



# **Fire Prevention Mitigation Plan**

## **WEPA UK Ltd, Bridgend Paper Mill,**

### **Llangynwyd, Bridgend, CF34 9RS (Permit**

### **Ref. ERP/EP3738NG)**

On behalf of:  
**WEPA UK Ltd**

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## 1 Introduction

### 1.1 Scope

This Fire Prevention Mitigation Plan (FPMP) has been developed to manage the risks associated with the storage of specific waste streams at the WEPA UK Ltd Bridgend Paper Mill, Llangynwyd, Bridgend, CF34 9RS.

The WEPA UK Ltd facility is permitted under The Environmental Permitting (England & Wales) Regulations 2016, Permit number EPR/EP3738NG.

The FPMP has been structured to comply with current relevant guidance:

- Natural Resources Wales (NRW) Guidance as outlined within Fire Prevention & Mitigation Plan Guidance – Waste Management Guidance Note 16 (Version 2.0).
- Confederation of Paper Industries (CPI) Fire Prevention Plan: A Paper Sector Guide, January 2022.
- Waste Industry Safety and Health Forum (2020). Waste 28 Reducing fire risk at waste management sites, Issue 3.

### 1.2 Site Details

The Bridgend Paper Mill is an integrated facility covering 75 acres, containing a paper machine, seven converting lines, and a state-of-the-art water treatment plant that can process four million gallons per day.

Company-wide quality management ensures the highest standard of our products, meeting all customer requirements. We carefully select our raw materials and carry out rigorous quality control assessments throughout the manufacturing process, working closely with our suppliers to ensure that every delivery meets our exacting standards.

The facility is certified to:

- BS EN ISO9001:2015 Quality Management Systems;
- BS EN ISO14001:2015 Environmental Management Systems; and
- BS EN ISO 45001:2023 Occupational Health and Safety Management Systems.

### 1.3 Site Activities

This FPMP only applies to certain aspects of the WEPA UK Ltd activities located at the Bridgend Paper Mill. The scope of this FPMP includes:

- acceptance of specific specified waste materials on to site;
- storage of specified waste materials on the site (within designated areas); and
- use of the specified materials within the existing permitted processes.

### 1.4 Storage

#### 1.4.1 Specified Materials

The specified materials, subject to the scope of this FPMP, are outlined in **Table 1-1**.

**Table 1-1:** *Specified materials*

List of Waste Code	Description
03 03 08	wastes from sorting of paper and cardboard destined for recycling
15 01 01	paper and cardboard packaging
19 12 01	paper and cardboard
20 01 01	paper and cardboard

#### 1.4.2 Storage Volumes

The storage volumes and characteristics are outlined in **Table 1-2**.

**Table 1-2:** *Specified materials*

Item	Description
Storage Area	Circa 15 x 15 m area within the much larger (covered) bale storage area (Pulp Storage Area - Department A).
Maximum stack height	3 bales high
Broke bales	c. 1 m x 1m (750 kg each based on a density of 0.75)
Maximum number of bales <sup>#1</sup>	c.675 bales (506 tonnes)

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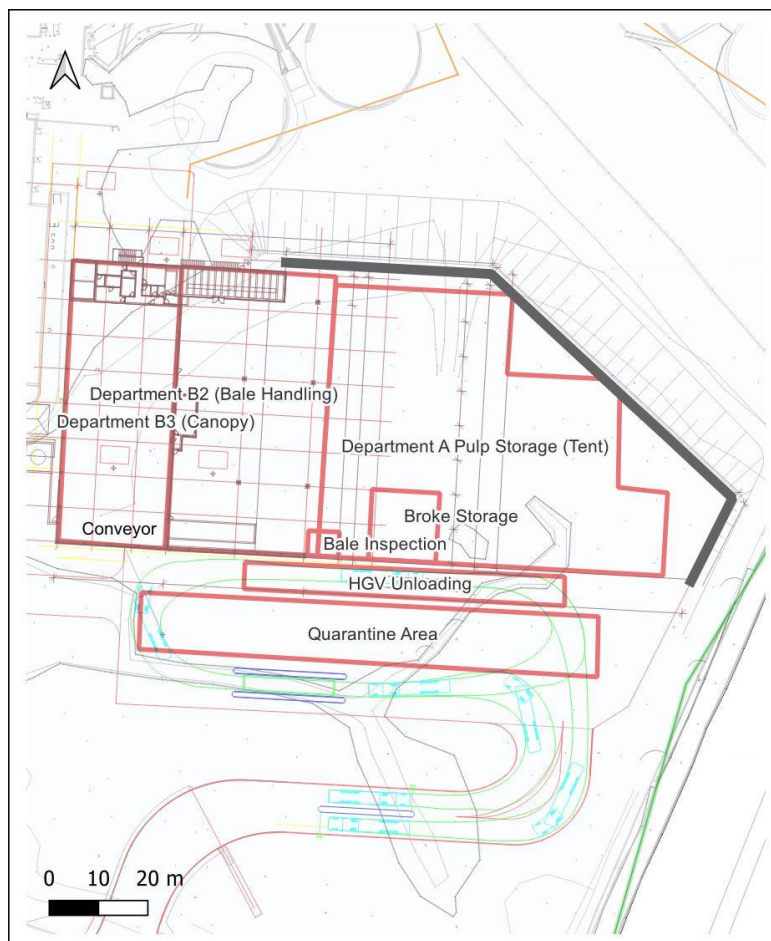
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Item	Description
Maximum storage period	4 weeks of broke storage (current production rates)
Incoming loads	c. 10 loads a week, each of 15 tonnes 150 tonnes of incoming broke/week
<b>Notes:</b> #1 It is important to note that this is theoretical only based on the available storage space and maximum stated pile height. This is considered highly unlikely.	

### 1.4.3 Locations

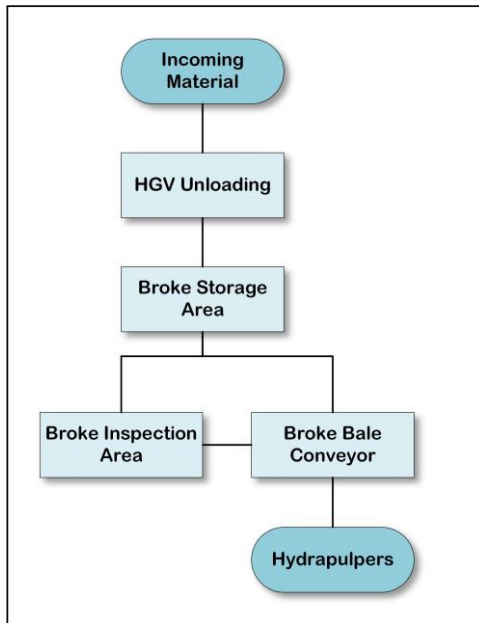
The site layout (concerning the FPMP and specified materials) is outlined in **Figure 1-1**.



**Figure 1-1: Broke handling and storage**



The process flow of the specified materials is outlined in **Figure 1-2**.



**Figure 1-2:** *Process flow of specified materials*

The areas utilised for the storage of the specified materials are described below.

#### 1.4.4 HGV Unloading

The incoming materials are removed from flatbed curtainsider trailers via gas-powered FLT's. The baled broke materials are moved into the broke storage area located within the covered pulp storage area (Department A).



**Photograph 1-1:** *HGV unloading area*

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### 1.4.5 Department A – Pulp Storage

The Pulp Storage Area (Department A) mainly consists of a sloped concrete slab on grade (including drainage to handle surface water) and is founded on bored piles. Due to the different levels in height between the slab on grade and adjacent existing natural ground bridging embankments and retaining wall constructions have been installed. The entire area is located within an industrial storage tent.



**Photograph 1-2:** *Bale storage industrial tent*



**Photograph 1-3:** *Broke storage bales*

Department A is mainly used to store raw materials (virgin fibre pulp bales) and the specified broke materials and is operated with forklifts and materials handlers.

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**1.4.6 Department B – Bale Handling**

Department B3 is a canopy construction designed to protect the raw material conveyors and other equipment located underneath and within this canopy-covered area. This area also includes a broke bale inspection area where selected bales are broken open to inspect and identify unauthorised materials e.g. plastics.



**Photograph 1-4:** *Broke inspection area*



**Photograph 1-5:** *Broke conveyor*

The building Department B2 is a single-storey building designed for bale handling (process-related) equipment. All areas are concrete reinforced piles, concrete reinforced

foundations as well as single and/or strip foundations on concrete reinforced floor slabs with a partial chemical resistant coating.

## 1.5 Risk Assessment

The *Regulatory Reform (Fire Safety) Order 2005* is the main piece of legislation governing fire safety in England and Wales.

The facility has established and maintains (through review) a suitable sufficient risk assessment for the facility as required under Section 9 of the Order. The key findings of the fire risk assessment are communicated to employees and third parties via information, fire safety instruction and training. Where required appropriate fire safety measures have been established and are maintained including a documented emergency plan.

The area has been designed by BHM Ingenieure in consultation and conformance with FM Global standards and requirements (BHM INGENIEURE, 2020).

## 2 Sensitive Receptors

### 2.1 Location

The WEPA UK Ltd site is accessed from the A4063 (Bridgend Road) near Llangynwyd, Bridgend. The national grid reference for the site is SS 87810 87136. The A4063 runs along the southern and western boundaries with fields to the north and the River Llynfi to the east.

### 2.2 Geology

The relevant British Geological Survey (BGS) 1:50,000 map of the area (Sheet 262, Bridgend, solid and drift, 1990) and the BGS Onshore GeoIndex, outline that the Site is directly underlain by:

- **Artificial ground** – The Site area is not classified by the BGS as artificial ground.
- **Superficial deposits** – The site is partially underlain by alluvium (composed of clay, silt, sand, gravel and till).
- **Bedrock deposits** – The majority of the Site is underlain by Sandstone (Brithdir Member), Mudstone, Siltstone and Sandstone (Hughes Member) and Mudstone, Siltstone and Sandstone (Brithdir Member).

### 2.3 Hydrogeology

From a review of the BGS online maps the Site is located on the following:

- **Superficial Deposits** – The site is partially located on superficial deposits classified as Secondary A aquifer and Secondary (undifferentiated) with a corresponding 'high vulnerability. Secondary A are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers whilst Secondary Undifferentiated is assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.
- **Bedrock Deposits** – The bedrock deposits have been designated as a Secondary A Aquifer (high vulnerability). These are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an



important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

The site is not located within a groundwater Source Protection Zone (SPZ).

There are no drinking water abstractions within 100 metres of the permitted installation.

According to the Quorum Flood Risk Assessment (Quorum Consulting Engineers, 2019) groundwater has been recorded at varying depths across the site along with seepages at shallow depths. To the West, Golder Associates recorded groundwater at depths of 7-9 m bgl, and Ove Arup recorded groundwater at 4 m bgl in the same area. To the East Ove Arup has recorded groundwater from approximately 3 m bgl which did rise in two of the boreholes. It has been noted by Quorum that during foundation installation for some of the existing buildings, groundwater was struck 1 m from surface level.

## 2.4 Hydrology

The nearest surface water feature is located onsite. The on-site feature is known as Nant Gwyn and is culverted within the site boundary until it discharges into the River Llynfi.

## 2.5 Flood Risk

The nearest main river to the application site is the River Llynfi located along the eastern boundary of the site on the opposite side of the railway line.

The NRW flood map for planning shows that the site is located mainly in Zone A but with a section through the centre of the site falling under Zone B (this includes the area near the proposed new boiler house). According to Quorum (Quorum Consulting Engineers, 2019) ordinarily, this zone would be assessed based on levels compared to flood level data for the river however as this zone is based on the underlying geology it is believed to no longer be relevant as the existing site has been developed, levels have been raised and the watercourse has been culverted.

## 2.6 Ecology

The NRW and Bridgend County Borough Council websites were queried to locate Sites of Special Scientific Interest (SSSI), Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Ramsar sites, National Nature Reserves (NNR), Ancient Woodland, Local Nature Reserves (LNR) and Local Wildlife Sites (LWS) also known as Sites of Interest for Nature Conservation (SINCs) within 1 km to 10 km (depending on the site

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designation) of the Site. The identified designated areas (within the screening distance) are outlined in **Table 2-1**.

**Table 2-1: Designated areas**

Designation	Screening Distance	Description and Status
Ramsar	10-km	None identified.
SPA	10-km	None identified.
SAC	10-km	<b>Blackmill Woodlands (4.0 km east)</b> Blackmill Woodlands is an example of old sessile oak woods at the southern extreme of the habitat's range in Wales and contributes to the representation of the habitat in Wales and south-west England. The ground flora is restricted by the relative dryness of the site, but the main habitat features of sessile oak <i>Quercus petraea</i> canopy, acidic ground flora of <i>Vaccinium myrtillus</i> and wavy hairgrass <i>Deschampsia flexuosa</i> , and moderate fern and bryophyte cover are present. The woodlands have a long cultural history of management, reflected in the distinctive gnarled appearance of many of the trees.
		<b>Glaswelltiroedd Cefn Cribwr/Cefn Cribwr Grasslands (3.5 km south)</b> This is one of four sites representing <i>Molinia</i> meadows in south and central Wales, one of the major UK strongholds for this habitat type. At this site, there are extensive stands of M24 <i>Molinia</i> – <i>Cirsium dissectum</i> fen-meadow, including the heathy sub-type with cross-leaved heath <i>Erica tetralix</i> , as well as other forms with a stronger representation of grasses, rushes, and small sedges. Transitions to stands of more acidic <i>Molinia</i> and <i>Juncus</i> pasture, dry neutral grassland and wet scrub vegetation are well-represented. Uncommon and declining species associated with the <i>Molinia</i> meadows at this site include the nationally rare viper's-grass <i>Scorzonera humilis</i> and the nationally scarce soft-leaved sedge <i>Carex montana</i> .
		<b>Kenfig/Cynffig (8.3 km southwest)</b> Kenfig is a largely intact dune system in south Wales with extensive areas of fixed dune vegetation with red fescue <i>Festuca rubra</i> and lady's bedstraw <i>Galium verum</i> and semi-fixed dune grassland with marram <i>Ammophila arenaria</i> and red fescue. There is also a relatively large area of more acidic vegetation dominated by sand sedge <i>Carex arenaria</i> , sheep's-fescue <i>Festuca ovina</i> and common bent <i>Agrostis capillaris</i> .
SSSI	2-km	None identified.

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Designation	Screening Distance	Description and Status
NNR	2-km	None identified.
LNR	2-km	None identified.
Ancient Woodlands	2-km	73 areas of ancient woodland are located within 2 km of the site.
LWS	2-km	<p>LM-9-N – Ty'n-y-Waun (Marsh/marshy grassland, semi-improved neutral grassland, broad-leaved semi-natural woodland along the proposed community route)</p> <p>LM-8-N – Llety Woods (Broad-leaved semi-natural woodland, acid/neutral rock exposure, scattered broad-leaved trees)</p> <p>LM-6-S – Cwm Nant Gwyn (Broad-leaved semi-natural woodland)</p> <p>LM-3-S – Nant Bryncynan Woods (Broad-leaved semi-natural woodland)</p> <p>LM-12-N – Lletty Brongu (Ancient woodland, wet valley bottom, rare breeding birds)</p> <p>LM-11-S – Llywn-y-Brian (Broad-leaved Semi-natural Woodland)</p> <p>LL-1-S – Coed Pentwyn (Broad-leaved semi-natural woodland)</p> <p>LL-2-N – Coed Tondy (Broad-leaved semi-natural woodland, unimproved neutral grassland, dry heath/acid grassland mosaic)</p> <p>LL-3-N – Nant Cwm-bach (Broad-leaved semi-natural woodland, coniferous plantation, marsh/marshy grassland)</p> <p>LL-4-S – Coed Coytrahen (Broad-leaved semi-natural woodland)</p> <p>LL-5-N – Cwm Cefnydfa (Broad-leaved semi-natural woodland, dense continuous scrub, man-made rain-fed pools)</p> <p>GV-6-M – Nant Mwrth (Broad-leaved semi-natural woodland, semi-improved neutral grassland, unimproved neutral grassland, marsh/marshy grassland, continuous bracken)</p> <p>GV-7-S – North Bettws Woodland</p> <p>GV-8-N – Bettws West (Semi-improved acid grassland, broad-leaved semi-natural woodland, dense continuous scrub, acid neutral flush)</p> <p>GV-12-M – Tylacoch North (Farmland, therefore wet grassland and deciduous woodland associated with river corridor)</p> <p>GV-13-M – Tylacoch South (Rare breeding birds)</p>



## 2.7 Human Receptors

The following receptors have been identified surrounding the permitted boundary (**Table 2-2**)

**Table 2-2:** *Human receptors*

Designation	Screening Distance	Description and Status
Residential	1-km	There are multiple isolated residential receptors surrounding the permitted boundary. The closest residential properties are located approximately 50 metres north of the installation boundary.
Care Homes	1-km	None identified.
Hospitals	1-km	None identified.
Schools	1-km	None identified.

Using Office for National Statistics information (KS101EW - Usual resident population) the number of people per hectare (associated with the WEPA facility post code) is 1.3 (Office for National Statistics, 2024). This equates to a predicted population of 103 people (within 1 km of the site).

All receptors within 1 km, 2 km and 10 km are outlined within **Annexe A**.

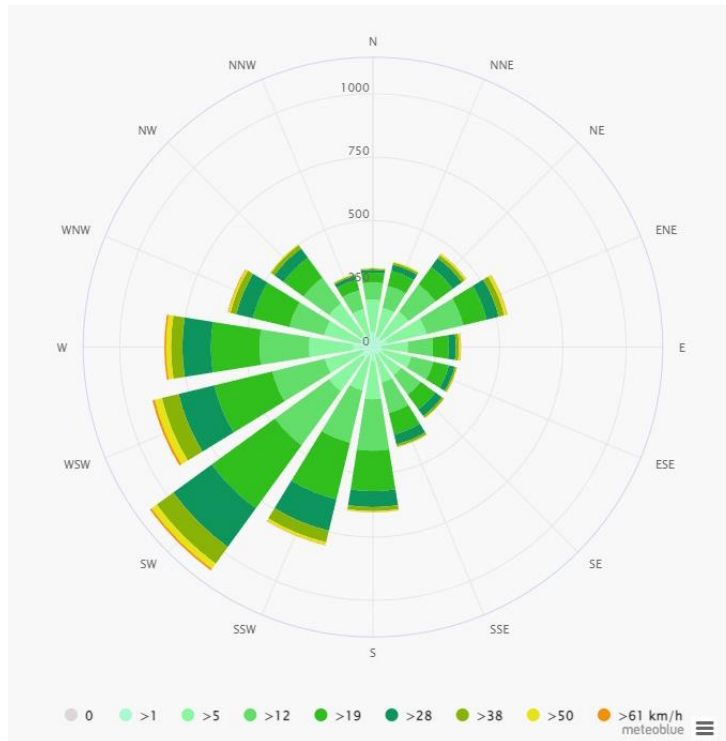
## 2.8 Protected Buildings

The DataMapWales website was queried to locate Scheduled Monuments, World Heritage sites and Listed Buildings. There are no listed features within 250 metres of the Site.

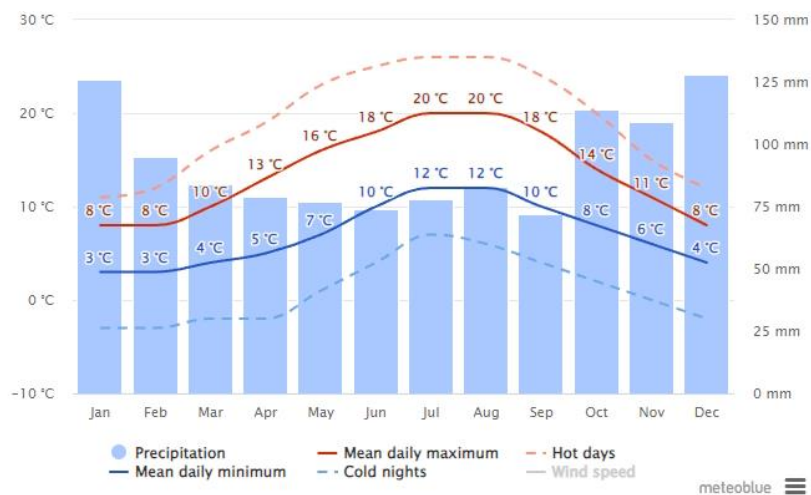
## 2.9 Air Quality and Wind

The site is not located within a designated Air Quality Management Area.

The prevailing wind (in the Bridgend area) is from a southwesterly direction (**Figure 2-1**).



**Figure 2-1: Wind rose**



**Figure 2-2: Temperature and rainfall (by month)**

### 3 Manage the Causes of Fire

#### 3.1 Arson or Vandalism

The permitted WEPA facility is fully fenced, secured and alarmed, making it difficult for intruders to access the site (during and outside working hours). The site is covered by a monitored CCTV system meaning it is highly unlikely that an intruder could access the site without being observed.

The emergency services would be contacted should a break-in occur or if an alarm is tripped.

#### 3.2 Plant And Equipment

All identified materials are delivered by Heavy Goods Vehicle (HGV) within a curtain-sider trailer and then handled by Forklift Trucks (FLT) or material handlers with dedicated bale clamps. Currently, the FLT are LPG-powered but the site is currently reviewing the potential use of electrical FLT.

No other plant and or equipment is stored or used within the designated storage area.

All material handlers have a maintenance and inspection programme that is aligned with manufacturers' recommendations (both general maintenance and statutory inspection).

Plant and equipment are not stored within the designated area when not in use.

#### 3.3 Visitors and Contractors

All visitors are accompanied by WEPA personnel at all times.

All contractors are subject to assessment and approval as per the standard WEPA UK Ltd contractor assessment process.

#### 3.4 Electrical Faults

There are no significant electrical systems present within the main storage yard beyond the perimeter and general workplace lighting.

All electrical systems within the site (permitted installation) have been installed and are maintained in line with the requirements of the *Electricity at Work Regulations 1989*.

WEPA takes into account the suitability, design, construction and installation of electrical systems used for specific tasks in the workplace, where such systems are sited and the protection and precautions provided for the use of such systems.

All electrical equipment and electrical installations on the site are designed and installed by certified, qualified persons. All electrical equipment and electrical installations are subject to regular inspection and testing as per current legislative requirements e.g. portable appliance testing, fixed wire testing etc.

### **3.5 Discarded Smoking Materials**

The site operates a no-smoking policy.

### **3.6 Hot Works**

If hot works (e.g. any operation involving open flames or producing heat and/or sparks) were required within the designated storage area a safe working procedure would be implemented using the existing permit-to-work (PTW) system. The PTW can only be issued (and closed) by a competent person.

### **3.7 Industrial Heaters**

There are no industrial heaters used where the specified materials are stored, handled or processed.

### **3.8 Hot Exhausts and Engine Parts**

Hot exhausts and engine parts can ignite materials trapped near them. Mobile plant operators have been made aware of this risk and are required to ensure that materials are cleared from around exhausts and other hot parts at the end of each shift.

### **3.9 Ignition Sources**

Sources of ignition, such as naked flames, space heaters, and other sources of ignition are not permitted within the designated storage areas (i.e. surrounding area or within 6 metres of potentially combustible and flammable waste).

There are no gas bottles or other flammable items or materials stored within the designated storage area.

### 3.10 Batteries

This is not considered relevant to the installation.

### 3.11 Leaks and Spillages

WEPA UK Ltd operates a leaks and spills procedure (EPR 11 Spillage control procedure) as part of the ISO 14001 EMS. The procedure covers all operations within the installation.

### 3.12 Build-Up of Combustible Waste

All areas within the permitted installation are subject to regular housekeeping inspections. Where localised waste and other potentially combustible materials are present the materials are identified and removed.

### 3.13 Reactions Between Wastes

No incompatible wastes are stored within the designated area. The permitted LoW codes are minimal and the materials can be stored within the same designated area.

### 3.14 Waste Acceptance and Deposited Hot Loads

The process for waste acceptance is straightforward:

- Step 1 – An operator takes 1 or 2 bales from the incoming HGV whereupon the materials are moved to the inspection area.
- Step 2 – The bales are split open (in the inspection area) to verify the level of contamination (i.e. plastics).
- Step 3 – The materials are then either deemed acceptable i.e. they are unloaded and moved to the specified storage area or the load is rejected and returned to the supplier.

Although hot loads are considered unlikely WEPA UK Ltd operates a series of controls to ensure that waste acceptance is appropriately undertaken, they include a documented waste acceptance procedure, the use of personnel trained in the application of the waste acceptance procedure including training to examine the load before and after unloading for signs of heat (e.g. fire, smoke or signs of smouldering).

### 3.15 Hot and Dry Weather

The unloaded specified materials are stored under a covered area so are protected from direct sunlight. The risks from external heating are minimised by direct cover (shading), regular inspection and by minimising storage periods (aligned to statutory requirements).

## 4 Prevent self-combustion

### 4.1 Manage storage time

Stock rotation is applied by WEPA UK Ltd as it operates a first-in-first-out (FIFO) process for the stored materials. The maximum storage periods for the specified materials are outlined in **Table 4-1**.

**Table 4-1:** Specified materials – storage periods

List of Waste Code	Description	Max. Storage Period
03 03 08	wastes from sorting of paper and cardboard destined for recycling	3 months
15 01 01	paper and cardboard packaging	3 months
19 12 01	paper and cardboard	3 months
20 01 01	paper and cardboard	3 months
<b>Note:</b> The maximum storage period is considered a worst-case scenario. In general, the site expects materials to be utilised within the process within 4 weeks (at current production rates).		

Compliance with the maximum storage periods is reviewed during inspections and audits. Where suspect material is identified the original waste transfer notes/documentation shall be utilised to ascertain the original delivery date. Materials stored for longer than 3 months shall be recorded as a non-compliance with the ISO 14001 EMS. Corrective and preventive actions shall be established to prevent re-occurrence.

Maximum pile sizes and storage periods shall not be exceeded.

### 4.2 Monitor and Control Temperature

To control heat and to prevent self-combustion any waste stored for more than three months should be subject to monitoring and temperature control. No waste is expected to be stored for more than 3 months.

Waste paper bales are not stored on-site for more than 3 months therefore, no sampling and testing protocol or bale turning is required for the stored materials.

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## 5 Management of Waste Piles

### 5.1 Storing materials in their largest form

WEPA accepts the specified materials as paper and cardboard in bales (i.e. its largest form).

### 5.2 Maximum Pile Sizes

The maximum permitted pile sizes (for the specified materials) are outlined below:

Waste Type	Location	Loose to 150 mm	30 to 150 mm or Baled	Less than 30 mm
Paper and Cardboard	Department A (Pulp Storage)	N/A	675 m <sup>3</sup> #1	N/A
<b>Notes:</b> FPMP Guidance (Section 9.2) - Paper and Cardboard, Maximum Pile Sizes, Loose to 150 mm (750 m <sup>3</sup> ), 30 to 150 mm or Baled (750 m <sup>3</sup> ) or Less than 30 mm (450 m <sup>3</sup> ). #1 It is important to note that this is theoretical only based on the available storage space and maximum stated pile height. This is considered highly unlikely.				

The maximum dimensions of the individual piles are:

Waste Type	Location	Largest Stack Height (m)	Max Stack Width (m)	Max Stack Length (m)
Paper and Cardboard	Department A (Pulp Storage)	3 metres	15 metres	15 metres
<b>Notes:</b> FPMP Guidance (Section 9.2) - For all waste piles, the maximum height allowed is 4 m. For all waste piles, the maximum length or width allowed (whichever is the longest) is 20m.				



## 6 Preventing Fire Spreading

### 6.1 Separation Distances

Separation distances between piles of waste can prevent fire spreading between waste piles and allow active firefighting to take place. Setting an appropriate separation distance will depend upon the nature of the material you are storing. As a minimum combustible waste piles should be stored with a separation distance of at least 6 metres and have a separation distance of at least 6 metres between waste (whether in piles or containers) and the site perimeter, any buildings, or other combustible or flammable materials.

Given the size of the stacked bales and the space between the edge of the industrial tent and the vertical uprights of the tent a spacing of 6 metres is not possible (**Photograph 1-2**).

### 6.2 Fire Walls & Bays

Fire walls and storage bays are not utilised to store the specified materials.

## 7 Quarantine Area

A quarantine area is where WEPA would place burning wastes to extinguish them and/or move unburnt wastes into the quarantine area to isolate them and prevent them from catching fire.

The facility has designated a dedicated quarantine area within the Pulp Storage Area (Department A) but outside the covered area. The location of the quarantine area is outlined in **Figure 1-1**.

The quarantine area follows the FPMP Guidance in that it can hold at least 50% of the largest pile and it has a separation distance (from the site perimeter and other stored waste) of at least 6 metres around the quarantined waste.

Suitable plant will be used to transfer any material that needs to be transferred to the quarantine area such as burnt material or non-conforming waste types.

## 8 Detecting Fires

### 8.1.1 Detection Systems in Use

The detection systems are outlined within the BHM Ingenieure - Engineering & Consulting GmbH Concept Fire Protection System Report ( BHM INGENIEURE, 2020) which was submitted and approved during a previous permit variation.

Inside Departments A and B Bale handling and Pulp Storage an area-wide automatic fire detection system is installed. It is important to note that the detection systems do not extend and cover the tented area i.e. they only cover the building and canopy area.

### 8.1.2 Certification for the Systems

All installed fire detection systems are installed and maintained in line with FM Global requirements.

## 9 Suppressing Fires and Associated Techniques

### 9.1 Available Water Supply

The availability of fire water is outlined within the BHM Ingenieure - Engineering & Consulting GmbH Concept Fire Protection System Report ( BHM INGENIEURE, 2020) which was submitted and approved during a previous permit variation.

The fire water supply for the outside hydrants and the sprinkler systems inside the different building parts/departments are connected to the fire water pipework and the fire water pump station. Around the building parts and departments and outside the buildings are fire hydrants. Hydrant connections are compatible with those used by the local fire and rescue service.

A meeting with the local fire brigade was carried out to fix the hydrant connections and the exact position of the hydrants and for the final approval of the on-site fire system around Department A and Department B.

#### 9.1.1 Department A

The fire water supply is carried out as a connection to the existing fire water loop. The alarm valves are located inside the sprinkler substation. The sprinkler substations are built as separate fire compartments with access from outside.

Around Department A fire hydrants are located. No part of the department is more than 60 metres from a hydrant. According to the Concept Fire Protection System Report ( BHM INGENIEURE, 2020) the fire water supply is as follows:

- Valve set 6, pipe DN200 PN16
- Source duty: 7,636.9 l/min @ 8.714 bar
- Fire tank capacity: 1,492,000 litres
- Hydrant pressure: 5.700l/min for 4hours 20min (according to the FM Global report)

Inside Departments A and B Bale handling and Pulp Storage an area-wide automatic fire detection system is installed. Department B4 (mess room; control room; locker rooms and similar) is also equipped with an automatic sprinkler system.

The sanitary rooms and the staircases are equipped with an automatic fire alarm system.

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Transformer stations are equipped with a smoke aspiration system.

The cable vault of the MCC room only is protected with a sprinkler system. The switch gear cabinet level is equipped with smoke detectors. The floor separating the MCC cable vault by the upper MCC room is NOT fire-rated.

In addition, at all emergency exits push buttons, wall hydrants (hose stations) and fire extinguishers are installed. The number and placement are carried out according to the local regulations and guidelines.

A dry riser pipe at the steel structure staircase is installed up to the roof and guarantees a good fire water supply in case of a fire event on the roof of Departments A or B.

The alarm in case of fire is carried out with combined flashing lights and alarm sirens. These flashing lights and alarm sirens are installed area-wide.

In all cases, the fire pre-alarms and fire alarms are linked to the main automatic fire alarm system in the main control room of the new paper mill, to the existing fire alarm system and the gate house main entrance.

The automatic fire alarm system is located in a separate technical room. This room is a separate fire compartment.

Heat and smoke exhaust openings are installed in the roof and they are also used to control the ventilation of the departments. Heat and smoke exhaust openings are opened via push buttons.

### **9.1.2 Department A Canopy**

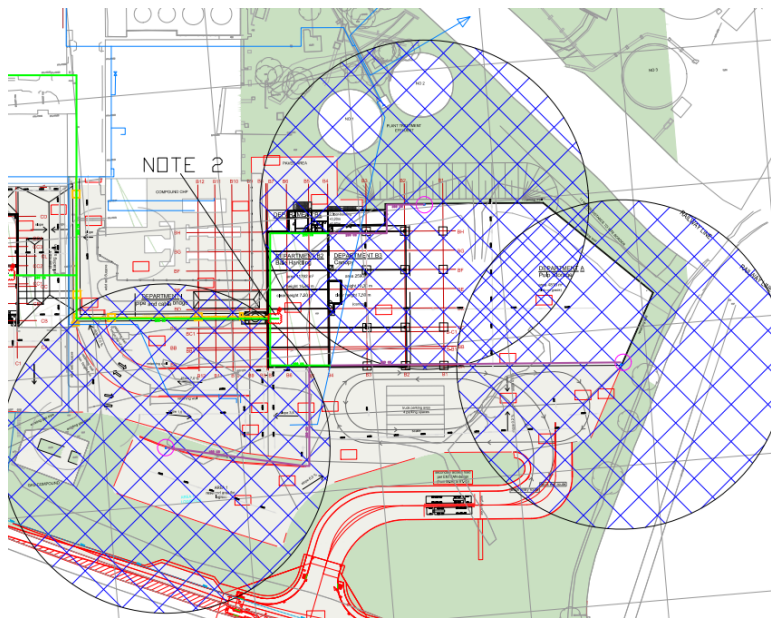
A zoned deluge sprinkler system is installed within the canopy (approximately 500m<sup>2</sup> each). The deluge system is activated by a heat detection system – e.g. IR detection or UV detection or via manual release. The system has been designed to provide:

- a density of 6 mm/min over 560m<sup>2</sup>
- release temperature 74°C
- working period 240 min

## 9.2 Other Controls

### 9.2.1 Wall hydrants (hose stations)

Inside the different departments and on all levels wall hydrants (40 metre hose stations) are located. All wall hydrants (hose stations) are supplied by fire water pipe work inside each building part. The wall hydrants (hose stations) were selected and located according to the national guidelines and standards.



**Figure 9-1:** Hydrant coverage (external areas)

### 9.2.2 Fire extinguishers

The total area and all levels are equipped with fire extinguishers. The exact placement and the type of fire extinguishers were determined together with the local fire brigade. The fire extinguishers are selected and located according to the national guidelines and standards (BS 5306).

### 9.2.3 Fire and Rescue Service

In the event of a fire the closest (full-time) South Wales FRS station is located at Bridgend, Angel Street Bridgend CF31 4AH, followed by Maesteg, Coegnant Road Nantyffyllon Maesteg CF34 0TW. There are other South Wales FRS stations nearby but these are on-call sites only.

The South Wales FRS operate a variety of water ladders/tenders. A typical model (e.g. Mercedes ATEGO) can have a 1400-litre integral water tank and a 100-litre integral foam tank.

#### **9.2.4 River Abstraction**

The South Wales FRS have the resources and capabilities (as outlined within the *Fire and Rescue Services Act 2004*) to take unlimited amounts of water from the nearby river, provided it is used for firefighting purposes. Given the on-site water availability, the use of river abstraction is considered unlikely.

#### **9.2.5 Conclusion**

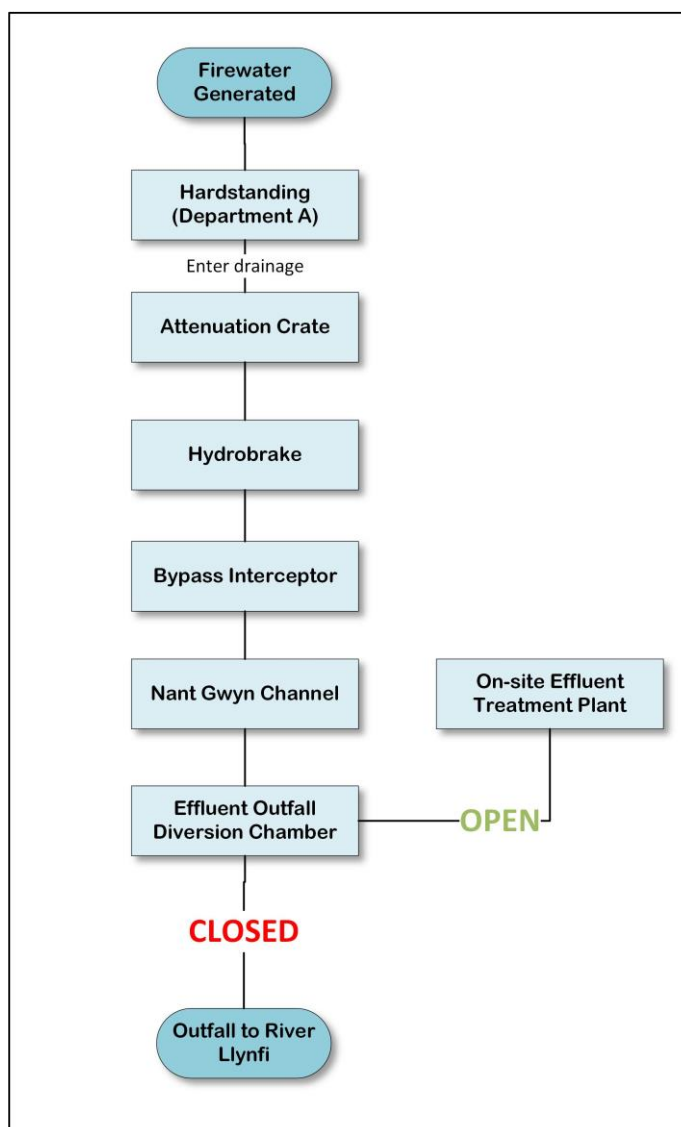
The provision of the sprinklers in Department B, the zoned deluge sprinkler system under the canopy and the provision of adequate hydrants around the external yard (density and water flow rates) and the South Wales FRS accessibility means that there are sufficient available water supplies.

## 10 Managing Firewater

### 10.1 Storage Location

Where fire water is generated, as part of the fire response, it must be contained on-site to prevent pollution.

The specified waste is stored on an engineered hardstanding pad (within an industrial tent) located at the rear of the permitted facility (Department A – Pulp Storage) the area of which is 4,500 m<sup>2</sup>. The water flow during an incident is outlined in **Figure 10-1**.



**Figure 10-1:** Firewater containment during an incident



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The firewater would initially be contained on a well-engineered good quality hardstanding surface (**Photograph 10-1**).



**Photograph 10-1:** *Surfacing within Department A*

The external yard is bounded to the north and east by a c. 1 metre-high retaining wall (**Photograph 10-2**).



**Photograph 10-2:** *Department A retaining wall*

Upon entering the Department A drainage system the firewater would enter the installed attenuation crate:



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- 225 m<sup>2</sup> x 0.8 m (180 m<sup>3</sup>). The crate design was based on an area of 0.27 ha and a 100 year + 40% storage design flow @ 4.3 l/s.

The drainage from the crate initially enters a 1800 mm diameter ACO Q-Brake Vortex (4.25 l/s). The ACO Q-Brake Vortex is a horizontal vortex flow control designed to prevent downstream flooding by controlling the release of stormwater before it discharges.

Upon release from the Q-Brake the discharge would enter a SPEL Stormceptor® Class 1 By Pass Separator (206 C1/SC). As the nominal size flow for the unit is 6 l/s the presence of the upstream Q-Brake Vortex (discharging at a maximum of 4.25 l/s) should mean full treatment rather than bypass. As the unit is Class 1 it is designed to achieve a concentration of 5 mg/l of hydrocarbon at discharge under normal conditions.

The discharge from the separator would then enter the Nant Gwyn via an engineered head wall (**Photograph 10-3**).



**Photograph 10-3:** Release point from drainage system into Nant Gwyn

The water from the Nant Gwyn flows into the effluent outfall diversion chamber located adjacent to the River Llynfi (**Photograph 10-4**).



**Photograph 10-4:** Effluent outfall diversion chamber

Upon detection of a fire and therefore potential generation of firewater the diversion chamber shall be utilised to redirect the Nant Gwyn into 100% recycle (i.e. full prevention of discharge into the River Llynfi). The diversion options are outlined in **Table 10-1**.

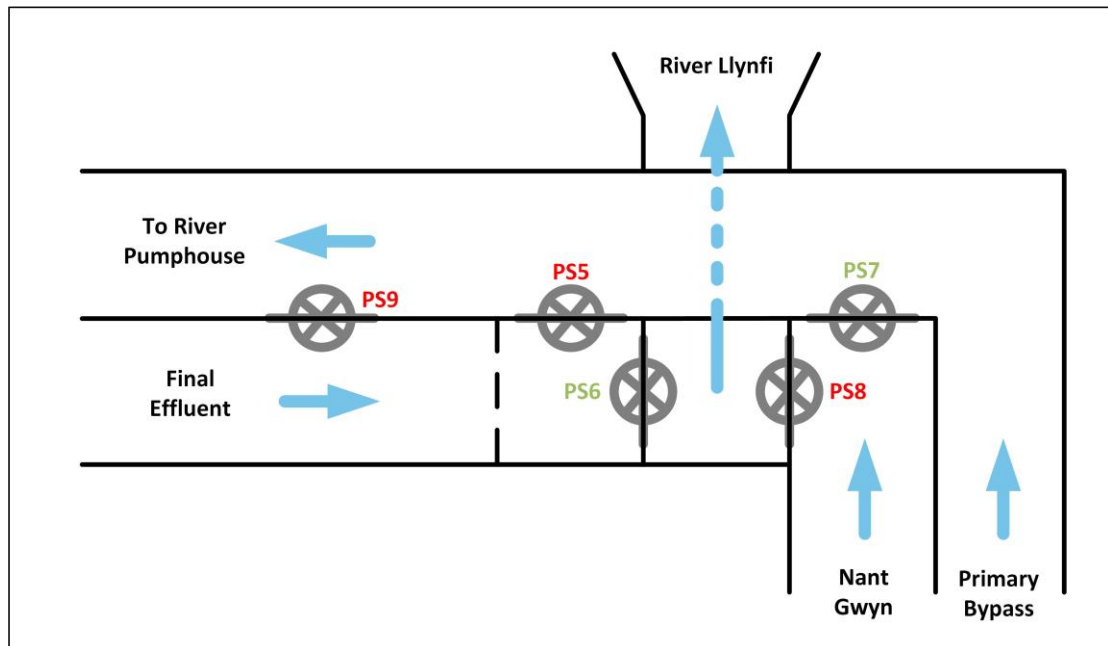
**Table 10-1:** Outfall penstock positions

Penstock Positions	PS5	PS6	PS7	PS8	PS9
Partial effluent recycle	Closed	Open	Closed	Open	Variable
100% effluent discharge	Closed	Open	Closed	Open	Closed
100% effluent recycle	Closed	Closed	Closed	Open	Open
<b>Nant Gwyn Recycle</b>	<b>Closed</b>	<b>Open</b>	<b>Open</b>	<b>Closed</b>	<b>Closed</b>
Nant Gwyn 'Sluice Gate Open'	Open	Open	Open	Open	Closed
Primary Bypass Recycle	Closed	Open	Closed	Open	Closed
Primary Bypass Discharge	Open	Open	Closed	Open	Closed

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**Figure 10-2:** *Diversion chamber penstocks (during fire event)*

The established system, which is already part of the current permitted installation, enables full containment of fire water within the site boundary i.e. there is no pathway for a release to the environment.

## 11 During and After an Incident

### 11.1 Dealing with issues during a fire

#### 11.1.1 Incoming Materials

During a fire event involving the specified materials WEPA UK Ltd will stop all deliveries of waste to the site and/or divert incoming waste back to the point of origin.

If the return of waste to the sender is not possible WEPA UK Ltd will contact NRW to agree on a diversion strategy and to ensure compliance with the duty of care requirements.

#### 11.1.2 Environmental Protection Strategy

In coordination with the Fire and Rescue Service (FRS) and NRW, the following hierarchy will be applied:

- **Stage 1 – Contain at Source** – the most effective intervention point is where the source of the pollution can be controlled to stop or reduce the quantity of material released into the environment.
- **Stage 2 – Contain Close to Source** – Where it's not possible to contain at the source, or there's already been a significant loss, the next point of intervention is to contain the material as close to the source as possible.
- **Stage 3 – Containment on the Surface** – One of the most common ways for materials to enter the environment is by open drain gullies connected to the surface water drainage system. The drainage system provides a very efficient pollution pathway.
- **Stage 4 – Contain in the Drainage System** – Pollutants will often enter drainage systems before pollution control equipment can be deployed. When this happens, the drainage system itself can be used for containment.
- **Stage 5 – Contain on or in the Watercourse** – Rapid deployment of a river boom at an appropriate location downstream of an incident can be of tremendous benefit where the pollutant is less dense than water.

### 11.2 Notifying residents and businesses

During an unplanned event where they could be off-site impacts nearby residents and commercial operations (within 1km) will be notified by WEPA UK Ltd in coordination with NRW.



## 11.3 Clearing and decontamination after a fire

### 11.3.1 Waste Materials

All remaining waste materials will be subject to a formal documented inspection to ascertain whether they can still be processed on-site within the permitted installation.

Where materials are deemed unsuitable (fire-damaged residue) they shall be quarantined and shall be removed for suitable off-site treatment and/or disposal. The process will ensure compliance with the Waste Duty of Care code of practice as issued under Section 34 of the *Environmental Protection Act 1990*.

### 11.3.2 Fire Water

Where fire water has been generated and contained within the permitted installation it shall be subject to assessment via an ISO17025/UKAS-certified laboratory. No release to the environment or off-site removal will be undertaken until discussions are held with NRW and agreement with regards to the approach has been finalised.

It is anticipated that the following options will be available (post-laboratory analysis):

- Treatment and discharge through the on-site permitted effluent treatment plant that discharges to the River. This option will only be suitable for clean water that will not damage the ETP or the receiving water course.
- Removal via vacuum tanker for off-site treatment and disposal.

## 11.4 Making the site operational after a fire

WEPA will ensure that all waste materials, fire water and infrastructure repairs are completed before the re-acceptance and storage of waste materials.

## 12 Review and Monitoring

### 12.1 Review

The FPMP is an operational document which is reviewed annually to reflect any changes to the facility such as the waste acceptance procedures, changes in legislation, the modification of existing infrastructure and/or the inclusion of additional infrastructure or buildings, plant or machinery. In addition, the FPMP will be subject to review and update (as required) following a fire incident.

All employees and contractors are made aware of the FPMP during inductions and following a review. It is kept in the site office and is accessible to all staff, visitors and contractors.

### 12.2 Training

All supervisors, of which at least one will be on-site at any one time, will undertake a Fire Safety Training course for Fire Marshalls.

Fire Marshalls will induct new starters and conduct annual refresher courses for all staff to include on-site drills and exercises. This is to ensure all staff are competent to carry out the measures and procedures outlined within this FPMP.

Records of training, exercises and refresher courses will be kept as per the stated retention policy outlined within the ISO14001 EMS.

### 12.3 Inspections

Site inspections are carried out at the start and the end of the working day by the local supervisor. This will include the visual inspection of all of the stockpiles.

During the site inspections, all equipment and plant are checked to ensure they are either operating or turned off correctly and that there are no identifiable ignition sources.

All plant, equipment is maintained and serviced as per manufacturers' recommendations and by qualified personnel as appropriate (i.e. manufacturers' recommendations or statutory requirements)

Records of all inspections and servicing are maintained within the current maintenance system.

## Annexe A: Figures