2017	N/A	Online application form attachment
As above	Mar 2018	Identification of required fields	Assist correct completion of attachment

## **9 Environmental Management Techniques <sup>1</sup>**

### **9.1. Accident Prevention Measures**

#### **Measures to prevent accidental emissions and liabilities**

Incidents and accidents are unplanned events. Emissions from incidents and (major) accidents usually occur within a relatively short time frame but with greater intensity than under normal operating conditions. Incidents such as fire or fuel spillages can result in liabilities such as contaminated soil and groundwater. Proactive risk management reduces the potential for an incident.

Abnormal operating conditions must be managed without endangering human health and harming the environment, and in particular without risk to water, air, soil, plants or animals, without causing a nuisance through noise or odours, and without adversely affecting the countryside or places of special interest.

The applicant must firstly undertake a risk assessment in accordance with EPA guidance on assessing and costing environmental liabilities. Having identified the key risks, the applicant should populate the following table with the measures to be taken to treat the key risks, e.g., bunding, integrity testing, fire prevention, etc.

The range of measures is dependent on the complexity of the site. Pollution prevention measures may, inter alia, include the following information:

- Conclusions on BAT set out in the EU Reference document on BAT on emissions from storage such as a safety management system; corrosion prevention measures on tanks, etc.
- Details of storage of all raw materials, products and wastes such as segregation, labelling, designation and impervious surface;
- Details of spill or emergency containment measures and structures such as bunds, high level alarms, absorbent materials;
- Details of fire detection and fire-water retention facilities in the event of emergencies or other measures to contain fire-water;
- Details of transport of material within the site, solid, liquid or sludge transported by pipe, vehicle or conveyor; etc.,
- The Agency has published a guidance document on Fire-Water Retention Facilities and on the Storage and transfer of materials.

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<sup>1</sup> This part of the form collects information on environmental management at the installation/ facility. It seeks to understand the maturity of the management system in terms of knowledge of abnormal operating conditions, prevention and early detection measures and emergency response procedures. The level of detail required in this part of form relates to the environmental risk posed.

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Describe in the table below existing and/or proposed measures, including emergency procedures, to minimise the impact on the environment of an accidental emission or spillage. (This table should include the measures to be taken under abnormal operating conditions, including start-up, shutdown, leaks, malfunctions, breakdowns and momentary stoppages that will demonstrate that any emission arising will not cause significant environmental pollution)<sup>2</sup>.

Measure *	Surveillance Measures		
	Description *	Frequency of Surveillance *	Method / Standard *
Process Building waters diversion to underground containment tank	<ul style="list-style-type: none"> <li>All waters produced and any leaks / spills within the process building are directed to an underground containment tank with a capacity of 50m<sup>3</sup>. 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.</li> </ul>	Continuous	Incorporated into design
Storage of Hazardous Materials	<ul style="list-style-type: none"> <li>Hazardous materials are stored in bulk tanks which are double skinned and equipped with interstitial leak detection or single skinned and appropriately banded. Tanks are fitted with level monitoring.</li> <li>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<sup>3</sup> 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.</li> <li>Aqueous liquids are accepted and stored in a 70m<sup>3</sup> storage tank, which is double skinned, with leak detection and located in a contained area. Any potential spills are captured in the underground tank.</li> </ul>	Continuous	<ul style="list-style-type: none"> <li>Procedure in place.</li> <li>Procedures and workers are audited regularly.</li> <li>Integrity testing in preventative maintenance programme</li> </ul>

<sup>2</sup> Information relating to the integrity, impermeability and recent testing of pipes, tanks and bund areas should be included.

\* indicates required field

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Measure *	Surveillance Measures		
	Description *	Frequency of Surveillance *	Method / Standard *
	<ul style="list-style-type: none"> <li>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.</li> </ul>		
Surface water drainage system	<ul style="list-style-type: none"> <li>The oil interceptor is designed to retain any oil / hydrocarbons present in surface water runoff.</li> <li>The pre-attenuation pond monitoring chamber diverts any contaminated runoff to an underground diverted water tank with a capacity of 300m<sup>3</sup>. This water is re-used in the process where possible while the remainder is stored within the tank for off-site treatment or disposal to a suitably licensed facility.</li> <li>The surface water attenuation pond and outfall pump is designed to provide a controlled pumped discharge from the site to the local surface water drainage network to prevent any downstream flash flooding.</li> <li>The attenuation pond has been designed to cater for 1 in 30 year and 1 in 100 year storm events.</li> <li>A second continuous online monitoring chamber on the outfall from the attenuation pond shuts-off the discharge pumps from the attenuation pond if there is any contamination in the discharge and retains the contaminated runoff in the attenuation pond.</li> <li>The attenuation system prevents the discharge of any contaminated runoff from the site in the event of accidental leaks/spills or emergency situations.</li> </ul>	Continuous	Incorporated into design
Contaminated firewater retention	<ul style="list-style-type: none"> <li>Fire suppression is provided by an on-site firewater storage tank with an effective fire-fighting storage volume of 2,185m<sup>3</sup>. Of the total tank capacity 330m<sup>3</sup> is provided for process water requirements with 1,855m<sup>3</sup> fully reserved for firefighting.</li> </ul>	Continuous	Incorporated into design

\* indicates required field

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Measure *	Surveillance Measures		
	Description *	Frequency of Surveillance *	Method / Standard *
	<ul style="list-style-type: none"> <li>The greatest potential for fire at the facility arises within the waste bunker (water-tight) where localised heating can occur due to decomposition of organic material or material can arrive on site smouldering e.g. hot ashes.</li> <li>Should a fire occur elsewhere on site, the firewater run-off drains either to the process building 50m<sup>3</sup> capacity dirty / clean water pits or will be contained by collection in the surface water drainage system.</li> <li>A firewater retention study has been carried out for the facility to demonstrate that the above containment facilities are adequate to contain the maximum projected volumes of firewater runoff in an emergency situation.</li> </ul>		
Spill response materials	Spill response materials such as spill mats, absorbent materials, brushes, non-sparking shovels are located in designated locations in the plant.	Continuous	<ul style="list-style-type: none"> <li>Use of spill response materials for spill containment and clean-up.</li> <li>Procedures/checklists in place.</li> <li>ERT team on site.</li> </ul>
Weather protection	Lightning conductors and protection are in place, back up diesel generator in place and checked routinely, roofs designed for abnormal volumes of snow.	Continuous	Incorporated into design
Over pressure prevention in tanks	Conservation vents on bulk tanks to prevent overpressure	Continuous	Incorporated into design
Collision prevention with tanks	Tanks elevated on concrete plinths to prevent vehicle collision	Continuous	Incorporated into design
Regular visual inspections of aboveground pipework	Pipework from tanks is located over-ground over paved areas and undergoes regular visual inspection.	Regular	Visual inspections

\* indicates required field

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Measure *	Surveillance Measures		
	Description *	Frequency of Surveillance *	Method / Standard *
Designated areas for tanker unloading	Designated bulk tanker unloading area which is graded towards an surface water channel which drains to interceptor upon diversion of drainage valve	Continuous	Incorporated in design
Transfer of materials	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.	Continuous	<ul style="list-style-type: none"> <li>• Procedure in place.</li> <li>• Training programmes in place</li> <li>• Procedures and workers are audited regularly.</li> </ul>
Training of staff and procedures in place	Various procedures in place. Personnel are adequately trained. Staff receive training on chemical awareness and spill response where appropriate.	Continuous	Training tracking system (LMS) in place.
Controlled Delivery of Fuel and Raw Materials to Site	<ul style="list-style-type: none"> <li>• Deliveries are supervised so any spillage is detected quickly. Employees are trained to deal with spills and spill kits are readily available on site.</li> <li>• A spillage during delivery would be of low consequence as the delivery areas are contained. There is no direct pathway to soil or groundwater. A forecourt separator is on the drainage line from the fuel delivery area and Class 1 full retention interceptors are also in place.</li> <li>• 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<sup>3</sup> 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 as appropriately licensed or permitted facility.</li> </ul>	Continuous	<ul style="list-style-type: none"> <li>• Procedure in place.</li> <li>• Procedures and workers are audited regularly.</li> </ul>

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Measure *	Surveillance Measures		
	Description *	Frequency of Surveillance *	Method / Standard *
Contractor approval process	Contractor approval process and site induction for drivers and contractors in place; site operative accompanies driver during unloading process	Continuous	<ul style="list-style-type: none"> <li>• Procedure in place.</li> <li>• Procedures and workers are audited regularly.</li> </ul>
Maintenance Management System in place	All equipment and pipework containing hazardous materials undergoes appropriate maintenance and inspection as part of maintenance management system.	Continuous	<ul style="list-style-type: none"> <li>• Procedure in place.</li> <li>• Procedures and workers are audited regularly.</li> </ul>
Labelling of storage containers and vessels	Labelling of storage container and vessels as to identify contents and hazards	Continuous	<ul style="list-style-type: none"> <li>• Procedure in place.</li> <li>• Procedures and workers are audited regularly.</li> </ul>
Storage in small quantities	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	Continuous	<ul style="list-style-type: none"> <li>• Procedure in place.</li> <li>• Procedures and workers are audited regularly.</li> </ul>
Inspection of underground pipelines and bunds	Bunds and pipelines are regularly inspected, and integrity tested every 3 years in accordance with the IE licence conditions.	Every 3 years	<ul style="list-style-type: none"> <li>• Procedure in place.</li> <li>• Procedures and workers are audited regularly.</li> </ul>
Bunding	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	Continuous	<ul style="list-style-type: none"> <li>• Incorporated into design</li> <li>• Training as regards bunding/integrity requirements is provided to staff</li> </ul>
Waste handling	<ul style="list-style-type: none"> <li>• Waste handling procedures in place for all operational activities.</li> <li>• All incoming solid waste for handling and treatment shall be under-taken within the installation building, with the exception of storage of non-conforming waste quarantine area or as otherwise agreed with the Agency.</li> </ul>	Continuous	Procedure in place. Procedures and workers are audited regularly.



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Measure *	Surveillance Measures		
	Description *	Frequency of Surveillance *	Method / Standard *
Permit system in operation	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.	Continuous	<ul style="list-style-type: none"> <li>• Procedure in place.</li> <li>• Procedures and workers are audited regularly.</li> </ul>
Analysis of aqueous waste before unloading	Samples are taken from hazardous liquids and a chemical analysis is carried out before aqueous waste is unloaded into a storage tank to prevent any chemical reactions that can cause overpressure in the tanks etc.	Continuous	<ul style="list-style-type: none"> <li>• Procedure in place.</li> <li>• Procedures and workers are audited regularly.</li> </ul>
Waste acceptance procedure in place	<ul style="list-style-type: none"> <li>• Waste acceptance procedure is in place and is adhered to in order to prevent non-approved waste entering the facility.</li> <li>• During planned or unplanned shutdown, Indaver's waste acceptance procedures remain in place. The site will continue to accept waste during these times.</li> </ul>	Continuous	<ul style="list-style-type: none"> <li>• Procedure in place. Procedures and workers are audited regularly.</li> <li>• Contracts in place with customers supplying waste to the facility.</li> </ul>
Prevention of release of hazardous gaseous materials due to falling cylinder	Gas Cylinders secured in upright position with chains or straps in place	Continuous	<ul style="list-style-type: none"> <li>• Procedure in place.</li> <li>• Procedures and workers are audited regularly.</li> </ul>
Fire prevention system in place	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, heat detection is also present in bunker area	Continuous	<ul style="list-style-type: none"> <li>• Dry Deluge Sprinkler System</li> <li>• Heat detection system</li> <li>• Check on run fire pump system</li> <li>• Procedure for emergency response plans in place</li> </ul>
Negative pressure in tipping hall	Negative pressure in tipping hall draws odours / smoke (in the event of fire) into bunker	Continuous	Incorporated into design

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<b>Measure *</b>	<b>Surveillance Measures</b>		
	<b>Description *</b>	<b>Frequency of Surveillance *</b>	<b>Method / Standard *</b>
Noise emission control	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. Further details are supplied in Section 7 of this application.	Continuous	Incorporated into design
Air emission control	Constant monitoring of air emissions from stack. List of items monitored outlined in Section 7 of this application. If outside limits an alarm is raised and highlighted in daily report. The EPA is informed of any incidents.	Continuous	Incorporated into design Procedures in place

\*add rows to the table as necessary

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Outline what provisions have been made to ensure an adequate response to emergency situations outside of normal working hours, i.e., during night-time, weekends and holiday periods (attach additional pages to this document if required): \*

There is a Site Emergency Plan in place which outlines the actions taken in the event of an emergency occurring outside of normal working hours. A minimum of three personnel (1 x Shift Supervisor, 2 x Production Operators) are on site at any one time and at least one person is a trained occupational first aider. The Shift Supervisor is responsible for initiating the emergency response and activating the local and/or Plant Evacuation Alarm as deemed necessary.

The Shift Supervisor initiates any appropriate actions (e.g. process control) to contain/ mitigate/ prevent escalation of the emergency situation if safe to do so.

In the event of a Local and/or Plant Evacuation Alarm all personnel evacuate the area and proceed to the control room or other designated safe assembly points as instructed by the Shift Supervisor. The Shift Supervisor contacts the Emergency Services to respond to:

- any significant fire situation that cannot be immediately controlled and extinguished.
- any significant spill of hazardous materials.
- personal injury requiring medical attention.
- other emergency situation requiring the intervention of the Emergency Services.

The Shift Supervisor instructs one of the Production Operators to meet the emergency services at the entrance gate (if safe to do so) and direct them to the emergency location on site. The Shift Supervisor contacts the Plant Manager and Manager on Call to inform them of the situation.

The Manager on Call is required to proceed to the site and liaise with Shift Supervisor in the control room if the emergency services attend site. The company can enact its Incident Management Plan also when needed.

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 facility shall be diverted in consultation with collectors / customers 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.

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### Soil Monitoring Points

Periodic monitoring of soil and groundwater is required having regard to the possibility of soil and groundwater contamination of the site<sup>3</sup>.

Complete the table below with details of soil monitoring locations and in particular where a baseline report has been/is required in accordance with Section 86B of the EPA Act 1992 as amended.

Is periodic soil monitoring proposed at the installation/facility? (Yes/No): \*

Yes

Soil Monitoring Point Code	Monitoring Point Grid Ref.	
	Easting <sup>4</sup>	Northing <sup>5</sup>
WS01	306369	270777
WS02	306175	270941
WS03	306254	270985
WS04	306338	271046
WS05	306258	270872

\*add rows to the table as necessary

### Soil Parameters

Complete the table below with details of soil monitoring parameters (where a baseline report is required in accordance with Section 86B of the EPA Act 1992 as amended). (If different parameters are associated with different monitoring points this should also be identified in the table below.)

Parameter	Unit	Trigger Level	How was the trigger level determined?	Proposed Monitoring Frequency	Sample Method	Analysis Method / Technique
The relevant hazardous substances for monitoring in soil shall be as per the 'Baseline Report' submitted with the application as Attachment 4-8-2, or as agreed with the Agency.	-	-	-	Every 10 years	-	Standard Method

<sup>3</sup> Inherent in the monitoring of soil and groundwater is accepting the possible necessity for remediation of the soil / groundwater. Regular monitoring of soil and groundwater provides an early detection of any contaminations.

<sup>4</sup> Six Digit GPS Irish National Grid Reference

<sup>5</sup> Six Digit GPS Irish National Grid Reference

\* indicates required field



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\*add rows to the table as necessary

### Groundwater Monitoring Points

Based on the assessment(s) carried out previously or as part of this licence application, complete the table below with summary details of the groundwater monitoring points.

Is groundwater monitoring proposed at the installation/facility? (Yes/No): \*

Yes

Monitoring Point Code	Monitoring Point Grid Ref.	
	Easting <sup>6</sup>	Northing <sup>7</sup>
AGW1-1	306376	270746
AGW1-2	306180	270945
AGW1-3	306158	270931

\*add rows to the table as necessary

<sup>6</sup> Six Digit GPS Irish National Grid Reference

<sup>7</sup> Six Digit GPS Irish National Grid Reference

\* indicates required field



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### Groundwater Parameters

Complete the table below with summary details of the groundwater parameters. (If different parameters are associated with different monitoring points this should be identified in the table below.)

Parameter	Unit	Trigger Level	How was the trigger level determined?	Proposed Monitoring Frequency	Sample Method	Analysis Method / Technique
TOC	mg/L	10	6 months of monitoring, supplied to EPA, agreement sought	Monthly	Standard Method	Standard Method
Ammonia (NH <sub>4</sub> )	mg/L as N	175	6 months of monitoring, supplied to EPA, agreement sought	Monthly	Standard Method	Standard Method
Conductivity	µS/cm	-	-	Monthly	Standard Method	Standard Method
pH	pH units	-	-	Biannually	Standard Method	pH electrode/meter
Nitrate	mg/L as N	-	-	Biannually	Standard Method	Standard Method
Nitrite	mg/L as N	-	-	Biannually	Standard Method	Standard Method
Chloride	mg/L	187.50	6 months of monitoring, supplied to EPA, agreement sought	Biannually	Standard Method	Standard Method
Fluoride	mg/L	-	-	Biannually	Standard Method	Standard Method
Metals (Cd, Tl, Hg, Pg, Cr, Cu, Mn, Ni, As, Co, V, Sn) and their compounds	µg/L	-	-	Biannually	Standard Method	Standard Method
Organohalogens <sup>Note 1</sup>	µg/L	-	-	Biannually	Standard Method	GC-MS
Total coliforms	No/100ml	-	-	Biannually	Standard Method	Standard Method
Faecal coliforms	No/100ml	-	-	Biannually	Standard Method	Standard Method

*Note 1: Screening for pollutant list substances (such as US EPA volatile and/or semi-volatile compounds)*

\*add rows to the table as necessary

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### Costed Environmental Liabilities Risk Assessment (ELRA)

Indicate if the activity, through pre-application meeting with the Agency or other means, is required to submit a costed ELRA<sup>8</sup> as part of the licence, or licence review application.

Costed Environmental Liabilities Risk Assessment (ELRA) required to be submitted? (Yes/No): \*

If 'Yes', upload a costed Environmental Liabilities Risk Assessment (ELRA), prepared in accordance with the *Environmental Protection Agency's Guidance on Assessing and Costing Environmental Liabilities* (2014) (select Document Type: 'ELRA' in the application form).

Costed **ELRA** document filename:

Indicate your preferred form of financial provision instrument to meet ELRA costings have regard to the Environmental Protection Agency's Guidance on Financial Provision (2015), e.g., Environmental Liability Insurance:

Upload a financial provision proposal have regard to the Environmental Protection Agency's Guidance on Financial Provision (2015) (where required at application /review application stage) (select Document Type: 'Financial Provision Proposal' in the application form)

**Financial Provision Proposal** filename:

<sup>8</sup> There is an explicit requirement in EU and Irish law for financial provision for certain activities. The following categories of activities have an ELRA/CRAMP/FP requirement:

1. Landfills (excl. closed L.A. Landfills closed before 16<sup>th</sup> July 2009)
2. CAT A Extractive Waste Facilities
3. High Risk Contaminated Land Facilities
4. All Haz-Waste Transfer Stations
5. Non-Haz WTS (Accepting >50,000 tons/annum)
6. Incineration (incl. co-incineration of hazardous waste)
7. Upper & Lower Tier Seveso Sites
8. Exceptional circumstances associated with the site, e.g., significant ground/groundwater contamination.

Regard should be had by applicants to relevant Agency guidance on these matters.

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### **Closure, Restoration and Aftercare Management Plan (CRAMP)**

A restoration/aftercare period will be required where there are on-going environmental liabilities following closure. Applicants are required to describe the existing or proposed measures to avoid any risk of environmental pollution and to return the site to a satisfactory state or the state established in the baseline report where applicable, after the activity or part of the activity ceases operation.

A key measure is the preparation of a Closure, Restoration and Aftercare Management Plan (CRAMP) by the operator, for certain activities<sup>9</sup>. Notwithstanding the requirements of the EC Environmental Objectives (Groundwater) Regulations 2010, S.I. No. 9 of 2010, the closure and restoration/ aftercare target is the site condition at the time of the original application or the baseline report. The applicant shall have regard to the Environmental Protection Agency's Guidance on Assessing and Costing Environmental Liabilities (2014) in the preparation of the CRAMP.

Upload a CRAMP, where applicable (select Document Type: '**Site Closure**' in the application form).

CRAMP filename:

### **Costed CRAMP**

Indicate if the activity, through pre-application meeting with the Agency or other means, is required to have a CRAMP<sup>9</sup> submitted as part of the licence, or licence review application.

CRAMP required to be submitted at application/licence review application stage? (Yes/No): \*

<sup>9</sup> There is an explicit requirement in EU and Irish law for financial provision for certain activities. The applicant shall have regard to the Environmental Protection Agency's Guidance in determining CRAMP requirements and on Financial Provision (2015) in making financial provision to cover any liabilities.

The following categories of activities have an ELRA/CRAMP/FP requirement:

1. Landfills (excl. closed L.A. Landfills closed before 16<sup>th</sup> July 2009)
2. CAT A Extractive Waste Facilities
3. High Risk Contaminated Land Facilities
4. All Haz-Waste Transfer Stations
5. Non-Haz WTS (Accepting >50,000 tons/annum)
6. Incineration (incl. co-incineration of hazardous waste)
7. Upper & Lower Tier Seveso Sites
8. Exceptional circumstances associated with the site e.g. significant ground/groundwater contamination.





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Indicate your preferred form of financial provision instrument to meet CRAMP costings (where appropriate), e.g., Secured fund, On-demand performance Bond, Parent Company Guarantee, Charge on Property (have regard to the Environmental Protection Agency’s Guidance on Financial Provision (2015) on the Agency’s website):

State preferred form of financial provision instrument? Bond

Upload a financial provision proposal (where required) having regard to the Environmental Protection Agency’s Guidance on Financial Provision (2015) in making financial provision to cover any liabilities (select Document Type: **Financial Provision Proposal** in the application form)

Financial Provision Proposal filename: Attachment 9-2-4 CRAMP Bond

### Cessation of Activity

Where a CRAMP is not required, describe the measures to be taken on and following the permanent cessation of the activity or part of the activity to avoid any risk of environmental pollution and to return the site of the activity to a satisfactory state. (Input your response in the text box below or attach the information in to this attachment).

N/A

### Emergency Response Procedure

Do you have an emergency response procedure (ERP)? (Yes/No) \*

Is the ERP compliant with the EPA guidance? (Yes/No) \*

## 9.2. Nuisance

Complete the table below in relation to each potential nuisance. Identify if the activity may cause or contribute to the type of nuisance in the area of the installation/facility and, where applicable, identify the techniques used to prevent/minimise the nuisance.

\* indicates required field

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Type of Nuisance	Applicable to the activity? * (Yes/No/ Not Applicable)	Techniques to prevent nuisances *	Where nuisances cannot be prevented, techniques to be used to minimise and reduce nuisances
Odour	Yes	Indaver operate an Odour Management Plan which relies on a combination of minimisation, containment and treatment techniques which includes: <ul style="list-style-type: none"> <li>• Negative pressure in the bunker to prevent odour from escaping;</li> <li>• Doors to tipping hall and exit points closed where possible;</li> <li>• Spraying of odour-masking or neutralising chemicals at the tipping hall door and bunker where appropriate;</li> <li>• Good Housekeeping and Good Working Practice; and</li> <li>• Regular odour checks.</li> </ul>	N/A
Fire Control	Yes	Fire control measures include: <ul style="list-style-type: none"> <li>• Dry deluge sprinkler system located around the plant;</li> <li>• Wet sprinkler system on burners;</li> <li>• Hose reels, fire extinguishers and fixed fire hoses located throughout the plant;</li> <li>• Heat detection at bunker</li> <li>• Fire hydrants located outside tipping hall; and</li> <li>• Water cannons in bunker area which can be operated remotely from control room or manually locally.</li> </ul> In the event of certain fire situations the DCS is automatically bring to a safe state and/or shutdown specified plant and equipment including: <ul style="list-style-type: none"> <li>• Burner Gas Supply Slam Shut Valves Activated.</li> <li>• Shutdown Fuel Oil Pumps.</li> <li>• Close Primary Air Intake Damper at Bunker.</li> <li>• Cranes in bunker return to home position.</li> <li>• Turbine shutdown</li> <li>• Shutdown of activated carbon &amp; clay mixture dosing</li> <li>• Shutdown of LAB hydraulic pack</li> </ul>	N/A

\* indicates required field

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Type of Nuisance	Applicable to the activity? * (Yes/No/ Not Applicable)	Techniques to prevent nuisances *	Where nuisances cannot be prevented, techniques to be used to minimise and reduce nuisances
		<ul style="list-style-type: none"> <li>• Lifts automatically return to ground floor in event of fire detection/plant evacuation alarm.</li> </ul>	
Dust	Yes	<p>Indaver operate a Fugitive Management Plan which includes dust management which is a combination of containment techniques and operational procedures including:</p> <ul style="list-style-type: none"> <li>• All solid materials are transported and handled in fully enclosed environments to prevent dust emissions.</li> <li>• Maintaining the bunker area under negative pressure also helps to prevent dust emissions from stored waste.</li> <li>• Dust emissions from traffic is minimal as the roads, parking areas and service yards are paved.</li> <li>• Good housekeeping practices with regular dust checks are undertaken.</li> <li>• Use of a Wet scrubber in Pre-treatment Plant</li> </ul>	N/A
Litter	Yes	<ul style="list-style-type: none"> <li>• Indaver operate a litter management plan.</li> <li>• All waste delivery trucks and vehicles are enclosed and covered when entering the site.</li> <li>• All waste is handled in enclosed areas and stored in the main process building under negative pressure to limit windborne litter.</li> <li>• The waste bunker is large enough to allow acceptance of waste during periods of shutdown to ensure waste is never stored outside of this area. The area is kept clean and odour free through good housekeeping practices including regular washing and sweeping of the operating areas and monitoring of waste deliveries.</li> <li>• Weekly litter checks are carried out to monitor for litter around the site and local roads.</li> </ul>	N/A
Vermin (including	Yes	<ul style="list-style-type: none"> <li>• Vermin are attracted to untreated waste and associated odours. To prevent access of vermin to untreated waste, all waste delivery trucks are enclosed</li> </ul>	N/A

\* indicates required field

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Type of Nuisance	Applicable to the activity? * (Yes/No/ Not Applicable)	Techniques to prevent nuisances *	Where nuisances cannot be prevented, techniques to be used to minimise and reduce nuisances
birds, flies and rodents)		<p>and waste handling and storage takes place in the enclosed waste reception hall.</p> <ul style="list-style-type: none"> <li>• Ensuring the rapid turnover of waste in the reception hall and bunker also minimises the potential for vermin. Most of the waste delivered to the facility is be loaded directly into the waste bunker and processed within four days on average. There is no storage of waste in the reception hall.</li> <li>• All parts of the facility are kept clean and tidy through good housekeeping measures, which reduces bird and fly nuisance. In addition, a comprehensive rodent control plan is in place, implemented by a specialist rodent control company who visit the site frequently. Records of these site visits are maintained by Indaver Ireland.</li> </ul>	
Mud	No	Paved, tarmacked roads	N/A

If 'Other' is selected define the other nuisance(s):

N/A

**Note:** Odour must also be addressed in the fugitive emissions section of the '7.4 Emissions to Atmosphere – Main and Fugitive' template, where applicable.

### 9.3. Environmental Management System (EMS)

Do you have an environmental management system? (Yes/No) \*

Yes
-----

If 'Yes', is the environmental management system accredited? (Yes/No) \*

Yes
-----

State the date accreditation was achieved or is expected to be achieved, where applicable:

Original Registration: 24 <sup>th</sup> August 2011 Last amended on 15 <sup>th</sup> December 2020 Remains valid until 23 <sup>rd</sup> August 2023.
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State the standard of accreditation achieved:

ISO 14001:2015
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### Energy Efficiency

Outline the measures taken to ensure that energy is used efficiently having regard to the relevant decision on BAT conclusions and/or BAT guidance and where appropriate, an energy audit with reference to the EPA Guidance document on Energy Audit should be carried out. \*

Some of the Best Available Techniques selected for the plant to optimise energy efficiency include:

- 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.
  - 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)

The overall energy demand on the site has been minimised by:

- 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

\* indicates required field



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As well as factoring efficiency into design considerations, the efficient use of energy and resources is an ongoing concern at all Indaver facilities. Targets include items such as:

- Reviewing in-house energy and resource usage by:
  - conducting electrical inspections
  - conducting regular energy efficiency audits
  - establishing Key Performance Indicators (KPIs) for these resources
- Developing energy reduction initiatives include:
  - awareness campaigns
  - energy management systems
  - installing motion detectors for lighting

Indaver will 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. An energy audit was completed in May 2023.

Has an energy audit been carried out? (Yes/No) \*

Yes – May 2023

Do you have an energy efficiency management system? (Yes/No) \*

No

If 'Yes', is the energy efficiency management system accredited? (Yes/No)

No

State the date accreditation was achieved or is expected to be achieved, where applicable:

State the standard of accreditation achieved:

N/A

\* indicates required field

## 9.4. Hours of Operation

Provide details of the hours of operation for the installation/facility \* (hours and days per week, etc.), including:

(a) Proposed hours of operation.

24 hours a day / 7 days a week

(b) Proposed hours of construction and development works and timeframes.

07:00 to 19:00 Monday to Friday

07:00 to 13:00 Saturday

(c) For waste activities, the proposed hours of waste acceptance.

07:00 to 18.30 Monday to Friday

08:00 to 14:00 Saturday

(d) Any other relevant hours of operation expected (e.g., waste handling, etc.).

N/A

### 9.5. Review of a Licence

Where the Office of Environmental Enforcement (OEE) has agreed any variations or adjustments to the conditions or schedules of the existing licence, the licensee must provide details of these agreed variations and adjustments to the existing licence conditions in the table that follows.

An updated, scaled drawing of the site layout (no larger than A3) providing visual information on such adjustments or variations where appropriate should be uploaded in the **site tab** – 'site plan(s)' upload.

In the case of once-off assessments/reports required under conditions/schedules of the existing licence the licensee must provide details of those assessments/reports that have been completed and agreed with the OEE or as otherwise agreed, in the table below.

Condition/ Schedule No.	Existing Condition	OEE Agreement Reference	Description
N/A			

\*add rows to the table as necessary



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Indaver propose to include the following list of proposals / amendments to existing conditions as part of this licence review:

Condition/ Schedule No.	Existing Condition	Proposal / Amendment	Addressed in Application
3.19.4	<i>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.</i>	<i>The test programme shall be repeated as necessary <b>or as otherwise agreed with the Agency</b> as new wastes of different EWC codes are proposed to be accepted.</i>	Section 4: Attachment-4-11-6
3.20.2	<i>The nominal capacity of the plant shall be 26.7 tonnes per hour.</i>	<i>The nominal capacity of the plant shall be <b>31.25 tonnes</b> per hour.</i>	Section 4: Attachment-4-3-4
3.20.12	<i>Liquid wastes shall be introduced to the furnace by way of direct injection.</i>	<b><i>Bulk liquid wastes arriving in tankers for treatment shall be introduced to the furnace by way of direct injection.</i></b>	Section 4: Attachment-4-11-6
3.22	<i>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.</i>	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.	See Section 9.1 above
7.1.3	<i>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</i>	Given the energy efficiency of the site, the following condition is proposed.  <b><i>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.</i></b>	See Section 9.3 above

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<b>Condition/ Schedule No.</b>	<b>Existing Condition</b>	<b>Proposal / Amendment</b>	<b>Addressed in Application</b>
	<p><i>installation and 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.</i></p>		
8.2	<p><i>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.</i></p>	<p><i>All <b>incoming waste</b> 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 <b>or as otherwise agreed with the Agency.</b></i></p>	See Section 9.1 above
8.11.1	<p><i>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.</i></p>	<p><i>Bottom ash shall be stored at dedicated areas within the ash handling building <b>and tipping hall</b>, on concrete hardstanding with contained drainage or other buildings agreed by the Agency.</i></p>	Section 4: Attachment-4-11-4
8.11.6	<p><i>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.</i></p>	<p><i>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, <b>or other locations agreed by the Agency.</b></i></p>	As per Technical Amendment A
9.4.1	<p><i>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</i></p>	<p><i>In the event of a complete breakdown of equipment or any other occurrence results in the shutdown of the incineration plant or process line <b>which is of a significant duration to impact on compliance with the relevant conditions in the Licence</b>, any waste a) arriving at the installation shall be <b>diverted in consultation with collectors/customers</b> to an appropriate facility, b) stored or awaiting processing at the installation shall, subject to the agreement of the Agency, be transferred to</i></p>	See Section 9.1 above

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Condition/ Schedule No.	Existing Condition	Proposal / Amendment	Addressed in Application
	<i>days of shutdown, unless otherwise agreed with the Agency.</i>	<i>an appropriate facility within three days of shutdown unless otherwise agreed with the Agency.</i>	
11.9.1	<p><i>Annual Environmental Report</i>  <i>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:</i></p> <p><i>(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.</i></p> <p><i>(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.</i></p> <p><i>(c) Pollutant Release and Transfer Register (PRTR).</i></p> <p><i>(d) Calculation of the energy efficiency of the incinerator in accordance with Condition 7.1.2.</i></p>	<p><i>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 <b>completed in line with the latest template or instructions issued by the Agency.</b></i></p> <p><del><i>(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.</i></del></p> <p><del><i>(c) Pollutant Release and Transfer Register (PRTR).</i></del></p> <p><del><i>(d) Calculation of the energy efficiency of the incinerator in accordance with Condition 7.1.2.</i></del></p>	N/A
11.10	<i>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.</i>	<i>Records of off-site waste profiling and characterisation shall be retained by the licensee for all active customers <del>and for a ten-year period following</del> <b>until</b> termination of licensee / customer agreements.</i>	Section 4: Attachment-4-11-6
11.11	<i>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.</i>	<i>The licensee shall maintain a record/log of the use of the emergency generator, <b>which will be available on site for inspection by the Agency.</b></i>	N/A
Schedule A.1 & Technical Amendment C	A.1 Waste Categories and Quantities for Acceptance for Incineration	<p>Increase in the waste quantities accepted for incineration.</p> <ul style="list-style-type: none"> <li>• Total : 250,000</li> <li>• Hazardous Waste : 25,000</li> </ul>	EDEN & Attachment 4-3-4

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<b>Condition/ Schedule No.</b>	<b>Existing Condition</b>	<b>Proposal / Amendment</b>	<b>Addressed in Application</b>
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. <ul style="list-style-type: none"> <li>• 07 07 01*</li> <li>• 16 10 01*</li> <li>• 16 10 03*</li> <li>• 19 02 08*</li> </ul> Addition of a new code for toner cartridges/ toner waste to include the LoW code. <ul style="list-style-type: none"> <li>• 08 03 17*</li> </ul>	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: <ul style="list-style-type: none"> <li>• 19 01 07*</li> <li>• 19 01 13*</li> <li>• 19 01 15*</li> </ul>	EDEN and throughout application
Schedule B.1	Emissions to Air Volume to be emitted: Maximum rate per hour: 183,700 m <sup>3</sup>	Indaver propose to amend the volume to be emitted to: <ul style="list-style-type: none"> <li>• Maximum rate per half-hour: 250,000 Nm<sup>3</sup>/hr</li> <li>• Maximum Daily Average: 200,000 Nm<sup>3</sup>/hr</li> </ul>	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

## 9.6 Environmental Management Techniques – Upload Files

State the number of 'upload files' referred to and named in this attachment document? \*

4

## 9.7 Contribution towards Environmental Policy and Legislation

### 9.7.1 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<sup>10</sup> will contribute to the objectives set out in the relevant policies, acts and regulations relating to Ireland's climate objectives.

### 9.7.2 Climate Action Plan 2023

#### 9.7.2.1 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 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.

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<sup>10</sup> This includes the proposed increase in the waste being accepted and treated at the facility and the construction of a hydrogenation generation unit.

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### **9.7.2.2 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.

#### **9.7.2.2.1 Electricity**

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<sub>2eq</sub> between 2021 and 2025, and 20 MtCO<sub>2eq</sub> 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).

#### **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;

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- 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 those associated with industrial and energy production.

### **Indaver Facility**

Indaver operate a waste-to-energy facility which generates approximately 21.5 MW<sub>e</sub> of renewable energy annually. This contributes approximately 2.5 MW<sub>e</sub> to the facility for the running of plant equipment and approximately 19 MW<sub>e</sub> 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<sub>e</sub> 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<sub>e</sub> 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.

### **9.7.2.2.2 Industry**

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.

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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 MtCO<sub>2eq</sub> between 2021 and 2025, and 24 MtCO<sub>2eq</sub> 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).

### **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.



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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.

### **9.7.2.2.3 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.

### **9.7.3 The Circular Economy and Miscellaneous Provisions Act 2022**

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).

#### **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.

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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 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.

### **9.7.4 Climate Action and Low Carbon Development (Amendment) Act 2021**

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.

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### **9.7.4.1 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.”.*

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### **9.7.4.2 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.

### **9.7.5 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:

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- 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).

### **9.7.6 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.

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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.

### **9.8 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

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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.