

Attachment J.1: Accident Prevention and Emergency Response

J.1 Accident Prevention

As detailed in Section 5.14 of the accompanying EIS, the facility has been built in accordance with the relevant aspects of the Safety Health and Welfare at Work Act, 2005, the Safety, Health and Welfare at Work (Construction) Regulations, 2001 and associated regulations. The design and construction process was carried out by skilled personnel according to internationally recognised standards, design codes, legislation, good practice and experience.

Indaver conducts all its activities in accordance with its Quality, Environmental, Safety and Health (QESH) system which is accredited to the quality standard ISO 9001, the environmental standard ISO 14001 and the safety standard OHSAS 18001. In compliance with the Safety, Health and Welfare at Work Act, 2005, Indaver have a safety statement covering the operation of the plant. The operation of the waste-to-energy plant entails hazards associated with the handling of combustible materials, chemicals and high-pressure steam. During the design phase of the plant, hazard and operability (HAZOP) studies were carried out. These studies systematically assessed hazards that could arise during both steady and non-steady state operations and identified the necessary mitigation measures required. Indaver's experience of successfully operating similar plants in Belgium allows potential hazards to be easily identified.

Based on the HAZOP studies and operating instructions from plant suppliers, a comprehensive set of standard operating procedures have been drawn up for all aspects of the operation of the plant, to minimise the risk of accident or emergency situations arising. Copies of the Waste Acceptance and Waste Handling Procedures are presented in Chapter 5 of the accompanying EIS. These and other measures will be managed by the company's QESH team, which has specific responsibility for quality, environment, safety and health at the facility.

Wherever possible, Indaver strives to minimise human interaction in safety critical operations in order to eliminate the potential for "human factors" to initiate or exacerbate major accidents at the site. Through recruitment, training, performance management, employee development and succession planning, Indaver ensures all members of staff are in possession of the knowledge, skills and experience necessary to perform their jobs to a satisfactory standard. This includes adhering to strict rules on safety such as a working permit system, training and provision and use of personal protection equipment.

The facility is well maintained and cleaned at all times. A preventative maintenance system is also in place incorporating routine checks and maintenance of key equipment to ensure they remain in good working order.

J.1.2 Emergency Response

An emergency response procedure has been prepared for the facility and is presented in Appendix J1. The procedure sets out the response measures to be taken by personnel in the event of an emergency. Measures have been designed to ensure maximum protection for site employees, visitors and people in other

premises near the site to limit damage to property and minimise the impact of site operations on the environment. A dedicated Emergency Response Team have been appointed to respond to any emergency which may arise.


J.1.3 Public Liability Insurance

Indaver NV has a global insurance policy, which includes public liability, product liability, legal expense, environmental liability and on-site cleanup costs. Please refer to Attachment L.2.3 for more information.

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Appendix J1

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	Procedure Title:	Meath Emergency Response Procedure		
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1 Purpose

This procedure describes the emergency response process in place at Indaver Ireland's Meath Waste to Energy facility. The purpose of the procedure is to:

- Describe the emergency response process including roles & responsibilities, resources, facilities & equipment to identify, respond to, and address emergency situations
- Contain and control emergency situations so as prevent/minimise the effects of emergency situations on personnel, property and the environment

2 Definitions

The following types of emergency situation are defined:

2.1 Local Emergency

These are smaller incidents that can be handled at a local level by the operational team and/ or plant Emergency Response Team (ERT) without impacting on others part of the plant, personnel or environment e.g. first aid injury, minor spill etc.

2.2 Plant Emergency

These are incidents that could have a significant adverse impact on on-site personnel and/or the Indaver plant and site environment e.g. serious injury, major fire.

2.3 External Emergency

These are incidents that could have an adverse off-site impact e.g. major bunker fire with release of smoke-plume off-site, significant damage to off-site environment etc.

With respect to the above emergency situations, three different types of alarm signal may be generated:

2.4 Local Alarm

Individual local areas of the plant (Flue Gas Cleaning, Bottom Ash Hall, Steam/Condensate Area & Turbine, Furnace Boiler, Tipping Hall & Bunker, and Administration Building) are equipped with local Sounders (different sound to Plant Alarm) and Strobes which are activated by smoke / heat / flame detectors and break glass units in the local area.

These detectors and break glass units are not linked to the Plant Alarm which requires manual activation from the Control Room. Local sounders in noisy areas (Shredder Area, ID Fan, Compressor Room, and Turbine) are set at a higher decibel level. A direct communication (via radio) will be sent from the Control Room to the Emergency Response Team (ERT) Members to respond to any local alarms.

2.5 Plant Alarm - Start:



Description: Slow waving klaxon siren (approx. 5 times / min.)

Meaning: Plant wide alarm (e.g. for large fire). Activated by key switch in Control Room.

In the event of a malfunction of the plant alarm siren, the Control Room will issue an alarm message over the radio system to individual personnel and a Manual Plant Horn will be activated by both the Shift Supervisor in the building and by the Security Guard outside the security hut.

2.6 Plant Alarm - End:

Description: Continuous non-waving flat sound of klaxon siren (approx. 1 minute)

Meaning: End of Alarm. Activated from the Control Room.

3 Roles & Responsibilities

3.1 Incident Controller (Plant Manager)

- Overall responsibility for ensuring there are adequate resources, training, facilities and equipment in place to address any emergency situations that may arise at the Meath plant
- Establishes Emergency Control Centre (ECC) in Plant Managers Office or alternative location if emergency situation/safety considerations dictate
- Proceeds to ECC in order to ascertain as much detail (i.e. number of injured persons, location, nature and extent of incident etc.) of the emergency as possible from the ERT Leader or from the person discovering the incident
- Briefs other ECC Members and co-ordinates activities in the Emergency Control Centre
- Communicates with ERT Leader for duration of emergency situation
- Communicates with the Site Evacuation Co-Coordinator to ensure all persons are accounted for in the event of an evacuation at Assembly Point
- Communicates with Process Controller in Plant Control Room on any process control required during the emergency situation
- Communicates with External Emergency Services before they arrive on site.
- Manages all other external communication required during emergency: relatives of employees, regulatory authorities (HSA, EPA, CER, ESB etc), press/media (through Indaver Managing Director and Communications Manager), neighbouring establishments
- Notifies Indaver senior management and organisation of incident as required
- Decides on End of Emergency following consultation with ERT Leader and Emergency Services (if present on site) and instructs Panel Operator to sound Plant Alarm End
- Follows (as appropriate) Incident Controller Prompt Sheet attached to this procedure.

3.2 Communications Officer (Process Engineer)

- Proceed to Emergency Control Centre (ECC) if directed by Incident Controller
- Establishes contacts with external agencies and personnel (Emergency Services, Employee Relatives, Regulatory Authorities, Neighbouring Establishments) as directed by the Incident Controller
- Alerts Indaver Ireland Managing Director and Indaver organisation (flash mail) as directed by Incident Controller

- Completes roll-call of personnel present in Control Room and informs ECC of same
- Decides on activation of Local and Plant Alarms based on consultation with Panel Operator and ERT Leader
- Maintains contact with ERT Leader and ECC during emergency and makes any process changes (e.g. start/stop equipment) on request of ERT Leader
- Co-ordinates activities of the Panel Operator and Production Operators during emergency situation
- Directs the Panel Operator to activate End of Alarm Signal upon request of Incident Controller
- Outside normal business hours:
 - Initiates the emergency response, co-ordinates activities of Panel Operator and Process Operator, and activates the Local and/or Plant Alarm as deemed necessary.
 - Contacts the Emergency Services
 - Contacts the Plant Manager and Manager on Duty to inform them of the situation.

3.13 Process Operators (1 x Shift Operator, 1 x Day Operator)

- Proceeds to Control Room in emergency situation as directed by Process Controller
- Undertakes tasks as directed by the Process Controller
- Outside normal business hours, if instructed by Process Controller, meet the Emergency Services at security gate and direct them to incident scene.

3.14 Panel Operator (Control Room Panel Operator)

- Acts as collecting point for initial alarm messages
- Activates the Local and Plant Alarm Signals on direction of Process Controller or ERT Leader or based on own assessment of severity of situation
- Alerts the ERT of emergency situations using radio system
- Executes the process related actions as directed by the Process Controller

3.15 Persons without Specific Responsibilities in Emergency Situation

On discovering fire, spill, or other emergency situation:

- In case of fire, activate the local area fire alarm by using the nearest Break Glass Unit
- Contact Control Room on Extension 4017 or by radio and follow their instructions
- Make your job safe where possible e.g. stop machinery etc.
- Evacuate area as appropriate
- Only tackle hazard (e.g. small fire or small spill) if safe to do so and if you have received appropriate training

On hearing Local Alarm

- Make your job safe where possible
- Evacuate the local area following emergency exit signage and proceed to the Control Room (unless unsafe to do so)
- Walk, Do Not Run, Do Not Stop to Collect Personnel Belongings.
- Await further instruction from the Control Room.

On hearing Plant Alarm:

- Make your job safe
- Proceed to the designated external Assembly Point following emergency exit signage and lighting.
- Walk, Do Not Run, Do Not Stop to Collect Personnel Belongings.
- Report to the Site Evacuation Co-Coordinator at the Assembly Point for Roll-Call.

Visitors or contractors should follow the instructions of their Indaver host/contact .

4 References (Attachments to Procedure)

- 4.1 Meath Emergency Telephone Contact List
- 4.2 Incident Controller Prompt Sheet
- 4.3 Specific Emergency Scenarios & Response Spreadsheet
- 4.4 Principal Chemicals & Materials List
- 4.5 Drawings
 - 4.5.1 Site Layout
 - 4.5.2 Location of principal chemicals/materials storage areas
 - 4.5.3 Site Services
 - 4.5.4 External Firemain and Hydrants
 - 4.5.5 Internal firefighting systems schematic
 - 4.5.6 Line Electrical Drawing

5 Procedure

5.1 Emergency Response Facilities and Equipment

5.1.1 Plant Design

The Meath plant buildings, facilities and equipment have been designed in accordance with regulatory requirements and best practice including:

- Building Regulations Technical Guidance Note B Fire Safety (Fire Certificate received from local authority)
- Relevant Irish/European Standards (IS EN)
- Insurance Company Standards (FM Global)
- Indaver Corporate guidelines which are based on operational experience of similar plants
- Consultation with Fire Brigade

5.1.2 Means of Escape

Escape routes, fire protection and ventilation of escape routes, travel distances to exits, emergency exits, and normal and emergency lighting, have been designed and provided in accordance with the requirements of the Building Regulations and relevant Irish & European standards. A fire safety certificate was received from the local authority approving the building and facilities design with respect to the above. A drawing showing the location of exits and designated assembly point is included as an attachment to this procedure.

5.1.3 Fire Detection & Alarm System

The fire alarm system is the primary means of alerting people to an emergency situation and the need to evacuate. The devices on the system include:

- Optical Smoke Detectors, Heat detectors, and UV/IR Flame Detectors located throughout plant
- VESDA Aspirating Smoke Detectors in MCC Room cabinets, VSD room, Technical Galleries and Turbine Hall
- CCTV monitoring of key process operations (i.e. shredder, hopper, bunker, turbine etc.)
- Fire Alarm Break Glass Units located throughout plant
- Local alarms (sounders and strobes) in individual areas and sitewide klaxon evacuation alarm
- Master fire alarm panel located in MCC Room Boiler Area a Repeater Panel (fully functional) located in Control Room

- In event of plant alarm, proceed to Assembly Point with First Aid Kit in event of Plant Alarm and await instruction from ERT Leader
- Provide first aid to injured personnel in accordance with training given
- Remain with injured personnel until the arrival of the Emergency Services

3.8 Site Evacuation Co-Coordinator (Maintenance Manager)

- Manages activities of personnel (Roll Caller, Traffic Entry Controller, Visitors Guide), evacuees, and vehicles at the designated Assembly Point (Security Guardhouse or alternative)
- Obtains list of persons present on site from Security Guard and organizes roll-call
- If any persons are missing, asks assembled personnel where missing persons were last seen
- Informs the Emergency Control Centre (ECC) about roll-call status and any missing persons
- Maintains contact with the ECC and changes Assembly Point location if situation dictates
- Co-ordinates access control to site during emergency
- Informs the ECC about arrival of external authorities and others (e.g. media) at Security Guardhouse

3.9 Roll Caller (Warehouse Supervisor)

- Conducts roll-call of personnel at assembly point using list obtained from Security Guard and informs Site Evacuation Co-Coordinator of any missing persons
- Manages evacuees present at Assembly Point to ensure they act appropriately during emergency situation (i.e. no smoking, no photographs, no standing in way of traffic, vehicles parked at side of road and engines switched off, access for emergency services)
- Assists the Traffic/Entry Controller to control access and egress from site as required
- Assist the Visitors Guide manage visitors if required

3.10 Traffic/Entry Controller (Security Guard)

- Prints out list of persons present on site and hand to Site Evacuation Co-Coordinator at Assembly Point
- Stops all incoming and outgoing traffic and manages traffic at entrance to ensure Emergency Services vehicles have free access
- Directs Emergency Services to ERT Leader/incident location on arrival on site
- Controls entry of all persons to site. Prohibits entry of unauthorized persons unless specifically directed by Site Evacuation Co-Coordinator. Keeps all external persons (e.g. journalists) outside security entrance.

3.11 Visitors Guide

- Ensures public visitors are briefed on emergency procedures prior to commencing site visit
- Guides the public visitors back to the Visitors Room (standard procedure) in event of Local Alarm
- Guides the public visitors to designated Assembly Point in event of Plant Alarm
- Completes a roll-call of visitors and informs Site Evacuation Co-Coordinator of roll-call and any missing persons
- Organizes a debriefing of Visitors after end of emergency situation

3.12 Process Controller (Shift Supervisor)

- Proceeds to Control Room in emergency situation
- Coordinates the production activities during the Emergency Situation

- Answers all incoming telephone calls
- Meets external officials arriving on-site as directed by the Incident Controller

3.3 Incident Recorder (HR & Admin Officer)

- Proceeds to the ECC if directed by Incident Controller
- Records and documents the timing and sequence of events during the emergency situation
- Assists the Communication Officer as required

3.4 QESH Advisor (Q & E Manager)

- Proceed to Emergency Control Centre (ECC) if directed by Incident Controller
- Advises Incident Controller on any actions required to mitigate EHS consequences of incident
- Assists Incident Controller in communication with relevant authorities (EPA, HSA)

3.5 Emergency Response Team (ERT) Leader (Production Manager)

- Proceeds to ERT Room
- Contacts Control Room and ECC in order to ascertain as much detail of the emergency as possible from the person discovering the incident.
- Briefs the ERT Members on the situation in the ERT Room, designates role to each ERT member giving them specific instructions, assigns PPE for each role, and ensures they are adequately equipped
- Completes roll-call of ERT members and informs ECC of same
- Proceeds to incident scene with the ERT and coordinates and leads the actions of the ERT
- Directs Indaver occupational first aiders to treat any injured personnel as required
- Assesses the incident scene and decides on additional actions and resources required
- Contacts the ECC ASAP with the request for External Emergency Services support
- Briefs the External Emergency Services and acts as the Indaver point of contact after their arrival on site. Takes lead from and provides assistance to Emergency Services Commander who takes control of incident after arrival on site.
- Stays in contact with the control room shift supervisor with regards to any required process actions (e.g. stop production equipment)
- Informs the ECC about the status and progress of the emergency response
- Determines when the site is safe to return to normal operations with Emergency Services Commander and communicates to Incident Controller to declare End of Emergency

3.6 ERT Members (Mechanical and E&I Technicians)

- Proceed to ERT Room
- Immediately don emergency PPE and undergo briefing by ERT Leader
- Executes the ERT role and tasks assigned by the ERT Leader in accordance with their training
- Check their equipment and PPE including SCBA is in good working order prior to use
- Always consider their own safety and that of their fellow team members before undertaking any hazardous tasks as part of emergency response

3.7 Occupational First Aiders

- If notified of personnel injury, proceed to location of injured personnel (provided it is safe to do so) with First Aid Kit. If injured person is located in hazardous area, proceed to safe location to administer first aid in agreement with ERT Leader

- Mimic Panel (Synoptic Board) located in Control Room showing Building Layout, Individual Zones and LED Display showing location of alarm activation

Inspection and testing of the fire detection and alarm system is carried out in accordance with relevant Irish standards (IS EN series) and regulatory requirements.

5.1.4 Firefighting Systems

Firewater is supplied in an external 250mm fire main to external fire hydrants and an internal 250mm fire main to fixed hose-reels, landing valves, water canons, sprinkler heads, and foam deluge systems on site.

The ring main is supplied by a combined firewater and process water tank. The tank has a total capacity of 2185m³ with a minimum firewater reserve capacity of 1855m³ which is sufficient to provide firewater for up to two hours under maximum flow conditions. The tank is supplied with water from the on-site well.

The firewater pump house is equipped with 3 No. diesel pumps (2 Duty/1 Standby) and an electrical jockey pump which are designed to maintain the pressure in the fire main between 10 -12 bar. Pressure regulating valves at the fire-hydrants reduce the pressure to 4 - 6 bar for use with fire hoses. This arrangement ensures the availability of firewater for emergency response even if certain essential services such as electricity are unavailable during an emergency.

The firemain provides firewater to the following systems:

- External Fire hydrants located throughout the site
- Internal fixed hose reels and landing valves
- Automatic/Manual Dry and Wet Sprinkler Systems in the following areas: Tipping Hall Shredder Unit & Lay-down Area, Bunker Crane Lay-down Areas, Feeding Hopper, Auxiliary Burners, Firewater Pumphouse, and Turbine Bearings (water droplet)
- Automatic/Manual Foam Deluge Systems in the following area: Turbine Lube Oil Tank and Pipework, Turbine Cellar and Turbine Control Oil Pack
- 4 No. Water Cannons in Bunker Area

The deluge systems on the Hopper (High Level), Shredder, and Turbine Building can also be activated manually using the Manual Pull Station in the local area.

A.F.F.F foam is stored in a 1.3 m³ foam tank which provides foam to the foam deluge system.

An automatic/manual Inergen gas suppression system is provided in the Variable Speed Drive (VSD) room. Stage 1 and Stage 2 alarms together with sounders and strobes located inside and outside room will warn personnel to evacuate/not to enter room in event of Inergen activation.

Fire cabinets located close to external fire hydrants contain sections of fire hose, branchpipe hose nozzles, hydrant keys, bars and standpipes. Fire cabinet(s) located close to oil tanks (i.e. diesel tank) have sections of fire hose, containers of foam concentrate, foam branchpipes, and foam uniductors.

Different types of portable fire extinguisher (water, foam, carbon dioxide, dry powder) are mounted in prominent positions throughout the site.

Drawings showing the location of the external firemain and hydrants and an schematic of the internal fire-fighting system are included as attachments to this procedure.

5.1.5 Fire Blankets

Fire blankets are mounted in prominent positions throughout the site which are suitable for small fires and wrapping individuals in.

5.1.6 Smoke Ventilation

Automatic smoke vents linked to the fire detection system are located in the Tipping Hall, the Bunker, Bottom Ash Hall, and Administration Building Stairwells. With respect to the smoke vents in the Bunker these will activate once sufficient temperature has built up to activate the dry sprinkler heads above the cranes in the bunker. Heat vents (permanently open air louvres) located on the building roof will also dissipate smoke from the building in the event of a fire situation.

5.1.7 Control of Plant and Equipment in Fire Situations

In the event of certain fire situations the DCS will automatically bring to a safe state and/or shutdown specified plant and equipment including:

- Burner Gas Supply Slam Shut Valves Activated
- Shutdown Fuel Oil Pumps
- Shutdown Shredder
- Close Primary Air Intake Damper at Bunker
- Shutdown Flue Gas Residue Unloading
- Cranes in bunker return to home position
- Turbine shutdown

In addition, lifts will automatically return to ground floor in event of fire detection/plant alarm.

5.1.8 Explosion Mitigation & Protection

An Explosion Protection Document (EPD) has been prepared for the site which details the measures taken to prevent the formation of flammable/explosive atmospheres, prevent ignition sources (e.g. EX-rated equipment) occurring, and mitigate the effects of an explosion. Areas with potential flammable atmospheres (EX-rated areas) identified on site are the Activated Carbon Silo & System, Ammonia Storage Tank & Unloading Area, Pilot Fuel Propane Gas Cylinders, Hydrogen Cell and Cylinder at CEMS Room, and Flammable Chemical Storage Cabinets. Equipment in these areas is appropriately EX-rated. The activated carbon silo also incorporates a nitrogen inertion system and explosion pressure relief venting to a safe location.

5.1.9 On-Site Locations for Management of Emergency Response

The on-site emergency response will be co-ordinated from the following locations:

- Emergency Control Centre (ECC): Plant Managers Office on Level 4 of Administration Building or Control Room if Office is unsafe to use in emergency situation
- Control Room: Level 5 of Administration Building
- Assembly Point : Outside Entrance at Security Guard-House or alternative location if unsafe to use in emergency situation
- Emergency Response Team (ERT) Room: Located adjacent to Control Room on Level 5 of Administration Building

The ECC, Control Room and Security Guard-House contain the following equipment and documentation for use in an emergency situation:

- Radio, Landline & Mobile Phone
- Access to MSDSs for all chemicals used on site
- Emergency Response Procedure
- Indaver Emergency Contact Telephone List
- Site Plan Drawings showing building layouts and location of emergency equipment

The relevant documentation described above will also be stored in the Indaver Head Office and a copy provided to the Navan and Drogheda Fire Brigades.

5.1.10 Communications

All ERT, production and maintenance personnel can communicate using radios in an emergency situation.

The Administration Building, Control Room and Security building will also be equipped landline phones.

The Control Room/ERT can be contacted on the radio system or by dialing Extension 4017 in an emergency situation. The Control Room will then notify the ERT using radios provided to the individual ERT members.

An Emergency Contact List (included as Attachment X to this procedure and link on the intranet homepage) contacts names of relevant Indaver personnel and external emergency services and agencies to be contacted in an emergency situation.

5.1.11 First Aid

There will be a minimum of one occupational first aider on site at any one time. In addition, all members of the Emergency Response Team (ERT) are trained in emergency first aid. The names and contact numbers for the site occupational first aiders are displayed on prominent signage throughout the site. First aiders can also be contacted by dialing the control room on Extension 4017. First aid boxes are located throughout the site. If necessary individual offices in the administration block can be used to administer first aid in an emergency situation.

5.1.12 Safety Showers and Eyewash Stations

Safety showers and/or eyewash stations are located in areas of the site where there is a potential for exposure to hazardous materials. External safety showers and eyewash stations are fitted with trace-heating to prevent freezing during the winter months. A drawing showing the location of safety showers and eyewash stations is included as an attachment to this procedure.

5.1.13 PPE

Appropriate Personal Protective Equipment (PPE) is provided for use by the site Emergency Response Team (ERT) and other site personnel in emergency situations. The exact PPE to be worn will depend on the emergency situation, but may include some or all of the following:

- Safety Glasses & Goggles
- Chemical Resistant Boots
- Chemical Resistant Gloves: Inner Nitrile and Outer Gauntlet (Nitrile) Gloves
- Heat Resistant Gloves
- High Visibility Clothing
- Hard Hats
- Tyvek F Chemical Resistant Suits
- 3M Full Face Masks with ABEK2P3 Filters
- Portable self contained breathing apparatus (SCBA)
- Protective Clothing for Firefighting (Helmet, Flash Hood, Jacket, Leggings, Gloves, Boots)

The PPE for use by the ERT is stored in a dedicated ERT room located adjacent to the Control Room.

5.1.14 Containment of Liquid Releases (Spills/Leaks)

5.1.14.1 Process Building

All waters produced from wash down etc. and any leaks/spills within the process building are directed to a underground spill containment tank with a capacity of 100m³. Water from this spill tank will be used to supplement process water requirements or will be transported off-site for treatment or disposal to an appropriately permitted or licensed facility. There is no process effluent discharged from the facility.

5.1.14.2 Storage of Hazardous Materials

Bulk tanks containing hazardous materials (ammonia, diesel fuel oil) are double skinned and equipped with interstitial leak detection. The tanks are also fitted with level monitoring and overflow protection. Crash barriers are located around the bulk tanks to prevent potential vehicle collision and spills. Pipework from the bulk tanks is located over-ground over paved areas and undergoes regular visual inspection.

There is a designated bulk tanker unloading area for diesel and ammonia which is graded towards an ACO channel. Prior to unloading a diversion valve on the surface water drainage system is activated which diverts the drainage from the ACO channel to an underground Full Retention Forecourt Separator. This ensures that during tanker unloading any spills/leaks are contained within the unloading area and underground separator. Any contained spills of hazardous materials will be treated appropriately.

All other hazardous materials on site are stored in smaller quantities (e.g. 200L drums, IBCs etc.) in individual bunded areas (e.g. spill pallets, trays, chemical storage cabinets) to contain any spills/leaks.

5.1.14.3 Surface Water Drainage System

The site surface water drainage system has been designed in general accordance with Sustainable Drainage Systems (SuDS) principles and collects rainwater from all roofs, hardstanding areas, roads on site and which fall naturally towards these areas. A site services drawing showing the layout of the surface water drainage system is included as an attachment to this procedure.

The surface water drainage system routes the surface water (rainfall) from roads, hardstanding areas and building roofs to:

- a Class 1 Bypass Separator
- a continuous online monitoring chamber (TOC, pH, Conductivity)
- a surface water attenuation pond with a capacity of 1600m³
- a continuous online monitoring chamber (TOC, pH, Conductivity) on the outfall from the attenuation pond
- local surface water drainage network and River Nanny

The Class 1 Bypass Separator is designed to retain any oil/hydrocarbons present in the surface water runoff.

The pre-attenuation pond monitoring chamber diverts any contaminated runoff to an underground diverted water tank with a capacity of 300m³. 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. Should this storage tank be filled the pre-attenuation pond monitoring chamber will go into overflow mode and allow water to pass into the attenuation pond.

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. The discharge rate of 59.8 litres/second has been agreed with the local authority. The attenuation pond has been designed to cater for 1 in 30 year and 1 in 100 year storm events.

A second continuous online monitoring chamber on the outfall from the attenuation pond shuts-off the discharge pumps from the attenuation pond if any contamination in the discharge and retains the contaminated runoff in the attenuation pond.

The surface water attenuation system described above will prevent the discharge of any contaminated runoff from the site in the event of accidental leaks/spills or emergency situations.

5.1.14.4 Contaminated Firewater Retention

Fire suppression is provided by an on site firewater storage tank with an effective fire-fighting storage volume of 2185 m³ as described in Section 5.1.4. Of the total tank capacity 330 m³ is provided for process water requirements with 1855 m³ fully reserved for fire fighting. However in the event of a fire, the process water requirement will not be needed and potentially all 2185 m³ will be available for fire fighting.

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. Up to the level of the tipping hall, the bunker has a capacity of ca. 5670 m³ approximately. If a 50% voidage ratio is assumed for the waste, then there would be a retention capacity of 2835 m³ within the waste bunker. With 2185 m³ of water available for fire fighting, this demonstrates that all of the water would be retained within the bunker even in the most extreme fire event.

With respect to a fire occurring elsewhere in the process building or other buildings on site the firewater run-off will drain either to the process building 100m³ capacity spilled water tank or be contained by collection in the surface water drainage system as described in Section X.X. which incorporates a 300m³ diverted water tank and a 1600 m³ surface water attenuation pond.

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.

5.1.14.5 Spill Response Materials

Spill response materials such as spill mats, absorbent materials, brushes, non-sparking shovels, drum putty, drain blockers, litmus paper are located in designated locations in the plant.

5.1.15 Monitoring Equipment

Monitoring equipment used on site to detect potential emergency situations and/or process upsets include:

- Smoke, heat and flame detectors
- Closed Circuit Television Monitoring (CCTV) of key process operations
- Process monitoring (Pressure, Temperature, Level etc.) as part of the DCS control system
- Continuous emissions monitoring of atmospheric and surface water discharges
- Interstitial leak detection on double-skinned chemical storage tanks
- Level monitoring on bulk chemical tanks
- Portable Gas Detectors (LEL, O₂, CO, H₂S) used by the ERT and for specified types of work (e.g. confined space entry) on site
- Ammonia detector at bulk ammonia tank
- Oxygen Depletion and Hydrogen Detectors in Central Emissions Monitoring Room (CEMS)
- Litmus paper used for checking spills/leaks

5.1.16 Weather Monitoring

A windsock is located on the top of the main process building which can be used for monitoring wind direction during an emergency.

5.1.17 Other Rescue Equipment

A variety of other equipment may also be used on site in emergency situations such as rescue equipment for confined spaces and work at height (e.g. Tripods & Winches, Harnesses & Lanyards, Escape Sets etc.).

5.1.18 Inspection and Checking

All emergency equipment and facilities are inspected and maintained in accordance with regulatory requirements, relevant standards, and corporate requirements and is managed as part of the site maintenance management system using SAP.

5.2 Emergency Response Organisation

5.2.1 Structure

The roles and responsibilities of individual personnel in an emergency situation are described in Section 3 and actions to be undertaken by individuals in an emergency situation are described in Section 5.3 and 5.4.

The full emergency response organisation including ERT is only present on-site during normal business hours (Monday to Friday 08:00 – 16:30) during which time full production (i.e. waste deliveries etc.) and maintenance activities take place. However, the plant incineration process operates on a 24-hour seven day per week basis, but with a reduced manning level outside normal business hours. Therefore due to the difference in manning levels, the emergency actions taken on-site will differ between normal business hours and outside normal business hours.

The management structure for dealing with emergencies is shown during normal business hours and outside normal business hours in shown in Figures 1 and 2 respectively.

5.2.2 Backup Personnel

In the event of absence (holidays, sick-leave, off-site business) of key personnel in the Emergency Response Organisation, the following personnel are nominated as backup.

Emergency Response Role	Nominated Backup Personnel
Emergency Control Centre Incident Controller Communications Officer Incident Recorder QESH Advisor	Process Engineer HR and Admin Officer Q&E Manager or H&S Manager Health & Safety Manager
Emergency Response Team (ERT) ERT Leader ERT Members	Maintenance Manager Mechanical Technician 4 and E&I Technician 4
Evacuation and Headcount (Assembly Point) Site Evacuation Co-Coordinator Roll Caller	Mechanical Technician 3 or E&I Technician 3 Mechanical Technician 3 or E&I Technician 3

Control Room Process Operator	Day Shift Operator 2 or Day Shift Supervisor
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5.2.3 Training and Emergency Drills

Appropriate training is delivered to members of the Emergency Response Organisation which is backed up by periodic drills and training exercises. The behaviour of personnel is monitored during all drills and exercises with to continuously improve both the instructions for emergency responses and the personnel's implementation of these responses.

Training is provided for all personnel who have key roles in emergency management, encompassing all levels of the emergency response organisation. This includes a comprehensive programme for the Emergency Response Team (ERT) including:

- Fire Fighting
- Chemical Spill Response
- Use of PPE and Self-Contained Breathing Apparatus
- Search and Rescue
- Emergency First Aid
- Confined Space Entry & Rescue

ERT personnel participate in quarterly drills that simulate specific emergency scenarios that could potentially arise on site. Any lessons learned from these exercises are incorporated as necessary into the emergency response procedure and addressed in subsequent drills.

Evacuation drills are conducted every six months to test the adequacy of alert systems, evacuation arrangements and the response of employees, and visitors. A record is maintained of the details of each drill.

The Navan and Drogheda Fire Brigades will be given periodic tours of the site to ensure they are familiar with site layout and emergency equipment.

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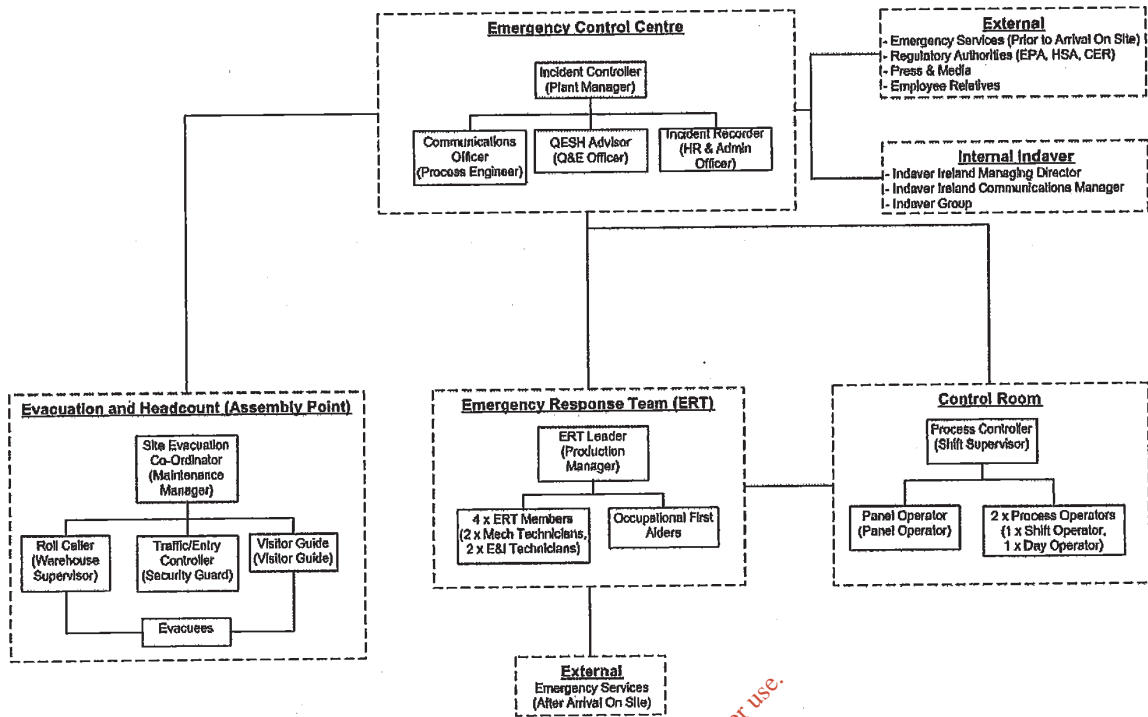


Figure 1: Structure of Emergency Response Organisation (During Normal Business Hours)

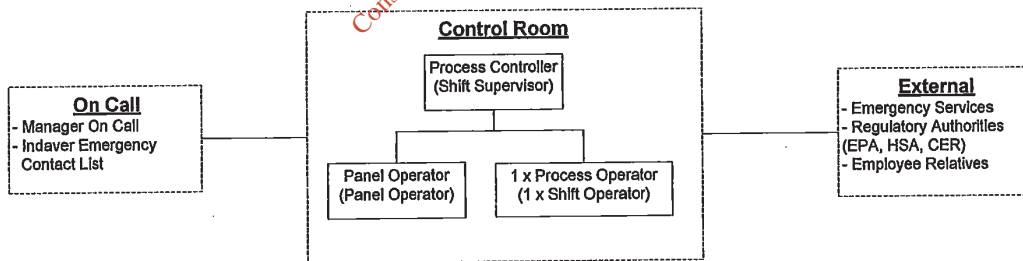


Figure 2: Structure of Emergency Response Organisation (Outside Normal Business Hours)

5.3 Activation of Alarms

Local Alarms (area sounders and strobes) are activated automatically by the local heat/smoke/flame detectors in the area. Local alarms can also be activated by personnel using the Break glass Units located in the specific area if personnel notice a fire or other situation requiring emergency action. Alternatively personnel can contact the Control Room on Extension 4017 or by radio to inform them of the situation and the Control Room can then activate the Local Alarm as required.

The Plant Alarm can only be activated from the Control Room using a designated key switch. The Control Room can be notified of an emergency situation by activation of a Local Alarm as described above or by contacting the Control Room on Extension 4017 or by radio.

After being informed or otherwise notified of an emergency situation, the Panel Operator in the Control Room shall consult with the Process Controller (Shift Supervisor) who shall assess the need for the activation of the Plant Alarm based on the severity of the situation and if deemed necessary shall instruct the Panel Operator to activate the Plant Alarm using the key switch in the Control Room.

The Panel Operator may also activate the Plant Alarm without consulting with the Shift Supervisor if the severity of the emergency situation so requires and/or if instructed to do so by the ERT Leader (Production Manager) or Incident Controller (Plant Manager).

If the Plant Alarm malfunctions/does not operate the Panel Operator shall contact the Shift Supervisor and the Security Guard who will operate the Manual Mobile Alarm in the building and outside the Security Gatehouse respectively. The Panel Operator will inform all personnel of the Plant Alarm over the radio system.

At the end of the Emergency situation, the Panel Operator shall generate the End of Plant Alarm signal after being instructed to so do by the Incident Controller (during normal business hours) or the Shift Supervisor (outside normal business hours).

5.4 Actions to be taken in event of Alarm / Emergency Situation

The full emergency response organisation including ERT (as shown in Figure 1) is only present on-site during normal business hours (Monday to Friday 08:00 – 16:30), during which time full production (i.e. waste deliveries etc.) and maintenance activities take place. However, the plant incineration process operates on a 24-hour seven day per week basis, but with a reduced manning level outside normal business hours. Therefore due to the difference in manning levels, the emergency actions taken on-site will differ between normal business hours and outside normal business hours.

5.4.1 During normal business hours

5.4.1.1 Personnel Discovering the Incident/Hearing Alarm

Fire

- Activate the local area fire alarm by using the nearest Break Glass Unit
- Contact Control Room on Extension 4017 or by radio and follow their instructions
- For small fires, having regard for personal safety and the safety of others, undertake 'reasonable action' to extinguish small fires or prevent escalation e.g. shut off source of ignition and attack fire with appropriate extinguisher if trained to do so.
- If this is not possible, do the following:
 - Make your job safe – stop machinery, hot work etc
 - Evacuate local area

Spill of Hazardous Material

- Contact the Control Room on Extension 4017 or by radio to report the spill giving them as much information as possible about the nature of the spill (material names, size of spill, location etc.) and follow their instructions (e.g. evacuate area)
- Make your job safe - stop machinery, hot work etc
- For small spills/leaks, having regard for personal safety and the safety of others, undertake 'reasonable action' to contain/clean up small spill using local spill kit if trained and properly equipped (e.g. correct PPE) to do so

Injury to Person(s)

- Contact the Control Room on Extension 4017 or by radio to report the injury and request them to send first aider
- Remain with the injured person until the arrival of the First Aider
- Follow the instructions of the First Aider

All other accident/incident/emergency situations

- Contact the Control Room on Extension 4017 or by radio and follow their instructions

Personnel Hearing Local or Plant Alarm

- On hearing plant or local alarm, personnel who are part of the Emergency Organisation shall carry out their specific duties as defined in Section 3 and in accordance with their training
- Personnel without specific responsibilities in an emergency should do the following:
 - On hearing Local Alarm
 - Make your job safe where possible
 - Evacuate the local area following emergency exit signage and lighting and proceed to Control Room
 - Walk, Do Not Run, Do Not Stop to Collect Personnel Belongings.
 - Await further instruction from the Control Room.
 - On hearing Plant Alarm:
 - Make your job safe where possible
 - Proceed to the designated external Assembly Point following emergency exit signage and lighting.
 - Walk, Do Not Run, Do Not Stop to Collect Personnel Belongings.
 - Report to the Site Evacuation Co-Coordinator at the Assembly Point for Roll-Call.
 - Plant visitors or contractors should also follow the instructions of their Indaver host/contact

5.4.1.2 Local Alarm

- Control Room is notified of emergency situation in local area (e.g. fire, chemical spill, personnel injury etc.)
- Production and/or Maintenance personnel discovering incident in local area take first action to address situation if safe to do so (e.g. extinguish small fire, contain small spill)
- The Control Room decides whether or not to activate Local Alarm (sounders and strobes) in area if not already activated by smoke/heat/flame detectors in area or Break Glass Unit
- If the Local Alarm Sounders and Strobes are activated, the local area will be evacuated and evacuees will proceed to Control Room and await further instruction from the Control Room. Normal operation will continue in other areas of the plant.
- If there are any public visitors on site, the Control Room Panel Operator shall inform the Public Visitor Guide by radio about the restricted area and if necessary not to leave the visitors room.
- The Control Room Panel Operator shall alert the ERT by radio
- Members of the ERT will report to ERT Leader, don the appropriate PPE and equipment and execute the necessary mitigation actions to address the emergency in the local area
- The ERT Leader will inform the Control Room Panel Operator when the emergency situation has been contained or the requirement to upgrade the Local Alarm to Plant Alarm

- The Panel Operator shall inform the Incident Controller (Plant Manager) of the situation if appropriate (e.g. serious incident/severe personal injury/potential for escalation)

5.4.1.3 Plant Alarm

After being informed or otherwise notified of an emergency situation, the Panel Operator in the Control Room shall consult with the Process Controller (Shift Supervisor) who shall assess the need for the activation of the Plant Alarm based on the severity of the situation and if deemed necessary shall instruct the Panel Operator to activate the Plant Alarm using the key switch in the Control Room.

The Panel Operator may also activate the Plant Alarm without consulting with the Shift Supervisor if the severity of the emergency situation so requires and/or if instructed to do so by the ERT Leader (Production Manager) or Incident Controller (Plant Manager).

On activation of the Plant Alarm the following actions will take place:

- Persons with a specific role in the Emergency Organisation shall carry out their duties as defined in Section 3 and in accordance with their training
- All other persons should:
 - o Make their job safe
 - o Proceed to the designated external Assembly Point following emergency exit signage and lighting.
 - o Walk, Do Not Run, Do Not Stop to Collect Personnel Belongings.
 - o Report to the Site Evacuation Co-Coordinator at the Assembly Point for Roll-Call.
- All radios shall be turned to the Emergency Radio Channel. Personnel responsible for control of operational equipment shall remain on separate operational radio channel if instructed to do so by Control Room.
- All non-emergency radio and telephone calls will be stopped.
- All vehicles shall be moved to the side of the road/designated parking area and shut down to allow access by Emergency Services.
- The Emergency Control Centre shall contact the Site Evacuation Co-Coordinator to confirm all personnel present and accounted for at Assembly Point.
- The ERT Leader reports to the Emergency Control Centre on the scale and nature of the emergency situation and requirement for Emergency Services support
- The Emergency Control Centre contacts the Emergency Services and other external organizations as required. Note: Fire Brigade will always be contacted in event of any fires which cannot be immediately contained by Indaver.
- If deemed necessary the Incident Controller shall inform Indaver Ireland Managing Director of the situation who in turn will inform Indaver Group management if necessary.
- After the Emergency situation, the Head of the Coordination Centre inform personally the eventual present Public Visitors.
- During the Emergency situation, nobody except the Emergency Services will be allowed to enter the plant. All other external personnel will be kept outside the entrance at the Security Gate House unless specific authorization to enter is given by the Incident Controller.

5.4.2 Outside Normal Business Hours

Outside of normal business hours, a minimum of three personnel (1 x Shift Supervisor, 2 x Production Operators) may be on site at any one time. At least one person shall be a trained occupational first aider.

The Shift Supervisor shall be responsible for initiating the emergency response and activating the Local and/or Plant Alarm as deemed necessary.

The Shift Supervisor shall initiate 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 Alarm all personnel shall evacuate the area and proceed to the Control Room or other safe Assembly Point as instructed by the Shift Supervisor (or pre-defined assembly point during planned maintenance

The Shift Supervisor shall contact the Emergency Services to respond to:

- any fire situation
- any significant spill of hazardous materials
- personal injury requiring medical attention
- other emergency situation requiring the intervention of the Emergency Services

The Shift Supervisor shall send one of the Production Operators to meet the Emergency Services at the entrance gate (if safe to do so) and direct the Emergency Services to the emergency location on site.

The Shift Supervisor shall contact the Plant Manager and Manager on Duty to inform them of the situation. The Manager on Duty are required to proceed to the site and liaise with Shift Supervisor in the Control Room if the Emergency Services attend site.

5.4.3 End of Emergency Situation

The end of a Local Alarm is decided by the Control Room (Shift Supervisor and Panel Operator) after consultation with the ERT Leader. The Control Panel Operator will switch of the Local Alarm sounders and beacons in the local area.

The end of a Plant Alarm is decided by the Incident Controller after consultation with the ERT Leader and Emergency Services (if present on site). The Incident Controller will inform the Control Room Panel Operator to activate the End of Alarm Signal.

Following an emergency situation, the incident scene should remain undisturbed until the necessary information (e.g. photographs etc.) has been gathered as part of the incident investigation or until as instructed by the Plant Manager.

Following the end of the emergency situation, the ERT Leader shall ensure that any equipment (e.g. spill kits, BA cylinders, PPE, fire extinguishers etc.) used during the emergency situation is checked and cleaned/re-stocked/re-filled as required so that it is available for future use.

The Incident Controller shall:

- Ensure the Health & Safety Manager and Quality & Environmental Manager are informed of any accident and emergency situations so that an investigation is carried out and regulatory authorities (EPA, HSA etc.) are notified as appropriate.
- Liaise with the Guide for any public visitors so they receive the necessary information about the incident
- Consult with Indaver Ireland Managing Director regarding requirement to issue company wide update and/or media release on incident

Outside normal business hours, similar actions to the above are taken at the end of the emergency with the following exceptions:

- The end of a Local Alarm is decided by the Shift Supervisor. The Control Panel Operator will switch of the Local Alarm sounders and beacons in the local area.
- The end of a Plant Alarm is decided by the Shift Supervisor after consultation with the Plant Manager/Manager on Duty and Emergency Services (if present on site). The Shift Supervisor shall inform the Control Room Panel Operator to activate the End of Alarm Signal.

5.5 Controls and Actions to be Taken for Specific Emergency Situations

The plant controls in place and actions to be taken to address specific emergency scenarios are summarised in the spreadsheet attached to this procedure.

5.6 Notification of Emergency Situations to Regulatory Authorities

If the nature or scale of the emergency situation / incident requires regulatory authorities (e.g. HSA, EPA, RPII etc.) to be notified, the relevant authorities will be contacted in accordance with site licence(s) and/or regulatory requirements. An Emergency Contact List with contact numbers for relevant authorities is included as an attachment to this procedure. *Operations 6.4 Environmental Incident Investigation and Reporting* details the procedure to be followed for notifying the EPA and other authorities of environmental incidents.

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