

ATTACHMENT NUMBER K1

Contingency Arrangements

Contents

Attachment K1.1

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K1.1 CONTINGENCY ARRANGEMENTS

1. GENERAL

During the design phase of the plant, a hazard and operability study (HAZOP) will be carried out. This is a systematic method of identifying hazards and assessing mitigation measures. A comprehensive set of standard operating procedures will then be drawn up for the operation of the plant, which will minimise the risk of accident/emergency situations arising. Indaver's experience of successfully operating similar plants in Belgium will allow potential hazards to be easily identified.

The applicability of the Seveso Regulations (SI No. 476 of 2000) to the waste management facility is addressed in Attachment B9.1. These regulations do not apply to this facility as the quantities of materials on site relevant to the above regulations will be well below the threshold values.

2. EMERGENCY RESPONSE PLAN

A site emergency plan will be prepared for the site prior to start-up which sets out the response measures to be taken by Indaver personnel in the event of an emergency, such as a fire or an environmental incident. These measures will be designed to ensure maximum protection for the site employees, site visitors and people in other premises near to the site, to limit property damage and to minimise impact on site operations and the environment. The basic philosophy on which the emergency plan will be based has four components.

- Mitigation

Mitigation activities involve identifying potential hazard and then taking measures to remove the hazard or reduce its potential for adverse effects.

- Preparedness

Emergency planning, training programmes, emergency drill and exercise programmes will be elements of the preparedness programme.

- Response

Response activities address the immediate and short term effects of an emergency. The site will be occupied on a continuous basis.

- Recovery

Recovery activities and programmes involve restoring site services and systems to normal status.

Emergency contact numbers for staff with responsibility for the site will form part of the emergency response plan.

The following measures (based on the experience of successful operation of Indaver's plant in Flanders) will be implemented to improve safety and minimise the risk of emergency situations.

- The plant design will be carried out according to standards, design codes, laws, good practices and experiences by skilled people.
- The design will be reviewed to check for safety hazards in steady and non-steady state conditions and for operability.
- Backup systems for pumps, computers, power supply, instruments etc will be provided for critical situations.
- A fire detection and fire fighting systems will be installed (fire eyes, guaranteed pressurised water network, synoptic with alarms).
- The design will be discussed with the local fire officer and Indaver's insurance company.
- A thorough interlock system will automatically shut down the plant in a safe manner in the event of equipment failure.
- The installations will be commissioned according to a schedule that provides also the testing of safety systems.
- The installations will be inspected by safety officers before starting up.
- The installations will be well maintained and cleaned.
- Indaver applies strict rules on safety such as a working permit system, training of operators and staff and provision and use of personal protection equipment.

3. EMERGENCY SHUTDOWN PROCEDURE

In the event of a situation developing requiring an emergency shutdown of the waste to energy plant, the following sequence of events will take place:

- Both the air supply fans and waste feed to the furnace will be shut off.
- The combustion of any waste remaining in the furnace will be complete within a half hour. However, the ID fan will be kept running for a period of one hour to ensure that any combustion gases generated will still pass through the abatement/treatment systems to ensure that they are treated.
- The evaporating spray towers will cool the flue gases but not to a particular set point as during normal operation.
- The activated carbon/lime mixture supply will continue to be injected for the removal of heavy metals, dioxins, HCl, HF and SO₂ that may be present in the flue gases. Although it is not envisaged, there may be some emergency situations that require injection of activated carbon/lime mixture to be stopped, e.g. a catastrophic failure of the baghouse filter. However, the activated carbon/lime mixture present

on the sleeves of the baghouse filter will continue to remove these substances from the combustion gases.

- The combustion gases will then pass through the baghouse filter and particulates will be removed as efficiently as possible.
- From there the flue gases will pass through the two wet scrubbers, which may not be as effective in this emergency shutdown mode as there will be no lime/limestone addition to the circulating solution in the scrubbers and therefore the efficiency of removal of HCl, HF and SO₂ will be decreased. However, the activated carbon/lime mixture injection after the evaporating spray tower will assist in removal of these compounds.
- The combustion gases will then pass through the tail end flue gas cleaning system where dioxins will be removed by either an activated carbon/lime mixture injection and baghouse filter system or a carbon bed system.
- The combustion gases will then pass through the heat exchanger, which like the evaporating spray towers, will heat the flue gases but not to a particular set point as during normal operation.
- The flue gases will then discharge to atmosphere via the stack and there may be a visible plume.
- The fixed installed emissions monitoring equipment located on the stack will continue to continuously monitor the emissions from the stack and in the event of loss of power, the monitoring equipment will be supplied with electricity from the Uninterruptible Power Supply (UPS) for a period of at least one hour.

4. FIRE FIGHTING

4.1 GENERAL

The whole of the plant will be designed and provided with adequate fire protection and detection systems and will be consistent with the requirements of Meath County Council and building regulations and Indaver's Insurer's requirements. Indaver Ireland will be applying for a Fire Certificate and have been in consultation with the Fire officer to ensure that the Fire protection and Fire fighting system are in accordance with his requirements.

The system for fire fighting shall be as follows:

- Fire wall compartmentation
- Fixed water canon
- Fixed sprinkler systems (where necessary)
- Fire detection and alarm systems
- Smoke ventilation
- Hydrants and hose reels

- Dry/Wet rising mains
- Portable fire extinguishers
- On site water buffer

4.2 FIRE WALL COMPARTMENTATION

The Buildings will be divided into fire areas and fire separation compartments. In general every building forms a separate fire compartment and inside that area are further fire separation compartments. In order to minimise potential loss and improve fire safety. Special attention shall be paid to fire barriers and penetration seals in separating walls and floors all over the plant.

4.3 WATER CANON SYSTEMS

The Waste Bunker will be protected by a fixed canon system. As the waste bunker is permanently monitored by the crane operator, a fire can be detected at an early stage by the operator of the mechanical grab. Should the crane operator fail to detect a fire, automatic fire detection systems will activate an alarm in the control room. However, a localised fire can usually be more quickly detected by the human eye than by the fire detection systems installed.

In the event of a fire, it is usually quite simple to lift the part of waste on fire into the hoppers from whence it goes into the furnace. This waste is then covered by placing another layer of waste into the hopper.

Should the fire become uncontrollable by this method, the fire can be put out using one of a number of water cannons. The crane operators will be trained in fire fighting techniques. All firewater will be contained within the bunker, eliminating the need for a firewater retention pond.

A pressure switch shall be installed for alarm annunciation in the control room to indicate fire water system operation.

4.4 FIRE DETECTION SYSTEMS

A fire alarm system will cover the entire plant and will provide a high level of protection for both personnel and property. The fire alarm system shall comprise of local detectors, manual call points, local alarm bells, remote alarm and a fire alarm/control panel.

4.5 LOCAL CALL POINTS

In the event of a fire alarm being activated, an audible and visual indication will be provided. A central control panel will be provided in the control room. Some fire alarm signals will be relayed to the automation control system and composite fire signals will be relayed to enable emergency response actions to be effected.

4.6 SMOKE VENTILATION

Smoke vents (Double Leaf Fire Vents) shall be installed on the roofs of the main process building. Smoke ventilation shall use natural ventilation generated by the temperature difference of smoke and air.

The elevated temperatures generated during a fire will operate smoke vents, by means of a fusible link. Smoke vents can also be opened manually and from a remote control panel.

The cable gallery in the electrical/control building is provided with dedicated natural smoke extract through side wall pneumatically operated smoke flaps.

The total area of the smoke vents shall be approximately 1% of the floor area of each smoke-ventilated space.

4.7 EXTERNAL HYDRANTS AND HOSE REELS

Hose reels for the ground floor levels shall be located in such a way that any area of the buildings may be covered by at least two jets from hoses.

Hose reels shall be installed at intermediate landing levels (outside each protected stairwell) throughout the height of the main process building up to the 25m level. These hose reels will be served by the site fire main in order to provide the necessary pressure at high level to ensure acceptable operation.

External hydrants shall be positioned around the plant at a maximum spacing of 50m between adjacent hydrants and in accordance with the Building Regulation Requirements.

4.8 DRY RISING MAINS OR WET RISING MAINS

For the main process building dry rising or wet rising mains shall be installed.

Each dry riser or wet riser will be installed with landing valves where required, an inlet at the bottom and an automatic release valve at the uppermost point in the riser.

4.9 PORTABLE FIRE EXTINGUISHERS

Fire extinguishers of an appropriate type shall be located throughout the areas as required.

The type of extinguishers will be determined according to the risk. The following types can be used:

- Dry powder
- CO₂
- Water/foam

4.10 FIREWATER SUPPLY

The Firewater pumps will be located in a separate compartment in the fire water pumphouse. The water reservoir for firewater will be integrated with process water storage for the plant. The Water reservoir shall guarantee water supply for 60 minutes use with maximum water consumption.

The fire water pump station will be equipped with pumps. The fire water network and pumps are common for external hydrants, hose reels and wet sprinkler systems and fixed canon systems.

Firewater will be stored on site in a 2,000 m³ storage tank, which will be supplied from the underlying aquifer beneath the site. This tank will serve to store process water and fire water. The bottom two thirds (about 1,300 m³) of the tank will be dedicated for firewater. There will be firewater pumps to circulate the water around the fire fighting system in the event of a fire. These pumps can be activated from a number of locations around the site.

The 12,000 m³ waste bunker will be designed to retain any firewater generated within the bunker. It will be constructed from one monolithic concrete slab as the base. Any potential points for leakage will be sealed with cold concrete seals. A steel plate will also be installed. The plate will be half in the wall and half in the base of the bunker to a depth of 10cm. In the event of a large volume of firewater remaining in the bunker as a result of use of the water cannons, the water will be removed from the bunker by vacuum tanker and sent off-site for biological treatment.

A firewater retention study will be completed prior to construction of the facility to ensure that the above retention measures are satisfactory.

5. STORAGE AND CONTAINMENT

5.1 MATERIALS RECYCLING FACILITY

The storage area within the materials recycling facility will be capable of holding 2,200 m³ of waste material. This capacity is sufficient to allow for a maintenance period of seven days when waste would have to be stored.

5.2 WASTE TO ENERGY PLANT

Waste delivered to the facility will be stored in a waste bunker located below ground level prior to undergoing thermal treatment. The bunker capacity of 12,000 m³ has been designed to allow the plant to accept waste during periods of shut down for maintenance and therefore will be able to continue operating over prolonged periods (e.g. long weekends) without deliveries. The bunker has a depth of 5 metres beneath ground level (10m below floor level of the waste acceptance hall). In order for the bunker to be filled to its 12,000 m³ capacity, two of the discharge chutes would need to be closed. With all the discharge chutes open, the capacity of the bunker is some 9,000 m³. Mixed waste (non-hazardous municipal/commercial/industrial) of the type expected at the plant typically has a density of 0.3-0.4 tonnes/m³, giving an approximate bunker capacity of up to 4,800 tonnes, or equivalent to 10 days operation of the plant.

There will be two lines within the waste to energy plant, each of which will incorporate a furnace, boiler, flue gas cooling system and activated carbon/lime mixture injection and baghouse filter system. This is to facilitate the maintenance and overhaul of any of these systems without interrupting the plant's capacity to accept waste.

5.3 OTHER STORAGE

Diesel will be required for fuelling of caterpillar loaders. A 5,000 litre diesel tank will be located within the waste to energy plant building, and will be bunded appropriately to fully contain any spillages.

The community recycling park will provide for the collection of a number of types of waste including kitchen oil, car oil and car batteries which will be then be transported off-site for treatment. The waste oil and batteries collection area will be properly bunded to fully contain any spillages, which could negatively impact on soil or groundwater.

All chemicals or other potentially polluting substances used during the operation of the facility (i.e. ammonia solution, hydrochloric and caustic that will be used in the waste to energy plant process) will be stored within the building and will be provided with adequate containment and will also be handled in a manner to eliminate the risk of any spillages contaminating surface water. All water collected from floor drains within the building will be collected separately (in the same system as process effluent) and will be recycled to the evaporating spray towers.

Bunding will be provided for electrical transformers located in the transformer compound.

6. INSURANCE COVER

Indaver NV has a global insurance policy, which includes public liability, product liability, legal expense, environmental liability and on-site clean up costs. The waste management facility site will be covered under this global insurance scheme. A copy of the Certificate of Insurance is included overleaf.



A MEMBER OF AMERICAN INTERNATIONAL GROUP, INC.

CERTIFICATE OF INSURANCE

Policy n° 310/3.015.288

The Insurance Company

AIG EUROPE
Avenue de Cortenbergh 168/170
1000 BRUSSELS

Hereby confirms to be the insurer of the following firm,

Policy Holder : Indaver n.v. & Indaver B n.v.
Poldervlietweg
B-2030 Antwerpen

Policy Period : 1 Year
From : 01/01/2000, 0h
To : 31/12/2000, 24h

Risk Locations : 1 Poldervlietweg, 2030 Antwerpen – Belgium
2 Haven 1940, Molenweg, 9130 Doel-Beveren-
Belgium

Insured Activity : Storage, manipulation and treatment of all kinds of
waste, except nuclear waste. Including disposal in
own landfill, recycling activities, sales activities,
collection & transport of waste, consultancy.

Coverages :

1. Public Liability

Third party claims for property damage & bodily
injury

Limit : 500,000,000 BEF per occurrence

Sublimits :

Pure immaterial damage 100,000,000 BEF

Care, Custody and control 25,000,000 BEF

Contractual liability 20,000,000 BEF

Deductible : 50,000 BEF per occurrence

2. Product Liability

Third party claims for property damage & bodily injury

Limit : 500,000,000 BEF per occurrence and per year

Sublimits :

Pure immaterial damage 100,000,000 BEF

Professional liability 50,000,000 BEF

Deductible : 50,000 BEF per occurrence

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Telephone: +32 2 739 90 00 Facsimile: +32 2 739 91 02

Entreprise d'assurance agréée sous le n° de code 0976: Verzekeringsmaatschappij toegelaten onder codenummer 0976. - R.C./H.R. BRU 509.275



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3. Legal Expense and Defence

Limit : 500,000 BEF per occurrence

4. Environmental Liability

Third party claims for property damage & bodily injury
Due to On- & Off-site accidental and/or gradual
Pollution,

Limit : 500,000,000 BEF per occurrence and per year

Sublimits :

Pure immaterial damage 100,000,000 BEF

Care, custody and control 100,000,000 BEF

Vehicles (loading & unloading) 25,000,000 BEF

Deductible : 1,000,000 BEF per occurrence

5. On-site clean-up costs

Third party claims for on-site clean-up costs of new
conditions, as from 01/01/1999, property damage &
bodily injury combined

Limit : 500,000,000 BEF per occurrence and per year

Deductible : 1,000,000 BEF per occurrence

Coverage Endorsement :

It is declared and agreed between parties that effective
May 29, 2000 INDAVER IERLAND NV,
Poldervlietweg 3 - 2030 Antwerpen is covered under
present policy as co-insured.

Consequently, Insurer will indemnify CROSBIE
STORAGE against any claims by any of its customers
or suppliers or servants or agents or invitees in the
amount of £ 1,000,000.

This summary is only to be used for reference and will not modify any clause of the
original policy.

Brussels, December 6, 2000.



AIG EUROPE,

K. DE STICKERE
Casualty Manager

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