

<b>Project details</b>	Environmental Permit Application Cleantank Limited – Amsterdam Road Recycling Facility EPR/KB3607SG/A001
<b>Operator details</b>	Cleantank Limited Amsterdam Road Hull Amsterdam Road Hull HU7 0XF
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## Table of Contents

### Contents

1	INTRODUCTION .....	5
1.1	Context.....	5
1.2	Objectives.....	5
2	TYPES OF COMBUSTIBLE MATERIALS.....	6
2.1	Combustible Waste.....	6
2.2	Other Combustible Materials.....	6
3	USING THIS FIRE PREVENTION PLAN .....	6
3.1	Plan Location and Staff Awareness.....	6
3.2	Testing the Plan and Staff Training .....	6
4	FIRE PREVENTION PLAN DETAILS .....	7
4.1	Site Activities.....	8
4.2	Site Plan.....	8
4.3	Sensitive Receptors Plan .....	8
5	MANAGING COMMON CAUSES OF FIRE.....	9
5.1	Arson.....	9
5.2	Plant and Equipment.....	10
5.3	Electrical Faults .....	10
5.3.1	Electrics certification.....	10
5.3.2	Electrical equipment maintenance arrangements .....	10
5.4	Smoking.....	11
5.5	Hot Works – Safe Working Practices .....	11
5.6	Use of Industrial Heaters .....	11
5.7	Hot Exhausts and Engine Parts .....	11
5.7.1	Fire watch procedures .....	11
5.7.2	Ignition sources.....	11
5.8	Leaks and Spillages of Oils and Fuels .....	12
5.9	Build-up of Combustible Waste, Dust and Fluff.....	12
5.10	Reactions between Wastes.....	12
5.11	Deposited Hot Loads.....	12
5.12	Hot and Dry Weather.....	13

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6	PREVENTION OF SELF-COMBUSTION.....	13
6.1	General Measures.....	13
6.2	Management of Storage Time.....	13
6.2.1	Management and Recording of Storage of Waste.....	13
6.2.2	Stock Rotation.....	13
6.3	Monitoring and Control of Temperature.....	14
6.3.1	Reduction of Exposed Metal Content and Proportion of 'Fines'.....	14
6.3.2	Monitoring Temperature.....	14
6.3.3	Controlling Temperature.....	14
6.3.4	Dealing with Hot Weather and Heating from Sunlight.....	14
6.4	Waste Bale Storage.....	14
7	MANAGEMENT OF WASTE PILES.....	15
7.1	Waste Stored in Containers.....	15
7.1.1	Types of container.....	15
7.1.2	Accessibility of containers.....	15
7.1.3	Moving Containers in the Event of a Fire.....	16
7.2	Storing Waste Materials in their Largest Form.....	16
8	PREVENTION OF FIRE SPREADING.....	16
8.1	Separation Distances.....	16
8.2	Fire Wall Construction Standards.....	16
8.3	Storing Waste in Bays.....	17
9	QUARANTINE AREA.....	17
9.1	Location and Size.....	17
9.2	How the Area Will be Used.....	17
9.3	Removal of Temporarily Stored Material from the Quarantine Area.....	17
10	DETECTION OF FIRES.....	17
10.1	System Type.....	17
10.2	System Certification.....	17
11	SUPPRESSION OF FIRES.....	18
11.1	System Type.....	18
11.2	System Certification.....	18
12	FIRE-FIGHTING TECHNIQUES.....	18
12.1	Active Firefighting.....	18
13	WATER SUPPLIES.....	19

13.1	Available Water Supply.....	19
13.2	Calculation of Water Supply .....	19
14	MANAGING FIRE WATER.....	20
14.1	Containing Fire Water Run-Off .....	20
15	DURING AND AFTER AN INCIDENT.....	20
15.1	Site Access for Fire Services .....	20
15.2	Notifying Residents and Businesses.....	21
15.3	Clearing and Decontamination After a Fire .....	21
15.4	Site Contingency Measures.....	21

## 1 INTRODUCTION

### 1.1 Context

Cleantank Limited (the applicant) has requested that Reva Environmental Ltd (the agent) prepares an Environmental Permit (EP) application, for its recycling facility at Amsterdam Road, Sutton Fields Industrial Estate, Hull, Humberside, HU7 0XF.

The site is located in an commercial/industrial area, at National Grid Reference TA 10246 32508. The site setting is described on **Drawing CLNT-HULL-EP03** provided in **Appendix D** of this application (2021). Access to the facility is off Amsterdam Road.

The facility will operate a two-line physical waste treatment activity, supported by associated activities governing waste acceptance, storage, handling, and onward transfer of the treated waste.

The objective of the application is to obtain an Environmental Permit (EP) which allows the applicant to:

- Accept hazardous and non-hazardous empty packaging (e.g. IBCs) that cannot be reconditioned, to enable plastic recycling by subjecting it to physical treatment comprising shredding, granulation and cleaning.

The materials are those that have been discarded or don't pass quality assurance (QA) tests for being reconditioned; instead they are shredded and granulated so that the processed materials can be recovered.

The physical treatment in Building 2 will take place in up to two lines that will run in parallel (and can run independently from each other). If only one line is operational, this can process batches of IBCs and drums/small containers; if both lines are operational it is likely that one will be dedicated for IBCs and one for drums/other containers. In that scenario, this will not be limited as maximum flexibility will be key to achieving full efficiency so both plants remain able to process either waste stream. If run to their maximum operating capacities, 20 hours a day, 7 days a week, the 2 lines could process 8 tonnes per day combined; the likely split would be 2.4 tonnes non-hazardous and 5.6 tonnes hazardous waste (a 30:70 split).

As the incoming waste is combustible, a fire prevention plan (FPP) is required to accompany the application.

This FPP, once approved, forms part of the EP for the facility. It is a live document that is made available to all employees and to other relevant third parties for example contractors. It will also be readily accessible for the emergency services in the event that a fire does occur.

### 1.2 Objectives

The FPP follows the requirements of the EA guidance and sets out the measures that will be used to reduce the likelihood and consequences of a fire at the facility. The objectives are to:

- Minimise the likelihood of a fire happening;
- Aim for a fire to be extinguished within 4 hours of detection; and
- Minimise the spread of fire within the installation and to neighbouring sites.

The FPP has been prepared in accordance with the template provided by the EA, dated 11 January 2021.

## **2 TYPES OF COMBUSTIBLE MATERIALS**

### **2.1 Combustible Waste**

The following waste types are to be accepted at the site:

- 07 02 13 – Waste plastic from the MFSU of plastics, synthetic rubber and man-made fibres
- 15 01 02 – Plastic packaging
- 15 01 05 – Composite packaging
- 15 01 06 – Mixed packaging
- 15 01 10\* - Packaging containing residues of or contaminated by hazardous substances
- 16 01 19 – Plastic from end-of-life vehicles
- 16 01 21\* - Plastic from end-of-life vehicles contaminated by hazardous substances
- 17 02 03 – Plastic from construction and demolition wastes
- 19 12 04 – Plastic and rubber from the mechanical treatment of waste (plastic component only)
- 20 01 39 – Plastic as a separately collection fraction of municipal waste

No wastes containing persistent organic pollutants (POPs) will be accepted at the facility.

### **2.2 Other Combustible Materials**

The facility will make use of two forklift vehicles to move the materials around the site; these are both diesel fuelled. The fuel tanks for these are located outside the EP boundary, in Building 1 as the fuel is primarily designated for the non-EP area vehicles and the jet wash that isn't used for the EP site.

## **3 USING THIS FIRE PREVENTION PLAN**

### **3.1 Plan Location and Staff Awareness**

All staff and contractors working on-site will be made aware and understand the relevant contents of this FPP. A copy of the FPP will be kept in each key area, in this case 1 at the entrance to the yard area and 1 in the treatment building.

### **3.2 Testing the Plan and Staff Training**

The Site Manager has responsibility for ensuring these procedures are adhered to. The Site Manager is specifically responsible for:

- Ensuring the adequate training of staff and contractors working on site regarding the content of these procedures;
- Ensuring the adequate provision of resources such as personal protective equipment (PPE) and the identification and training of Fire Marshalls; and
- Ensuring the provision and maintenance of hand held fire extinguishers and other firefighting equipment at the site is adequate.

All staff and contractors working on-site will be made aware and understand the relevant contents of this FPP and the site fire action plan. Through site inductions and on-going staff awareness and training, the company will ensure that all relevant staff and contractors will:

- Understand what they must do during a fire;
- Know where the fire prevention plan is kept; and

- Participate in regular exercises to test how well this FPP plan works and to confirm staff understand what to do.

For visitors to the site:

- They will be escorted at all times and signed in;
- They will understand the no smoking policy for the site; and
- When signing in, information on the fire exits and muster point will be provided.

Staff will be required to undergo regular fire training. In addition, regular drills (annually) will be undertaken where desktop scenarios are played out and staff will be required to become familiar with the relevant sections of this FPP.

The site manager will be responsible for implementing this plan, detailing annual tests and drills and ensuring the FPP is kept up to date and relevant to ongoing site operations and processes. The site manager will report on the FPP in the monthly board report prepared for the Directors.

Records of these drills are held on file and contain as a minimum:

- Date of evacuation;
- Scenario;
- Evacuation time; and
- Any findings or actions resulting from the exercise.

The fire rescue service will be provided a copy of this FPP once approved and will be provided with any updated versions.

## 4 FIRE PREVENTION PLAN DETAILS

A drawing that provides details of the fire provisions as set out in this FPP is **Drawing CLNT-HULL-EP05: Fire Management Plan**. The drawing includes the following features:

- The activity layout within the building and yard area
- Areas where hazardous and flammable materials are stored on site (process areas, chemicals, piles of combustible wastes)
- All permanent ignition sources (at least 6 m away from combustible and flammable waste)
- Waste treatment areas, storage areas with 'pile' dimensions and separation distances
- The main access route for fire engines
- Access points around the site perimeter to assist firefighting
- Location of hydrant / water supply
- Identification of surfacing including areas of natural and unmade ground
- The location of fixed plant and/or dedicated storage for mobile plant when not in use
- The location of spill kits
- The quarantine area

Drainage runs and fire water containment systems (bunded and kerbed areas) are shown on a separate plan, **Drawing CLNT-HULL-EP04: Site Drainage Plan**.

A plan showing local receptors is provided as **Drawing CLNT-HULL-EP03: Site Setting**. This is based on information from the EA pre-application screening advice, OS mapping, and Defra's MAGiC mapping.

#### 4.1 Site Activities

Wastes received and stored for processing in the permitted plant are plastic containers (IBCs, drums, small containers etc.) that have not passed the quality assurance tests for reconditioning. Wastes are segregated into two streams: IBCs, and other plastics. These are kept in dedicated storage areas within the yard pending treatment in the appropriate process line.

Waste is conveyed into one of the enclosed shredder units. From the shredder, the waste is conveyed into the granulator unit. The shredded and granulated waste is then transferred through a pre-wash unit. The use of a wash system enables the processed waste to be in a suitable condition to be transferred off-site for re-processing/recovery.

There is a hood extraction over the Line 1 shredder and one over the Line 1 granulator, as well as extraction over the IBC conveyor line. All feed to a common local exhaust ventilation (LEV) system which will include filtration. Particulates are not considered to be of concern with the plastic treatment activity, instead the primary focus is on potential VOCs from the waste residues in the containers being processed. The LEV system will therefore provide VOC abatement using a carbon filtration system. When Line 2 is installed, this will also incorporate a hood extraction unit over the shredder and granulator, and will be connected to the same filtered LEV system.

Emission of the filtered extract is marked as **Emission Point A1** on the Site Layout Plan, Drawing CLNT-HULL-EP02.

Liquid effluent from the process is limited to water for the granulator and pre-wash system. This is recirculated until it is no longer clean enough to be suitable, and at that point is collected and stored in IBCs for transfer off site for disposal.

#### 4.2 Site Plan

**Drawing CLNT-HULL-EP05: Fire Management Plan** provides the level of detail required by the EA Guidance, as described in Section 4 above.

Signage will be positioned throughout the facility showing fire exits and the position of extinguishers and other relevant firefighting equipment.

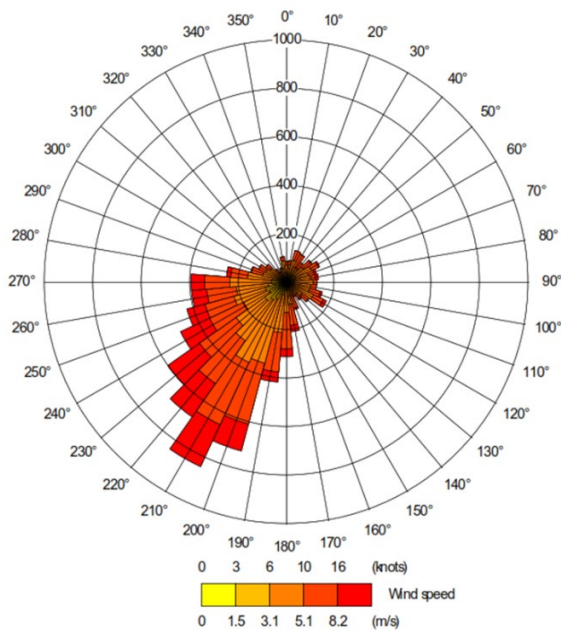
#### 4.3 Sensitive Receptors Plan

Sensitive receptors within 1 km that could be potentially negatively impacted by a fire on the site are shown on **Drawing CLNT-HULL-EP03: Site Setting**.

Figure FPP1 shows a wind rose, taken from the Humberside Airport Meteorological Station (located approximately 20 km south of the site). It can be seen that the prevailing wind originates strongly from the southwest, and therefore it is considered that receptors located to the northeast of the site would be the most likely to experience smoke from any fire on site and that receptors to the south and southwest of the site would be the least likely to experience an issue based on the wind rose data.

The nearest dense residential receptors are to the northeast; the nearest is approximately 240 m from the site boundary. A local public house, 90 m to the west-northwest is inhabited by the landlord so is also taken into consideration in any risk assessments. Any likely impact to these in the event of a fire would be dependent on the weather conditions and size of the fire. A decision will be made at the time and on the advice of the Fire Brigade and Environment Agency whether warnings to local residents are necessary. This warning will be given via the internet, local radio and, depending on the severity of the incident and the advice given, local television.





**Figure FPP1: Wind-rose, Humberside Airport Meteorological Station, 2011**

The applicant retains a list of the key sensitive receptors and contact details for each so that they can be alerted to an incident. The list will be appended to the FPP and kept up to date through regular review but at least on an annual basis.

## 5 MANAGING COMMON CAUSES OF FIRE

### 5.1 Arson

The following measures are in place at the facility:

- There is CCTV (24/7) security, with movement sensors and night vision. The CCTV monitoring is also linked to the fire alarm system; remote monitoring and fire alarm alerts are provided to staff/fire brigade as required
- All waste treatment operations take place within the confines of the building, which is secured when not occupied and continuously manned when operational
- Entry to the site is controlled off Amsterdam Road by way of large steel gates which are locked outside of operational hours
- Warning signs are fitted to the perimeter fence and notices are displayed within the business premises
- A fire alarm system is installed, tested weekly by the operator, and serviced and tested every six months
- The integrity of security measures is inspected daily

The site has the following visitor policy:

- All visitors must have an appointment, sign in, and identify any accompanying vehicles; and
- All visitors will be accompanied at all times and must sign out upon leaving the site.

The operator has the following employee policy:

- New employees are to provide references for checking;

- Employees are to be informed of all security procedures and will be disciplined in the event of a deliberate breach of company security procedures; and
- Employees leaving the company will be required to return any keys, codes or data prior to departure.

The operator will engage with the police and other regulatory authorities where there is a breach of security that poses a threat to environmental protection.

There is a CCTV system in place at the site currently and this includes 24 hour monitoring off site and availability of live footage via digital devices. It covers the building and the yard area, covering the main access points to the building and is linked to the fire alarm system.

## **5.2 Plant and Equipment**

There is limited plant and equipment at the facility, but what there is (both fixed and mobile) are inspected, serviced and maintained on a regular basis in accordance with either manufacturer's specifications (where this applies) and/or legislative requirements. This reduces the likelihood of failure. For the key piece of equipment pre-use checks will also be carried out at the start of each day and these checks will be recorded.

There is a visual inspection of the overall facility on a daily basis. This includes consideration of the building integrity (floors, roof, walls, doors), pollution control integrity (aerosol containers), and of general housekeeping standards. In addition to this regular checks are made of PPE, fire extinguishers, and spill kits. Fire extinguishers, detectors and call points are maintained and serviced or replaced in line with the manufacturer's guidelines.

Within operational areas there are two forklifts which are used to move waste (untreated) and segregated post-treatment materials around the facility, to unload wastes and to load materials for off-site transfer. The forklifts are diesel fuelled. The re-fuelling point is located outside the EP boundary, within Building 1. This is subject (as will the forklifts be) to scheduled inspection, service and maintenance. Multiple fire extinguisher stations are located around the facility.

All equipment and site inspection documentation is retained on the premises, in the site office, and used during any scheduled inspection. In the event of a daily inspection highlighting an issue, a maintenance request is made and work undertaken. Should a daily inspection identify a serious problem, the equipment is isolated and clearly identified to all operatives that it is not fit for use. Upon completion of any repair to equipment or site infrastructure, the contractor will produce a record of repair. Only competent and qualified contractors will be allowed to work on any equipment or infrastructure.

Any mobile plant or equipment that may be required at the facility is kept away from combustible waste and stored in designated areas, when not in use.

Basic cleaning is scheduled at the end of each day to keep the operational areas free from hazards.

## **5.3 Electrical Faults**

### **5.3.1 Electrics certification**

All buildings that have electrical installations are fully certified by a qualified electrician on an annual basis or five year basis as required. Annual Portable Appliance Testing ('PAT') is carried out on all relevant portable equipment (including in the kitchen and offices) to ensure it is safe to use.

### **5.3.2 Electrical equipment maintenance arrangements**

Electrical equipment is maintained to ensure it is safe, prevents harm to workers and minimises the risk of fire. If an equipment manufacturer recommends testing at regular intervals to ensure continual safety this is noted on the equipment and/or the relevant checklist. For all other equipment, the

frequency of inspections is determined or assumed to be annually and noted on the equipment itself and/or the checklist. The electrical installations and static equipment is tested and certified as per the legal requirement by competent approved electrical contractors (ECA/NICEIC certified). Installation and inspection certificates and documentation are provided and maintained and made available to the insurance companies as required.

The use of mobile power tools and power supplies is minimised to reduce the possibility of damage to electrical equipment and cables. Small electrical tools will be unplugged and stored in a dedicated maintenance store.

Firefighting equipment suitable for electrical fires (carbon dioxide) is available at all fire extinguisher points in the operational areas and offices. There is also a foam extinguisher at each point for other types of fire.

## **5.4 Smoking**

No smoking is permitted at the facility. The nearest designated smoking area is outside the permitted boundary, in the front yard area between the canteen and corridor, away from any waste storage or processing activities. This is shown on **Drawing CLNT-HULL-EP05: Fire Management Plan**.

## **5.5 Hot Works – Safe Working Practices**

No hot works (e.g. welding) are undertaken at the facility during normal operations. Should hot works be required in relation to the maintenance or servicing of any plant or equipment at the site, this will be carried out by a suitably qualified contractor and under hot work systems.

Any Hot work permit will include a Fire Watch as detailed in the Permit to Work procedure. In addition a fire watch will monitor the site during the working day as detailed in the Daily Ops Inspection Form.

## **5.6 Use of Industrial Heaters**

No heaters are present in Building 2.

## **5.7 Hot Exhausts and Engine Parts**

### **5.7.1 Fire watch procedures**

Any Hot work permit will include a Fire Watch as detailed in the Permit to Work procedure. In addition a fire watch will monitor the site during the working day as detailed in the Daily Ops Inspection Form.

As detailed in Section 5.5 above, Cleantank undertakes 3 fire watches during a typical working day. This is at the start of the working day, as part of the shift handover process, and at the end of the working day.

It is noted that the facility is an open plan building which is fully manned during operating hours; as such regular visual inspection in fact occurs more frequently than is formalised in the management system.

### **5.7.2 Ignition sources**

The site operates a strict no smoking policy, with smoking only permitted in a designated area outside the building, away from any storage or processing of waste so no naked flames from cigarettes, lighters, matches are present. The following potential ignition sources are present at the site; for each the proposed control measures are presented below.

- Sparks from electrical faults – all electrical equipment is subject to testing by certified engineers, as well as daily and weekly user checks
- Sparks from moving equipment (the forklift trucks) – drivers are trained and qualified (with regular review)

The delivery of waste is carried out with the delivery vehicle parked outside the confines of the building. The delivery process is supervised, as wastes are sorted and prepared for processing. The potential impact of sparks from exhausts is therefore minimised.

Within operational areas there are two forklifts which are used to move waste (untreated) and segregated post-treatment materials around the facility, to unload wastes and to load materials for off-site transfer. The forklifts are diesel fuelled and fire extinguishers are available across the buildings for use in the event of a forklift fire. The re-fuelling point is located outside the EP boundary, within Building 1. This is subject (as will the forklifts be) to scheduled inspection, service and maintenance.

Cleantank can confirm that all wastes are stored and handled at least 6 m from sources of ignition. No waste is stored within 6 m of the shredders or granulators; waste remains in the yard until the batch is ready for processing.

### **5.8 Leaks and Spillages of Oils and Fuels**

There is diesel storage at the wider site, within Building 1, outside of the EP boundary. This is primarily used by the non-EP activities for the forklift trucks and the jet washer. It is stored in a dedicated tank; the tanks are proprietary, fit for purpose and subject to regular inspection and maintenance. There are spill kits in designated locations across the site and forklift drivers are trained in the use of these kits. These are marked on **Drawing CLNT-HULL-EP05: Fire Management Plan**.

### **5.9 Build-up of Combustible Waste, Dust and Fluff**

The success of the facilities relies on the efficient processing of waste and onward transfer of recoverable material; this is key to its operation and is a continuous process.

Waste is shredded, granulated and/or pelletised, and washed. The shredders and granulators are enclosed plants with LEV installed; build-up of dust and fluff is therefore minimised.

The facility is maintained in an orderly and tidy state, with areas clearly defined for incoming waste pending processing and treated waste awaiting transfer off site.

### **5.10 Reactions between Wastes**

As part of the Waste Acceptance Procedure, all incoming wastes are assessed prior to acceptance. Under normal operations, receipt of non-conforming waste or that which would require quarantining is rare, however should any material be discovered that is likely to cause a reaction with other wastes it would be isolated from any potential combustible materials and immediately removed. As part of their induction, staff are trained to understand and recognise the wastes that can be accepted at the facility.

Whilst incoming wastes are nominally empty, i.e. are waste packaging, there are on occasion minimal liquid residues that settle to the bottom of the container during transit and storage. Where necessary, IBCs and small containers are drained prior to treatment. Contents are drained into a dedicated container following compatibility checks to confirm whether this is acceptable.

### **5.11 Deposited Hot Loads**

The delivery of waste is carried out with the delivery vehicle parked outside the confines of the building, in the far western side of the yard area. There is no reason to expect any load to contain hot materials and waste acceptance procedures include the relevant checks for this, including looking for:

- Signs of heating (e.g. steam or smoke);
- Batteries, in particular lithium-ion batteries;
- Oils or other contaminants; or
- Rags soaked in oils or chemicals.

Any loads that are identified as being potentially hot will be immediately quarantined or rejected.

## **5.12 Hot and Dry Weather**

During periods of hot and dry weather, there is a potential for external heating of waste which in turn could cause a fire to start.

General measures in place to reduce the risk of this include minimising storage times and increasing the fire watches in the yard area where waste is stored. If needed waste can be moved to a shaded area where this is practicable.

## **6 PREVENTION OF SELF-COMBUSTION**

### **6.1 General Measures**

The throughput is likely to be less than 3,000 tonnes per year on the basis that both lines running in parallel to their maximum operating capacities can process 8 tonnes per day combined. The storage quantity is limited by the capacity of the site and will be significantly less than 50 tonnes at any one time. Pile tonnages are defined in Section 7.0 of this FPP.

Good housekeeping is recognised as being key to managing waste appropriately. Measures implemented at the facility include:

- All locations for waste storage are easily accessible, with main access gates to the yard and building storage and process areas. Waste materials can be easily accessed and moved using site available plant (forklift trucks)
- No waste is stored loose or in stockpiles
- Site cleanliness and dust build up is also monitored daily and recorded on the EQHS sheet together with the cleaning rota; each area is cleaned weekly and recorded on the sheet
- Monitoring of the site and wastes storage out of hours is carried out visually by the 24hr remote monitoring of the facilities CCTV cameras by means of a professional CCTV security company as detailed above.

### **6.2 Management of Storage Time**

#### **6.2.1 Management and Recording of Storage of Waste**

The maximum storage period for any load of waste containers pending treatment for recovery is 3 months although in practice it will be significantly less than this. Storage of site waste (e.g. scrap metal) will also be a maximum of 3 months. Site process waste, in this case the bulked up residues, is transferred off site for disposal when a full load is available or when the maximum storage duration is reached.

In the event that the plant is not operating, for an unplanned shutdown, any waste that is flagged as nearing the 3 month limit for storage will be identified and will be transferred off site for alternative disposal or recovery.

#### **6.2.2 Stock Rotation**

Waste stock will be processed using the first in – first out principal. This will be achieved through the use of daily and weekly batch identification, recording and processing. This will ensure that at the point of any interruption of operation, no waste exceeds the storage duration limit.

## 6.3 Monitoring and Control of Temperature

### 6.3.1 Reduction of Exposed Metal Content and Proportion of 'Fines'

The incoming waste comprises of plastic, there is no anticipated metal content, nor fines.

### 6.3.2 Monitoring Temperature

All materials entering the site are receipted and visually inspected. A grading sheet is completed, and the type, quantity and condition of the packaging is noted and recorded. If the incoming material is in question or if it shows signs of being hot, it is quarantined accordingly to ensure safe storage or onward processing or it is immediately rejected.

Heat generation and potential hotspots in stored materials are identified by regular daily random "Touch tests". These are backed up by weekly checks with a non-contact infra-red temperature gun. The results are recorded on the daily EQHS sheet.

The outer packaging of wastes and containers are monitored daily by site operatives, supervisors and management – and recorded on the Daily EQHS inspection form. During the shredding process, heat can be generated. There is LEV installed over the process plant which will remove some of the heat. The shredded and granulated material is subject to the pre-wash system and will be left to cool to room temperature before it is stored in bulk.

### 6.3.3 Controlling Temperature

Spontaneous combustion occurs when a combustible material is heated to its ignition temperature normally by a chemical reaction involving the oxygen in the air around the material. This heating process is known as self-heating. Generally, this can happen when the materials are left in piles, which provide a source of insulation, trapping the heat that is generated. The possibility of spontaneous combustion increases when the surrounding air is also warm and dry. Heat radiating from nearby sources, such as machinery, can also serve to accelerate the self-heating process by heating the combustible materials and the surrounding air.

The materials being accepted at the facility will be either IBCs or small containers/drums. The IBCs are stacked in a number of separate 'piles' that follow the dimension and volume guidelines set out by the EA. The structure of the IBC (a plastic container within a metal cage) is such that air is free to flow in between any two containers. As shown in **Drawing CLNT-HULL-EP02**, the locations for waste storage are easily accessible, there is a separation between each area and there is sufficient space for vehicle movements such that wastes can be easily moved using available site plant should it be needed.

This, combined with temperature checks (section 6.3.2 above) and the stock rotation policy ensures that the likelihood of spontaneous combustion is negligible.

BAT guidance notes that container washing, crushing, shredding and cutting must take account of the former contents and any residues that may be present. For the Amsterdam Road operations, any residues (likely to be minimal or none) are drained out of the container prior to treatment. The shredder units have a mains-supplied misting system which will control both dust and heat; the granulator is enclosed and has a caustic wash system.

### 6.3.4 Dealing with Hot Weather and Heating from Sunlight

Hot and dry weather is considered in Section 5.12 above.

## 6.4 Waste Bale Storage

This section is not applicable to the site; waste is not baled.

## 7 MANAGEMENT OF WASTE PILES

The incoming wastes will not be received or stored in open stockpiles. The FPP template guidance confirms that the definition of waste pile does not apply to waste where it is stored in containers. Whilst this is the case for the incoming waste and it will not be stored in a loose state, it will be stored such that access to each individual container will not be possible. For this reason the pile size given in Section 9.2 of the guidance for plastics applies; this is as follows:

- Loose and >150 mm – 750 m<sup>3</sup>
- 30 – 150 mm or baled – 450 m<sup>3</sup>
- <30 mm – 300 m<sup>3</sup>

For all waste, the maximum height allowed for stacking is 4 m and the maximum length and/or width is 20 m. This equates to 4 IBCs high and 20 IBCs long or wide if positioned immediately adjacent to each other.

### 7.1 Waste Stored in Containers

#### 7.1.1 Types of container

Waste is received in two forms, IBCs and small containers. The storage arrangements are detailed in **Table FPP1** and shown on **Drawing CLNT-HULL-EPO2** Site Layout Plan.

**Table FPP1: Waste Storage Arrangements**

Pile Ref.	Waste Container Type	Haz / Non-Haz	Max. Storage Volume	Notes
1	Smalls packaging (drums, proprietary containers/bottles) for treatment	Haz	340 m <sup>3</sup> (17 m x 20 x 1 m)	Arrive on site palletised and shrink wrapped. As a mix of containers with a potential mix of residues, all are considered to be hazardous for the purposes of storage/risk etc.  Maximum storage is 8.5 tonnes
2	IBCs for treatment	Haz / Non-Haz	680 m <sup>3</sup> (10 m x 17 m x 4 m)	The eastern portion of pile 2 is not included in this figure – it will be used to store cages that have been removed and are suitable for re-use (clean)  Maximum storage is 17 tonnes
5	IBCs for treatment	Haz / Non-Haz	720 m <sup>3</sup> (9 m x 20 m x 4 m)	The IBC bottle is estimated at 25 kg  Maximum storage is 18 tonnes
7	IBCs for treatment	Haz / Non-Haz	720 m <sup>3</sup> (9 m x 20 m x 4 m)	The IBC bottle is estimated at 25 kg  Maximum storage is 18 tonnes

The total storage capacity of the site is calculated as the aggregate of the piles above; 61.5 tonnes. This represents a worst case scenario of the yard area being full; this is very unlikely due to the treatment capacity of the plant and the expected waste input.

### **7.1.2 Accessibility of containers**

The materials being accepted at the facility will be either IBCs or small containers/drums. The IBCs are stacked in a number of separate 'piles' that follow the dimension and volume guidelines set out by the EA.

### **7.1.3 Moving Containers in the Event of a Fire**

As shown in **Drawing CLNT-HULL-EP02**, the locations for waste storage are easily accessible, there is a separation between each area and there is sufficient space for vehicle movements such that wastes can be easily moved using available site plant should it be needed.

## **7.2 Storing Waste Materials in their Largest Form**

The largest containers that are received at the facility for treatment are the IBCs. Storage arrangements and pile sizes are detailed in Section 7.1 above.

## **8 PREVENTION OF FIRE SPREADING**

In the event of a fire or suspected risk of fire (e.g. presence of smoke or monitored temperature at or above the trigger level), any plant operating will be stopped and waste will be moved away from the potential fire source. At this facility this is made easier due to the fact that all waste is held within containers that are portable; waste can be moved away from the source without compromising the integrity of its containment. As a result, the size of a fire is likely to be small and easily contained.

Persons on site should only ever attempt to extinguish a fire if the risk posed is minimum and they are trained to do so. Any fire on site is considered an emergency and the Fire Brigade will take control of any firefighting actions on site, including the decisions on which methods to be used to deal with the situation, which could include, but not be limited to:

Reducing the amount of firewater run-off generated by using sprays and fogs rather than jets; and/or  
Applying water to cool unburned material.

### **8.1 Separation Distances**

The size of the site and the capacity requirements do not allow for a 6 m standoff between all piles. Where this is not possible, fire walls will be installed as follows:

- Between Pile 1 (smalls waste) and the non-hazardous waste area (skips etc.)
- Between Pile 3 (non-waste IBCs) and Pile 4 (non-waste IBCs)
- Between Pile 3 (non-waste IBCs) and Pile 6 (granulate product)
- Between Pile 4 (non-waste IBCs) and Pile 5 (waste IBCs)
- Between Pile 5 (waste IBCs) and Pile 7 (waste IBCs)
- Between Pile 7 (waste IBCs) and Pile 8 (quarantine area)

### **8.2 Fire Wall Construction Standards**

Fire walls must serve to reduce the spread of fire between piles and allow active firefighting to take place, by resisting fire (both radiative heat and flaming) for at least 120 minutes.

Fire walls will either be constructed from interlocking concrete blocks with the joints sealed with intumescent mastic, or water-filled IBCs will be used (stacked to 3 m high).



### 8.3 Storing Waste in Bays

There will be separation between a number of the piles, as defined in Section 8.1 but these are not designed as 'bays'.

## 9 QUARANTINE AREA

### 9.1 Location and Size

There are two quarantine areas designated for non-conforming waste, one inside and one outside the building (depending on type). The external one is also designated for the purposes of quarantining waste in the event of a fire or fire risk. This is shown on **Drawing CLNT-HULL-EP05 Fire Management Plan**. It has been calculated as being able to contain 50% of the largest stack (series of containers stored together) of waste.

It is in the area of Pile 8 and is 6 m away from sources of ignition and combustible materials. This has a storage area for 400 m<sup>3</sup> of material and therefore provides over 50% of the largest stack (Piles 5 and 7 – each 720 m<sup>3</sup>).

### 9.2 How the Area Will be Used

In the event of a fire or a load that has been subject to temperature monitoring and found to be at or above the trigger level, the load will be moved using a forklift truck, to the quarantine area. This is only in the event that it is safe to move the load. In the event that a load is deemed unsafe to move across the site, the quarantine area may be used to move adjacent/nearby waste away from the source of the fire, to prevent spreading.

### 9.3 Removal of Temporarily Stored Material from the Quarantine Area

The area will not be used other than in the event of a fire or identification of a hot load. The applicant has a separate designated quarantine area that is used in the event that non-conforming waste is identified and needs to be separated pending return to the customer or transfer off site for alternative disposal.

## 10 DETECTION OF FIRES

### 10.1 System Type

The fire detection system at the facility currently comprises the following:

- Fire detectors: 2 across the MRF Building 2
- Call points: 2 within the MRF Building, one at the main entrance to Building 2 and one in the southern corner across the site, in close proximity to the fire extinguisher stations

Locations of the existing fire detection system are shown on **Drawing CLNT-HULL-EP05 Fire Management Plan**.

### 10.2 System Certification

It is confirmed that the system will be subject to regular service and maintenance by an NICEIC approved contractor. It will be subject to annual servicing, for which records will be kept at the site.

## **11 SUPPRESSION OF FIRES**

### **11.1 System Type**

There is currently no fixed fire suppression system in place at the site. This is not deemed necessary, based on the type of waste accepted, the storage and containment measures, and the size of the facility/throughput/waste turnaround times.

Firefighting equipment provided is a variety of powder, foam, and CO<sub>2</sub> extinguishers to combat differing types of fire. There are two extinguisher stations, both next to fire exits, each has a foam extinguisher. In addition to that, the station at the northerly fire exit also has a CO<sub>2</sub> extinguisher, whilst the southerly fire exit station also has a dry powder extinguisher.

Any subcontractor or third-party vehicles entering site will be expected to carry extinguishers or to declare they do not have one in which case a nominated Fire Warden will accompany the vehicle until it leaves site.

### **11.2 System Certification**

It is confirmed that the system used at the site will be subject to regular service and maintenance by an NICEIC approved contractor. It will be subject to annual servicing, for which records will be kept at the site.

## **12 FIRE-FIGHTING TECHNIQUES**

### **12.1 Active Firefighting**

The site will have Fire Wardens. These will be trained with an in-house training programme based on the Virtual College Fire Warden course. The Fire Wardens must pass a test to prove they understand and know the information. In addition, they are trained in the use and different types of fire extinguisher.

In the event of a fire the Fire Wardens are responsible for the safe evacuation of the site and for deciding if the fire can be tackled locally with extinguishers or whether the Fire Brigade needs to be called.

In the event of a fire only the Fire Wardens will oversee the evacuation of site and decide whether the fire is a minor one (i.e. can be tackled locally) or is a major one (cannot be tackled with fire extinguishers).

- In the event of a minor fire being upgraded to a major fire, the following procedures will be undertaken:
- Contact the Emergency Services immediately and provide all information required for the Fire and Rescue services to understand the circumstances of the fire and exact location onsite (prior to arriving).
- All staff and site visitors to meet at the assembly point and be briefed of the current situation. The site manager will undertake a roll call of all those currently onsite that day.
- The Site manager will arrange traffic control and when appropriate meet with the Emergency Services onsite.
- The onsite meetings will be used to decide on and coordinate communication with the Sensitive Receptors and Adjacent buildings

- All water used to control the fire will be contained within the site by the bunds and effluent/drainage system.
- The Environment Agency must be informed of the incident.
- Following the fire incident, a full review of all risk assessments, this FPP and procedures will be undertaken.

## 13 WATER SUPPLIES

### 13.1 Available Water Supply

Water supplies for firefighting are not retained at the site. There is no water storage tank or lagoon. The location of the nearest fire hydrant is shown on **Drawing DLR-AER-EP05: Fire Management Plan**.

### 13.2 Calculation of Water Supply

The water supply requirements are calculated as per the Environment Agency FPP guidelines, as shown in Table FPP2.

**Table FPP2: Water Requirements for Fire Extinguishing**

Max. pile volume (m <sup>3</sup> )	Water supply needed (l/m)	Overall water supply needed over 3 hours (l)	Total water available on site (l)
720	4802.40 (720 x 6.67)	864,432 (4802.40 x 180)	Water supplied by hydrant est. 1,200 l/m

For this facility, the largest external stockpile will potentially be either Pile 5 or 7, each of which are a maximum of 720 m<sup>3</sup>. It is however noted that the IBCs are nominally empty so this is not equivalent in density or actual volume to a solid waste pile of 720 m<sup>3</sup>. For this reason a risk based approach has been taken (as agreed with the EA) to more realistically assess the water supply needed, as follows.

An empty IBC is 1 mm thick plastic (polyethylene) and has a surface area of 6 m<sup>2</sup>; this is a volume of 0.006 m<sup>3</sup>. The maximum storage area will allow for the storage of 9 IBCs wide x 20 IBCs long x 4 IBCs high. 720 IBCs at 0.006 m<sup>3</sup> each is 4.32 m<sup>3</sup> in total. In order to provide some conservatism to this, an allowance is made for a nominal residual content in each IBC. To allow for this, 0.1 m<sup>3</sup> per IBC is added to the volume calculation. Each IBC is therefore considered to be 0.106 m<sup>3</sup> in flammable volume. This increases the maximum actual volume to 76.32 m<sup>3</sup>.

The water requirement calculations have been re-visited using this actual volume figure and the results are shown in Table FPP3.

**Table FPP3: Revised Water Requirements for Fire Extinguishing**

Max. pile volume (m <sup>3</sup> )	Water supply needed (l/m)	Overall water supply needed over 3 hours (l)	Total water available on site (l)
76.32	509.05 (76.32 x 6.67)	91,629 (509.05 x 180)	Water supplied by hydrant at wider site entrance, est. 1,200 l/m

The specification (the design flow rate) of the fire hydrant connection is not known. In the absence of this, it is assumed that the hydrant was installed in accordance with the applicable regulations (the Fire Hydrant Requirements and Dry Riser Regulations in the United Kingdom (amended 2018)).

According to the Regulations, even the smallest fire hydrant (designed for an industrial estate up to 1 hectare in size) must supply water at a rate of at least 1,200 litres per minute. As such the existing fire hydrant is deemed more than adequate for the required water supply.

## **14 MANAGING FIRE WATER**

In the event of a fire or suspected risk of fire (e.g. presence of smoke or monitored temperature at or above the trigger level), any plant operating will be stopped and waste will be moved away from the potential fire source. At this facility this is made easier due to the fact that all waste is held within containers that are portable; waste can be moved away from the source without compromising the integrity of its containment. As a result, the size of a fire is likely to be small and easily contained.

Should the use of fire extinguishers not be sufficient and the fire brigade has to put a fire out, the potential quantity of fire water run-off will relate to the time taken for the fire to be extinguished.

The water will be considered to be contaminated due to its contact with the waste and will be retained in the drainage system in the facility. It will be contained within the building by low bunds across the doorways and within the sumps in the yard area. The system can be pumped out and the fire water transferred off site for disposal.

Based on the volume of the largest waste 'pile' (described in 13.2 above), and the capacity of the hydrant compared to the water supply needed, it is likely that the 1,200 litre/minute flow rate would sufficiently put out the fire within 75 minutes. This would result in the quantity of fire water generated being 38,179 litres (38 m<sup>3</sup>). It is considered that this represents a worst case scenario as it does not make any allowance of the likely level of evaporation of the water used to fight the fire (it is the evaporation process which takes the heat away from the fire, hence extinguishing it) however given the size of the building and the drainage measures, it is considered that the site has adequate capacity to manage fire water run-off.

### **14.1 Containing Fire Water Run-Off**

Fire water will be contained within the drainage system; this can be pumped into one or more IBCs. These can be sent off site for disposal following sampling to identify the appropriate disposal route.

Remediation works are planned for the yard area, and this will include the installation of a bund around the permitted yard area. The area in which fire water will be contained will be 2,364 m<sup>2</sup> and the bund depth is designed to be 0.2 m. This gives a fire water containment capacity in the yard area of 47.28 m<sup>3</sup>, significantly more than the 38 m<sup>3</sup> calculated above.

## **15 DURING AND AFTER AN INCIDENT**

This section presents the potential issues that could arise during and after a fire and seeks to set out the measures that will be in place to manage these. The applicant's IMS includes an accident management plan (AMP) which sets out the potential accidents that could result in harm to human health and/or the environment. Accidental fire is one of the accident scenarios that is considered within the plan which will set out a series of control measures that will be in place at the site.

All incidents will be recorded in line with site procedures and investigations will be carried out and documented, where appropriate and applicable.

### **15.1 Site Access for Fire Services**

Access to the site is off Rotterdam Road to the west. The site is located within a busy industrial estate, the road network of which is currently used by large heavy goods vehicles and is sufficiently wide for this. The roads are relatively flat and wide, allowing ease of access for fire engines.

Fire engines will be able to access operational areas of the site via the main entrance off Rotterdam Road.

The access routes shall be maintained at all times, and shall not be restricted by waste delivery, or temporary operations.

As part of the emergency response evacuation, under the direction of the Emergency Services, site vehicles and private vehicles shall be moved away from the source of the fire or smoke. The local roads will be maintained free from parked cars and congestion.

The removal of all site vehicles/plant and equipment shall also serve to clear all of the access route for the use of emergency services in case of a fire.

## **15.2 Notifying Residents and Businesses**

Smoke is hazardous to the environment and human health. To manage the impacts of smoke released from a fire, this FPP details the combustible materials potentially involved, and identifies the sensitive receptors in the area.

The site will work with the emergency services to assist in the rapid notification of sensitive receptors including in person, by telephone call, and by local news media and will assist emergency services in the dissemination of advice on recommended actions (e.g. evacuation, closure of windows, etc.).

## **15.3 Clearing and Decontamination After a Fire**

As noted in the sections above, a fire is likely to be small and easily contained given the nature of storage of the waste (in moveable containers). The 'clean up' is likely to comprise the removal of fire water and any impacted solid waste. Fire water will be pumped to IBCs and sampled prior to transfer off site for appropriate disposal or recovery. Solid residues (the burnt combustible material) will also be tested and transferred off site for appropriate disposal.

## **15.4 Site Contingency Measures**

During any fire all incoming deliveries of material will be stopped. If there is a need to divert waste away from the site, as a result of a fire, there is a contingency plan which will be activated. The contingency plan only needs to address the management of the incoming waste.

The contingency plan identifies alternative disposal routes for the incoming waste stream and reflects the intention of the applicant to always seek to honour its waste collection contracts. It operates other sites, including a waste transfer station that is permitted to accept and store aerosol and that is located in close proximity to the site; the applicant will not cease accepting waste from its customers if there is a viable outlet. This is irrespective of the location of the contingency site and cost of alternative recovery/disposal.

The contingency plan is in place to ensure that waste contracts can continue to be serviced in the event of failure of the plant.