



Fire Prevention & Mitigation Plan

Shotton Mill Permit Variation Application

Shotton Mill Limited

Weighbridge Road, Deeside Industrial Park, CH5 2LW

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SLR Project No.: 410.065169.00001

26 August 2026

Revision: Final V4

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
Draft v1	30 January 2025	H Kerr	P Wright	P Wright
Draft v2	1 May 2025	H Kerr	P Wright	P Wright
Draft v3	27 August 2025	H Kerr	P Wright	P Wright
Draft v4	29 October 2025	H Kerr	P Wright	P Wright
Draft v5	18 December 2025	H Kerr	P Wright	P Wright
Final v1	22 December 2025	H Kerr	P Wright	P Wright
Final v2	12 February 2026	H Kerr	P Wright	P Wright
Final v3	15 May 2026	H Kerr	C Berryman	C Berryman
Final v4	26 August 2026	H Kerr	P Wright	P Wright

Basis of Report

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1.0 Introduction

1.1 Report Context

SLR Consulting Limited (SLR) have been instructed by Shotton Mill Limited (SML) to prepare a Fire Prevention & Mitigation Plan (FPMP) in support of a variation to the existing Environmental Permit (EP), reference EPR/BT4885IT for the Shotton Mill site located at Weighbridge Road, Deeside Industrial Park, Flintshire, CH5 2LW.

This report follows the Natural Resources Wales (NRW) guidance for FPMPs¹ and details the required mitigation and management methods to prevent a fire of combustible materials stored on site.

The information contained within this FPMP aims to satisfy NRW that the following factors are equivalent or less than would be incurred if the site followed the minimum standards in the regulatory guidance:

- Likelihood of fire;
- Impact from emissions during or after a fire on the local community, critical infrastructure and the environment;
- Resources required by NRW and other emergency responders during an incident; and
- Post incident clean-up and remediation costs.

Under current fire safety legislation², a responsible person must carry out, or appoint a competent person to carry out, a suitable and sufficient Fire Risk Assessment (FRA) of the risks of fire to employees and others who may be affected by the site. The FRA will be kept on site available for review at any time.

An electric copy of this FPMP is stored in the document management system and a hardcopy is stored in the emergency services box located at the entrance to the site.

1.2 Environmental Permit Variation

The site was acquired by Modern Karton, part of Eren Holdings, from UPM Kymmene (UK) Limited in late 2021.

The existing site was permitted for the following listed activities under the Environmental Permitting Regulations (England and Wales) 2016 (as amended):

- Section 6.1, Part A(1)(b) – producing in an industrial plant, paper and board where the plant has a production capacity of more than 20 tonnes per day.
- Section 1.1, Part A(1)(a) – burning any fuel in an appliance with a rated thermal input of 50MW or more.
- Section 5.1, Part A(1)(b) – the incineration of non-hazardous waste in an incineration or co-incineration plant in a facility with a capacity exceeding 3 tonnes per hour.
- Section 5.4, Part A(1)(a)(i) – disposal of non-hazardous waste in a facility exceeding 50 tonnes per day by biological treatment.

The following Directly Associated Activities (DAA) were also permitted:

¹ Fire Prevention & Mitigation Plan Guidance, August 2017

² Regulatory Reform (Fire Safety) Order 2005



- Discharge of site drainage from the installation.
- Materials recovery facility.
- Wood recycling facility.

SML propose to repurpose the site to produce containerboard and tissue paper, rather than newsprint. The listed activities and DAAs will remain unchanged, however the plant and operation on site will change because of the following new plant being installed as part of the repurposing:

- New paper machine for containerboard;
- New pulp preparation equipment;
- New Effluent Treatment Plant;
- New Tissue paper mill; and
- New Combined Heat and Power plant.

1.3 FPMP Layout

The FPMP includes all activities undertaken on site where combustible material is stored. These can be broken down into the following distinct areas:

- Containerboard Production
 - Old Corrugated Cardboard (OCC) Pulp Bales (waste) Internal Storage Building
- Tissue Paper Production
 - Tissue Pulp Bales (non-waste) External Storage Area
 - Tissue Bale (non-waste) Handling Building
- Wood Recycling Facility (WRF)

Sections of the FPMP will be split where the fire prevention, mitigation or management measures differ between the 3 areas described above.

1.4 Site Location

1.4.1 Surrounding Land Use

The site is located off Weighbridge Road, Deeside Industrial Park, centred on National Grid Reference (NGR) SJ 30434 71529. The site is located within Deeside Industrial Park, 20km south of Liverpool and 10km west of Chester.

The River Dee is 1km west of the site at the closest point, and the mouth of the River Dee Estuary is located 15km north-west.

The area immediately surrounding the site comprises a combination of commercial and industrial units to the east and south, open ground to the east and to the north.

There are no residential areas within 1km of the site boundary. The closest residential receptors to the site are approximately 1.3km to the south-west along Dee View Road.

The site will be accessed via Weighbridge Road, to the north and east of the EP boundary.

The site's EP Boundary and site Layout are illustrated on Drawing 298002-00. Local receptors within a 1km radius of the site are shown on Drawing 003, and Cultural and Natural Heritage Receptors on Drawing 004.



A summary of the immediate surrounding land use is provided in Table A.

Table A: Surrounding Land Uses

Direction	Land Use
North	Access road immediately to the north, beyond which lies an area of open ground
East	Access road immediately to the east, beyond which lies commercial / industrial units
South	Areas of open ground to the south, beyond which lies commercial / industrial units
West	Open ground, beyond which the A548 lies 270m west

The immediate surrounding land uses are described in further detail below.

1.4.2 Industrial and Commercial

There are a number of industrial and commercial premises within 1km of the site. The closest of these are Deeside Power (UK) which lies 130m west of the EP boundary, and Flintshire Bridge HVDC Converter Station, situated approximately 250m south-east of the EP boundary.

1.4.3 Local Transport Network

There are a number of roads within 1km of the facility. These includes Weighbridge Road on the northern boundary and approximately 20m from the eastern boundary at the closest point. The A548 lies 270m to the west. There are also a number of unnamed access roads, serving other industrial / commercial units within the industrial park, within 1km of the site.

1.4.4 Surface Water Features

There is a stream running adjacent to the EP boundary to the south. This stream runs to the west and north of the site. There is a large area of open water known as the Shotton Lagoons (SSSI) situated 140m to the south-west.

1.4.5 Woodland

There are no areas of designated woodland within 1km of the facility. There are some areas of undesignated woodland adjacent on the southern EP boundary.

1.4.6 Agricultural / Open Land

There is a large area of open land adjacent to the site on the northern boundary. There are other areas of open ground to the east of the site, adjacent on the eastern boundary and approximately 320m east of the EP boundary.

1.4.7 Residential

There are no residential properties within 1km of the EP boundary.



1.5 Hydrogeology

1.5.1 Aquifer Designation

According to the Multi-Agency Geographical Information for the Countryside (MAGIC) map³, there are three bedrock aquifer designations underlying the site:

- The deposits underlying the north-eastern corner of the site are classified as a Principal Aquifer;
- The deposits underlying a small section beneath the centre of the site, are classified as a Secondary (undifferentiated) Aquifer; and
- The remaining areas of the site are underlain with bedrock deposits classified as a Secondary A aquifer.

Superficial deposits underlying the site are classified as a Secondary (undifferentiated) Aquifer.

1.6 Ecology

1.6.1 Internationally Designated Sites

1.6.1.1 Sites of Special Scientific Interest (SSSI)

The following SSSIs lie within 1km of the EP boundary:

- The Dee Estuary / Aber Afon Dyfrdwy SSSI is situated 275m north of the site at the closest point. There are a number of features contributing to the SSSI designations including *Ranunculus* communities, floating water plantain, Atlantic salmon, bullhead, lamprey, otter, club tailed dragonfly and fluvial geomorphology in the meandering section of the main stem Dee across the Cheshire Plain.
- Shotton Lagoons and Reedbeds SSSI is located approximately 140m south of the site at the closest point.
- The River Dee / Afon Dyfrdwy SSSI is located 1km west of the site at the closest point.

1.6.1.2 Ramsar

The Dee Estuary Ramsar is situated 40m south of the site at the closest point. The Dee Estuary Ramsar covers a large proportion of the land within 1km of the site to the north-west, west and some to the south.

1.6.1.3 Special Areas of Conservation (SAC)

The Dee Estuary SAC lies 275m north of the EP boundary at the closest point. This SAC covers a large proportion of the land within 2km of the site to the north-west, west and some land to the south.

The River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegrid SAC lies 1km west of the site at the closest point.

³ Multi-Agency Geographical Information for the Countryside Map, available at www.magic.gov.uk, accessed in February 2024



1.6.1.4 Special Protection Areas

The Dee Estuary SPA is situated 40m south of the site at the closest point. The Dee Estuary SPA covers a large proportion of the land within 1km of the site to the north-west, west and some to the south.

1.6.2 Nationally/Locally Designated Sites

The following nationally / local designated sites were not identified within 1km of the site boundary:

- Ancient Woodland;
- National Nature Reserve;
- Area of Outstanding Natural Beauty;
- National Parks; and
- Biosphere Reserve.

1.7 Cultural and Heritage

The following cultural sites were not identified within 1km of the site boundary:

- Scheduled Monuments;
- Registered Parks and Gardens;
- World Heritage Sites;
- Listed Buildings;
- Registered Battlefields.

1.8 Receptors

Table B and Drawings 003 and 004 show the locations of receptors that are considered to be potentially sensitive and could reasonably be affected by the activities occurring on site.

Table B: Identified Receptors

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (m)
Human Receptors within 1km of the EP boundary as shown on Drawing 003			
Stream	Surface Water Feature	S	Adjacent
Woodland	Woodland	S	Adjacent
Open Land	Open Land	N / E	Adjacent
Weighbridge Road	Local Transport Network	N / E	Adjacent / 20
Deeside Power (UK)	Commercial / Industrial	W	130
Open Water	Surface Water Feature	S-W	140
Flintshire Bridge HVDC Converter Station	Commercial / Industrial	S-E	250
A548	Local Transport Network	W	270

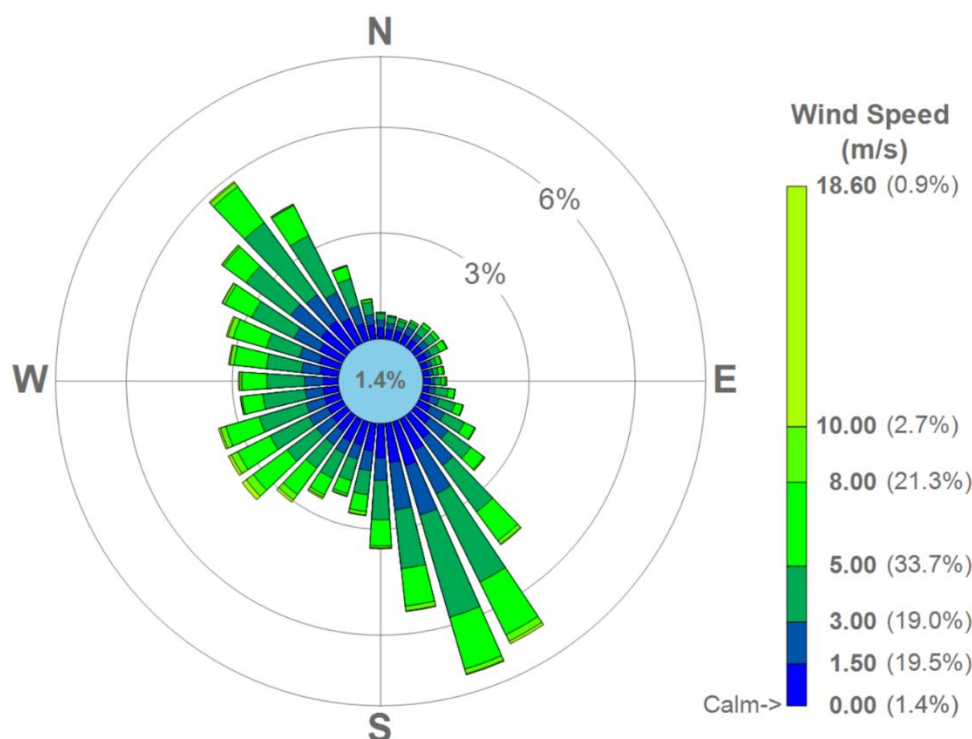


Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (m)
Open Land	Open Land	E	320
Cultural and Ecological Receptors within 1km of the EP boundary as shown on Drawing 004			
Shotton Lagoons and Reedbeds	SSSI	S	140
Dee Estuary	Ramsar / SPA	S	40
Dee Estuary	SAC / SSSI	N	275
River Dee / Afon Dyfrdwy	SSSI / SAC	W	1000

1.9 Windrose

Figure A shows the wind patterns between 2017-2021 as identified at Hawarden meteorological station. The most prominent wind directions are from the south-east, and north-west. Winds from the north, north-east and south-west are relatively infrequent by comparison.

Figure A: Hawarden Meteorological Station Wind Rose (2017 – 2021)



1.10 Site Type

Sections 1.2 and 1.3 above detail the site type and the distinct areas of the site that store combustible material.

1.10.1 Containerboard Production

Raw materials for containerboard are recovered paper delivered directly to site. These materials are stored in the OCC pulp bales internal storage area.



The site accepts 830,000 tonnes per annum of recovered paper which is approximately 2,300 tonnes per day. The maximum amount of recovered paper stored within the OCC pulp bales internal storage area is 34830 tonnes.

1.10.2 Tissue Paper Production

Raw material for tissue paper production is virgin fibre pulp. This material is stored in the tissue pulp bales external storage area and the tissue bale handling building. The site accepts 72,000 tonnes per annum of virgin fibre pulp which is approximately 197 tonnes per day. The maximum amount of virgin fibre pulp stored within the tissue pulp bales external storage area is 1500 tonnes. The maximum amount of virgin fibre pulp stored within the tissue bale handling building is 1100 tonnes.

1.10.3 Wood Recycling Facility

The site activities include the storage and treatment of waste wood with sorting, separation, shredding and chipping for use as biofuel for the onsite boiler. All waste wood is non-hazardous.

The annual throughput permitted in the EP is 270,000 tpa which is approximately 740 tonnes per day. The maximum amount of waste stored at the WRF at any one time is as follows:

- Unprocessed Wood Waste: 5,500 tonnes;
- Waste Wood Chip: 2,800 tonnes;
- Virgin Biomass: 1,400 tonnes; and
- Paper Sludge: 1,000 tonnes.

1.11 Waste Types

The full waste list for each area of the site is included within Schedule 2 of the EP.

The EP allows for the following materials to be accepted at the site which are defined as 'combustible materials' in the FPMP Guidance¹:

- Paper;
- Cardboard; and
- Wood.

1.12 Site Access

The site is accessed from Weighbridge Road on the northern boundary.

The closest Fire Station is Deeside Fire Station to the south east of the site, a fully manned station operated by North Wales Fire and Rescue Service (NWFRS). Using Google directions and mapping, the drive time is approximately 12 minutes and it is approximately 6 miles between the site and the Fire Station.

The local road network within the surrounding area is designed to accommodate large haulage vehicles. As such, NWFRS would be able to reach the site without difficulty.

Access roads around the perimeter of the site are kept clear to allow easy access to the combustible material storage areas during an incident. The access points for vehicles are illustrated on Drawing 298002-00.

1.12.1 Operational Hours

The site operates 24 hours a day, 7 days a week, 365 days a year.



Peak hours for deliveries and dispatch are between 06.00 – 22.00 Monday to Friday and 06.00 – 14.00 Saturday and Sunday. These operational hours are subject to change depending on production or demand.

1.13 Compliance

The site operates in accordance with the ISO14001 accredited Environmental Management System (EMS).

Consequently, operational procedures for the management of the facility ensure that all appropriate pollution prevention and control techniques are delivered reliably and on an integrated basis.

This FPMP is considered to be a 'working' document that is reviewed and updated annually or as required should any of the following occur:

- A fire on site;
- Additional combustible waste streams accepted on site;
- An increase in material volumes accepted on site;
- Development of site infrastructure (including new buildings);
- Installation of new equipment or plant;
- A change or review of legislation; or
- If the site is instructed to do so by NRW.

The following sections of the FPMP will be reviewed and updated following the occurrence of any of the above:

- Staff training;
 - Confirm that the FPMP is available and all staff know where it is kept;
 - Ensure staff training is reviewed and updated to enable them to carry out the procedures and measures within this FPMP. This will include:
 - New starters – Induction training;
 - Existing staff and new starters – refresher courses, toolbox talks, on-site exercises/drills;
 - Record all training within the EMS.
- Site Monitoring:
 - Site inspections before, during and after shifts to ensure:
 - No identifiable ignition sources; and
 - All equipment is operating/turned off correctly.
 - Material stacks and separation distances are in accordance with the FPMP;
 - The monitoring and recording of material storage times;
 - The plant and equipment servicing and maintenance records;
 - The records of daily, weekly and monthly checks; and
 - The periodic testing of the FPMP.

It is the responsibility of the site manager or nominated person to maintain this FPMP and to ensure it is adhered to in the event of a fire on site.



2.0 Fire Prevention Measures

2.1 Fire Detection and Alarm Systems

2.1.1 Tissue Pulp Bales External Storage Area

The external storage area will benefit from infrared and visual cameras that rotate around the area and monitor the material storage.

The detection system is monitored by the security gate which is operational 24 hours per day, 365 days per year.

Manual call points are also located externally around the perimeter of the buildings. The call points send a signal to the 24 hour manned security gate. The security officer would alert the on-site Emergency Response Team (ERT) who would respond at the scene of the fire.

Site operatives are trained to look for early signs of a fire and poor housekeeping during day-to-day operations.

2.1.2 OCC Pulp Bales Internal Storage Building

The OCC building will benefit from infrared flame and heat detectors that are linked to the deluge system. The automatic discharge of the deluge system is detailed in Section 3.1.2.

Manual call points that are linked to audible and visual alarms are also located around the building.

In addition to the automatic discharge of the deluge system, if a detector or manual call point is triggered, a signal will be sent to the warehouse fire alarm panel and the 24 hour manned security gate control panel. The security officer would alert the on-site Emergency Response Team (ERT) who would respond at the scene of the fire. The security officer would also alert the NWFRS.

Site operatives are trained to look for early signs of a fire and poor housekeeping during day-to-day operations.

2.1.3 Tissue Bale Handling Building

The tissue bale handling building has the same detection measures as the OCC building.

2.1.4 Wood Recycling Facility

The WRF benefits from 3 infrared and visual cameras that rotate around the area and monitor the waste piles. The alarm trigger is set to 80°C and the cameras operate on a 5 second delay to prevent false alarms. A trigger temperature of less than 80°C led to previous false alarms as the system picked up the temperatures within the mobile plant.

The detection system is monitored by the security gate which is operational 24 hours per day, 365 days per year.

Manual call points are also located externally around the perimeter of the buildings. The call points send a signal to the 24 hour manned security gate. The security officer would alert the on-site Emergency Response Team (ERT) who would respond at the scene of the fire.

Site operatives are trained to look for early signs of a fire and poor housekeeping during day-to-day operations.



2.2 Inspections and Amenity Monitoring

The site is continually manned as stated in Section 1.12.1 above and site operatives are asked to remain vigilant at all times and look out for signs of fire. Staff are trained in how to identify fires and fire hazards on site. Staff also receive training on the use and selection of fire extinguishers, site evacuation and shut down procedures, fire safety and all relevant emergency procedures.

All material storage areas are visually inspected throughout the day and all findings are logged in the site diary as a minimum. Should signs of self-combustion be identified, such as steaming/smouldering/smoking, the affected portion of the stockpile will be removed to the nearest quarantine area and rotated using the loading shovel to dissipate any heat built up in the pile. Any excessively wet loads will be monitored to check for 'steaming off'. If identified, the stockpile will be rotated using the loading shovel to dissipate any heat built up.

Site operatives continually check for poor housekeeping throughout day-to-day operations. 12 hourly checks of all mobile plant takes place.

All escape routes, fire exits, alarm call points, and fire extinguishers are kept clear from loose material at all times.

Daily and weekly monitoring is recorded in line with the requirements of the EP and detailed in the EMS.

2.3 Material Storage Arrangements

Material storage takes place within the designated areas illustrated on Drawing 298002-00. Separation distances for all material storage areas other than the WRF are shown in Table D below. Separation distances for the WRF are shown in Table C.

2.3.1 Tissue Pulp Bales External Storage Area

The external storage area stores virgin pulp in bales in the location illustrated on Drawing 298002-00. The bales are stacked 2 high and the size and shape of the storage area is constantly changing due to loading and unloading operations.

2.3.2 OCC Pulp Bales Internal Storage Building

The OCC building stores recovered waste paper in bales in the locations illustrated on Drawing 298002-00 and Drawing 'OCC Warehouse'. The bales are stored in stacks separated by fire walls offering a fire resistance period of at least 180 minutes. The base of the bay is formed of 770mm reinforced concrete. Bay walls are 'JP Concrete' panels of 150mm thickness and are installed in line with manufacturer's requirements.

A vertical freeboard of 1m and a horizontal freeboard of 0.2m is maintained at the sides and rear of each bay. The horizontal freeboard increases to almost 1.5m at the top of the perimeter of the stacks. Lines drawn on the inside of each bay mark the maximum height and width of each stockpile ensuring the freeboards are adhered to.

2.3.3 Tissue Bale Handling Building

The bale handling building stores virgin pulp in bales in the locations illustrated on Drawing 298002-00. The bales are stored in stacks.

2.3.4 Wood Recycling Facility

The WRF stores unprocessed and processed wood and biomass in the locations illustrated on Drawing 298002-00. All waste wood is stored in loose stockpiles.



Table C below details the waste types and associated separation distances. It is acknowledged that the separation distances do not meet those recommended in NRW's FP&MP Guidance¹ and guidance from WISH⁴. The separation distances achieved on site between the waste piles and structures are shown in Table C below.

Table C: Separation Distances Between Waste Piles

Waste Type and Location	Adjacent Pile/Structure	Distance (m)
Unprocessed Wood (to East of Fuel Crushing and Screen Plant)	Fuel Crushing and Screen Plant	10
	Biomass Waste Pile	30
Unprocessed Wood (to North of the A Barn)	Wooden Log Wall	10
	A Barn	10
	Unprocessed Wood (to East of Fuel Crushing and Screen Plant)	>50
Processed Wood (to South of the A Barn)	Biomass Waste Pile	15
	A Barn	50
Biomass Pile (to South of Biomass Fuel Receiving Plant)	A Barn	50

Given the reduced separation distances, RPS Risk Management conducted an assessment to ascertain whether there was a credible risk of fire spread to adjacent features if a waste pile was on fire. This has been carried out using engineering principles to calculate the thermal radiation imparted on adjacent piles or structures assuming the entire pile is combusting. The methodology used and discussion of results are included in Appendix A. The overall conclusion is that a credible waste pile fire could not spread to adjacent waste piles through thermal radiation.

2.4 Material Storage and Duration

The material types, maximum storage times and storage arrangements are detailed in Table D below.

⁴ WASTE 28: Reducing fire risk at waste management sites, issue 2 April 2017



Table D: Material Types, Storage Time and Dimensions

Material Type	Max Storage Time	Length (m)	Width (m)	Height (m)	Storage Pile Mass (tonnes)	Max Volume (m ³)	Baled to baled (m)	Baled to building (m)
Tissue Pulp Bales External Storage								
Tissue Pulp Bales	18 days	25	20	3.44	1161 (density 675 kg/m ²)	1720		16
Tissue Bale Handling Building								
Virgin Pulp Bales	18 days	25	25	1.72	726 (density 675 kg/m ²)	1075		16
OCC Pulp Bales Internal Storage Building								
Bays 1, 2 and 3	24 days	66	42	5	9425 (density 680 kg/m ²)	13860	23	20
Bay 4 and 5	24 days	36	42	5	5141 (density 680 kg/m ²)	7560	21	
Bay 6	24 days	36	24	5	2938 (density 680 kg/m ²)	4320	21	
Bay 7	24 days	24	24	5	1958 (density 680 kg/m ²)	2880	18	
Bay 8	24 days	30	24	5	2448 (density 680 kg/m ²)	3600	20	
Bay 9	24 days	24	24	5	1958 (density 680 kg/m ²)	2880	18	
Bay 10	24 days	18	24	5	1469 (density 680 kg/m ²)	2160	17	
Bay 11	24 days	24	24	5	1958 (density 680 kg/m ²)	2880	18	
Bay 12	24 days	36	24	5	2938 (density 680 kg/m ²)	4320	21	
Bay 13	24 days	12	24	5	979 (density 680 kg/m ²)	1440	13	
Bay 14	24 days	16	11	5	598 (density 680 kg/m ²)	880	16	
Bay 15	24 days	29	9	5	887 (density 680 kg/m ²)	1305	19	
Bay 16 and 17	24 days	50	31	5	5270 (density 680 kg/m ²)	7750	20	
Bay 18	Conveyors							
Bay 19	24 days	24	42	5	5040 (density 680 kg/m ²)	3427	18	
Bay 20	24 days	15	42	5	2142 (density 680 kg/m ²)	3150	15	



Material Type	Max Storage Time	Length (m)	Width (m)	Height (m)	Storage Pile Mass (tonnes)	Max Volume (m³)	Baled to baled (m)	Baled to building (m)
Wood Recycling Facility								
Unprocessed Wood (to East of Fuel Crushing and Screen Plant)	15 Days	120	20	4	Up to 3,150 tonnes (using density of 150 kg/m³)	21,000	See Table C above.	
Unprocessed Wood (to North of the A Barn) – Irregular shape	15 Days	70	20	4	Up to 1,910 tonnes (using density of 150 kg/m³)	12,750		
Processed Wood (to South of the A Barn)	3 Days	20	15	3	180 tonnes (using density of 200 kg/m³)	900		
Biomass Pile (to South of Biomass Fuel Receiving Plant)	7 Days	50	20	3	Up to 1,125 tonnes (using density of 250 kg/m³)	4,500		
Processed Wood and Biomass (A-barn)	1.5 days					8,000		
3 x skips for metals and miscellaneous materials	3 months	4.5	2.5	1.75	N/A	20		



2.4.1 Seasonality of Material Acceptance

2.4.1.1 Recovered Waste Paper

Recovered waste paper stored within the OCC building is affected by seasonal changes in supply and demand. This is taken into account when planning storage times and volumes.

2.4.1.2 Wood Recycling Facility

During the summer months, demand at the WRF is lower leading to stockpiles that are much reduced in size. Consequently, during the hottest months of the year, the stockpiles volumes are at their lowest which improves the effectiveness of the infrared cameras to detect any change in temperature.

2.4.2 Baled Material Storage

Bales are stored a maximum of 5 high, and wherever possible, are stacked interlaced (pyramid stacked) to avoid the chimney effect by reducing air-flow and the intensity of a potential fire.

Automatic fire detection systems in place at the baled material storage areas are described in Sections 2.1.1 - 2.1.3.

2.4.2.1 Visual and Physical Monitoring

Site operatives conduct daily visual monitoring of bale storage areas looking for the following:

- Steam or vapour;
- Condensation on bale surfaces;
- Smouldering smell;
- Deformation or soft spots;
- Discolouration; and
- Excessive warmth when touched (with PPE).

Handheld infrared thermometers are used as follows:

- Site operatives scan bale faces and stack sides;
- Identified bales are checked at various intervals during the shift. Location of testing varies for each shift to ensure complete coverage of storage area;
- Particular focus will be given to:
 - Newly delivered loads;
 - Wet or suspect bales; and
 - The core of stacks.
- Readings are recorded.

If elevated temperatures are detected during daily monitoring, the procedure below is followed:

- Isolate bale immediately;
- Move to quarantine area;
- Break open bale (if safe);



- Cool with water (controlled method);
- Monitor for re-heating;
- Inform supervisor; and
- Record incident.

If active combustion is suspected:

- Activate accident management plan

Monitoring is undertaken daily as a minimum with frequency increased in the following circumstances:

- Hot weather;
- After a contaminated load;
- Following rain exposure; or
- When stock levels are high.

2.5 Monitoring and Turning of Stacks

Suitably qualified site operatives carry out daily checks of the site to identify the risks and to inspect the storage areas.

All material within the tissue pulp bales external storage area, OCC building and tissue bale handling building is stored for short periods before processing therefore temperature monitoring of material storage areas is not routinely undertaken. Based on maximum stock and nominal production, turning of stacks is undertaken every 16.6 days as a minimum to ensure no build up of heat within material storage areas. For the majority of the year stack turning will occur more frequently than every 16.6 days as the warehouse will not be a full capacity.

Temperature probing of the processed material stored at the WRF is undertaken. Probes of a suitable length to reach the centre of the pile are used to take readings from each processed material stockpile and findings are recorded in the site diary.

Storage areas are covered by the automatic detection systems included in Section 2.1 above.

2.6 Training

Staff receive training in the use and selection of fire extinguishers, site evacuations, fire safety and all relevant emergency procedures. Site operatives are trained in the detection of fires and can therefore provide an additional level of management for fire detection. In addition, site operatives are trained in fire prevention and mitigation, monitoring activities and emergency procedures. Refresher courses are provided as necessary.

All staff and contractors working on site are made aware of the contents of the FPMP and the procedures that are in place in the event of a fire on site during their induction. Staff training is regularly refreshed particularly in the event of non-compliance.

The procedures for fires discovered on site are provided both in the site's EMS and on-site notice boards.

SML review and test the FPMP with a full fire drill at least once a year, or in the event of any significant changes to site operations, to ensure that the contents are still relevant and that all staff members' knowledge is current and up to date.



2.7 Fire Sources and Prevention Measures

Table E below provides a summary of the potential causes of fire on site and associated preventative measures and is taken from the FPMP guidance.

Table E: Fire Sources and Preventative Measures

Cause	Preventative Measure
Arson and Vandalism	Access to and egress from the site is controlled through 2 gates gate which are manned and supervised by 24 hour security cover. The site boundary is protected by a high fence with the boundary being patrolled on a regular basis by security personnel. Regular inspections of the fencing and gates will be carried out, and damage will be repaired as soon as practicable. If necessary temporary repairs will be implemented until permanent repairs can be carried out.
Ignition Sources	All fixed ignition sources are kept a minimum of 6m away from the storage of combustible and flammable materials. No naked flames, space heaters, furnaces or incinerators are permitted on site.
Hot Weather	Wood waste and tissue pulp bales are stored outside and are therefore subject to external heating. The following measures will be reviewed during periods of hot weather and will be implemented where practicable: • Shading waste from direct sunlight where practicable; • Enabling heat generated within the waste to be released; • Minimising storage times; • Rearranging site layout; and • Moving or covering any reflective surfaces to prevent sunlight reflecting onto waste.
Site Visitors and Contractors	Visitor access is controlled via temporary electronic passes which are issued after suitable checks have been conducted. Site safety and fire prevention procedures are explained to all site visitors and contractors.
Self-Combustion	Effective stock management limits the likelihood of the self-combustion of materials stored on site. As such, the site has waste acceptance and stock management procedures which are upheld by all employees at the site. The risk of self-combustion is significantly removed due to the short overall storage time of material. Only waste types included in the EP are accepted at the site.
Plant or equipment failure	Plant and equipment are maintained in accordance with the manufacturer's recommendations. The frequency of maintenance and inspection is identified in the site's maintenance schedules. The site operates a maintenance prompt system which provides alerts to the appropriate manager when maintenance or inspection activities are due. An example of a maintenance checklist for static plant is included as Appendix B. Mobile plant maintenance and inspection is controlled by a sub-contractor that implements a 12 hour inspection of the plant for cleanliness, correct operation and oil leaks. The observations are recorded in a daily log book, an example of which is included as Appendix C. All fixed and mobile plant are fitted with fixed, automatic fire suppression systems. Mobile plant is parked at least 10m from combustible waste storage areas when not in use.



Cause	Preventative Measure
	No industrial heaters are utilised on site. Induction training and refresher training is provided to staff in the safe operation of plant and equipment relevant to their role, in accordance with the EMS.
Electrical faults (including damaged or exposed electrical cables)	All electrics on site are fully certified by a qualified electrician and regular safety inspections are carried out. Records of faults and/or daily electrical maintenance are recorded in the site diary. Annual PAT testing is carried out on all electrical devices.
Discarded Smoking materials	Smoking is only permitted within designated smoking shelters which are located more than 30m from combustible waste storage areas.
Hot works	All hot works are undertaken under a permit to work system which includes a fire watch by a competent person for the duration of the works. No hot works are undertaken by staff unless they are trained and have the relevant permit to work. All hot works are conducted in a cleared area of the site at least 6m from any combustible materials. An example of the hot works risk assessment is shown in Appendix D.
Hot Exhausts	Vehicles are turned off when not in use. All plant undergoes a 12 hourly inspection which includes a check for dust build up on the exhaust. If dust is found, the plant will be washed down with water and the dust then removed from the ground using a road sweeper. All plant is parked, a minimum of 10m from material storage, minimising potential for exhausts to result in ignition of materials when left unattended following use.
Open Burning	Burning is not permitted on site.
Incompatible Wastes (Including reactions between incompatible materials and batteries)	To ensure that incompatible materials or reactions do not take place, material is offloaded at the site supervised by suitably qualified site operatives. All materials are checked in accordance with the waste acceptance procedure to ensure no non-conforming materials are accepted. Only vehicles that are accompanied by the correct documentation are accepted at the site. In the event that unauthorised waste is delivered to the site, the waste will be segregated and stored in a designated quarantine area within the permit boundary prior to export from site to a suitably permitted facility for recovery or disposal as soon as reasonably practicable. Tanks containing fuel are constructed so that any leaks/spillages are contained. Tanks are integrally bunded with a leakage containment bund capable of containing at least 110% of the volume of the tank. Bunds are impermeable and resistant to the stored materials Spillages and leakages of fuels and oils will be handled in accordance with the Accident Management Plan.
Hot loads deposited at site	No burning, reactive / reacting or visibly hot (producing smoke, or steam) loads are accepted on site. In accordance with the waste acceptance procedure each load is visually inspected at the site entrance, therefore minimising prohibited materials and the acceptance of hot loads. Instructions are given to customers to ensure no hot loads are accepted on site. Should a hot load be deposited on site, it will immediately be removed to the nearest dedicated quarantine area and attempts will be made to cool



Cause	Preventative Measure
	the waste (either with water or extinguisher as appropriate) and the load will be removed to a suitably licenced facility for disposal.
Build-up of loose combustible waste, dust and fluff	The risk of the build-up of combustible waste, dust and fluff is low due to the following measures implemented on site: • All incoming waste is offloaded in close proximity to the storage areas to minimise unnecessary handling and transport distance therefore minimising the potential for wind-borne dust. • All plant and equipment are subject to a programme of planned preventative maintenance which follows the inspection and maintenance schedule recommended by the manufacturer. • Daily cleaning rounds prioritising high-traffic or high-risk areas are conducted. These areas include tipping floors, access roads and yard areas, entrances to buildings, around fixed and mobile plant and storage bays. • Weekly deep cleans are undertaken prioritising less accessible areas such as behind fixed equipment, under conveyors and behind storage bays/containers. • Site access roads and operational areas are maintained and swept regularly to reduce dust generation.
"Tramp" metal	The waste acceptance procedures on site ensure a low risk of contamination from tramp metal within the WRF.
Batteries with waste deposits	Upon arrival at site, and prior to treatment, waste is inspected and potential ignition sources like batteries are removed and stored in suitable enclosed containers prior to removal from site.



3.0 Fire Management

3.1 Fire Suppression

3.1.1 Tissue Pulp Bales External Storage Area

A fire within the tissue pulp bale storage area would be detected via the systems detailed in Section 2.1.1. If the detection system is triggered, the on-site ERT would respond at the scene of the fire and assume full control for the approach to suppression/extinguishing. Manual fire suppression available at the storage area consists of hose reels that can be connected to the site wide water main fire hydrants and portable fire extinguishers.

3.1.2 OCC Pulp Bales Internal Storage Building

The OCC building benefits from an automatic water deluge system as shown on Drawing 'OCC Warehouse'. Each bay benefits from a deluge valve linked to a deluge cabinet meaning fire suppression in each bay is managed independently. The deluge system is triggered automatically by the infrared and flame detection system detailed in Section 2.1.2.

The deluge system will automatically discharge over the affected bay if heat or flames are identified by the detectors. The system can also be manually triggered via a control panel. The water tanks associated with the deluge system have been designed to provide a continuous supply of water for 2 hours. The discharge of water can be stopped manually if required by stopping the pump and closing the valve.

The building also benefits from an automatic sprinkler system that is triggered when the rated temperature is reached.

3.1.3 Tissue Bale Handling Building

The bale handling building benefits from a dry pipe sprinkler system (bulb sensitivity set to 141°C). The sprinklers are automatically triggered when the rated temperature is reached. The system is designed to provide 2,700 litres of water per minute for 240 minutes.

Hose reels and portable fire extinguishers are available for use in manual suppression techniques.

3.1.4 Wood Recycling Facility

The WRF benefits from the automatic suppression systems shown below:

- Wet sprinkler system in the screening building;
- Water deluge system on the A Barn conveyor system;
- Foam inductor system in the receiving area hydraulic room; and
- Wet sprinkler system in the A Barn.

The automatic suppression systems are inspected and maintained in line with manufacturers recommendations.

A fire within the external wood storage areas would be detected via the systems detailed in Section 2.1.4. If the detection system is triggered, the on-site ERT would respond at the scene of the fire and assume full control for the approach to suppression/extinguishing.

3.2 Quarantine Area

The site benefits from dedicated quarantine areas which can be used for fire management. The areas can hold at least 50% of the largest stockpile located in close proximity.



The quarantine areas are also used to store non-conforming waste temporarily. Any non-conforming waste moved to the quarantine area will be removed from the site as soon as possible, within a maximum of 72 hours, to a suitably authorised facility for disposal. In the event of a fire, these materials will be removed from the quarantine area immediately by site operatives and stored within an alternative suitable container on site.

The location of the quarantine areas is illustrated on Drawing 298002-00 and detailed in Table F below.

Non-conforming material will be handled in one of the following ways:

- Handpicked in the existing bay; or
- Segregated and stored within the quarantine area and removed from site as soon as possible, within a maximum of 72 hours.

Table F: Quarantine Area Dimensions

Quarantine Area	Area Available (m ²)	Volume (m ³)
OCC and Tissue Quarantine		
Located externally to the south of the OCC pulp bales internal storage building	3,024	7,000 ⁵
Wood Recycling Facility		
Flexible due to changing layout of stockpiles – Location to be chosen by Emergency Response Team.	40,000 (impermeable, kerbed area).	11,000

The quarantine areas will always have a separation distance of at least 6m on all sides.

The placement of the quarantine areas provides open areas of the site to allow for the prompt and direct removal of burning materials from the storage areas and to allow access by the ERT.

Site Management will instruct all site operatives when and how either the unburnt or burnt material, or any hot loads delivered accidentally to site, will be moved to one of the quarantine areas. The following procedure will be implemented on site:

- When it is safe to do so, the material will be moved by on site plant to the quarantine area;
- The movement of the material will be overseen at all times by the site manager to minimise any spillages and ensure the area is not overfilled; and
- To limit any spillages, plant will not be overfilled when moving the material.

All site operatives will be trained to follow this FPMP and all procedures listed in the above sections.

3.3 Managing Emissions to Air, Land and Water

It is recognised that a fire at the site could impact on the sensitive receptors identified in Table B above. Emissions from a fire include smoke, ash, soot and contaminated firewater.

⁵ Based on volume of a trapezoidal prism.



3.3.1 Minimising Fire Combustion Emissions (Smoke, Ash and Soot)

As detailed in Section 2.1, each area of the site benefits from a fire detection and alarm system which is monitored 24 hours a day, 7 days a week (24/7). In addition, site operatives are trained in the detection of fires and carry out regular visual inspections of all material storage areas. The automated nature of the detection systems ensures that if an alarm is raised, a rapid response will be provided. This will ensure early detection of a fire and minimisation of damage and emissions.

Local residents and Traffic Wales will be notified of a fire following the procedure in Section 3.5 below.

3.3.2 Minimising Fire-fighting Emissions (Contaminated Firewater)

The site has an engineered firewater containment system and associated procedures as detailed in Section 3.8 below.

3.4 Fire Drills on Site

A full fire drill is carried out and documented at least once a year, or in the event of any significant changes to site operations.

This FPMP is implemented across the site and all fire management equipment is tested on an annual basis.

If any issues are found during these fire drills, the FPMP will be updated or amended accordingly and site operatives will be re-trained.

Regular checks are made of all escape routes and equipment.

3.5 Emergency Contact Details

An emergency contact list, including contact details for local receptors and transport networks, is included in Table G below.

Table G: Emergency Contacts

Contact Name	Contact Number
Fire and Rescue Service	999 or 112
NRW Hotline (24 hour service)	0300 065 3000
Traffic Wales (report an incident that could impact the road network)	0300 123 1213
Network Rail (report an incident that could impact the rail network)	03457 11 41 41
Local Receptors	
Deeside Power Station	01482 895500
Tata Steel UK Limited	01244 892533
Toyota Motor Manufacturing UK Ltd	01244 282121
Great Bear Distribution	01829 772061
Techtron Manufacturing	01244 281628

SML will use its website and social media channels to further communicate information and developments regarding the fire event to local residents.



3.6 Firefighting Strategy and Procedures

The ERT will assess whether they would be able to immediately extinguish a fire. If they cannot immediately extinguish, NWFRS would be contacted, and they would assume full control of the firefighting once in attendance.

If it was decided that the onsite ERT could extinguish the fire, there are various firefighting techniques that could be utilised:

- Using mobile plant to spread the burning material into the quarantine area with a depth of no more than 500mm to allow for damping down and isolation. Plant available on site to do this is:
 - 2 x L120 loading shovels and buckets;
 - 1 x Liebherr/Volvo excavator (duck); and
 - 1 x telehandler

All heavy mobile plant used to move material around the site is suitable for the task and benefits from enclosed cabs. All personnel are suitably trained and qualified to operate the mobile plant.

- Damping down using the burning material using water supply provided by the onsite fire hydrants and fire hoses.
- The ERT have been trained to carry out or direct firefighting. Four members of the team are required to be on site at all times.

3.6.1 Additional Procedural Considerations

The following techniques will be considered in addition to extinguishing a fire using water:

- Reducing the amount of firewater run-off generated by using sprays and fogs rather than jets (this is the responsibility of the ERT); and
- Recycling firewater will occur if it is possible to reuse (this is the responsibility of the ERT).

Site operatives will work in conjunction with, and take instruction from, the ERT if they deem recycling firewater to be a possibility.

The following parameters will be considered when determining which firefighting options/strategy to implement in the event of a fire:

- The scale and nature of the environmental hazards on site and the activities that take place on it;
- The risks posed to people, the environment and property;
- The types of materials currently stored on site, in what form they are stored in, and the length of time needed to extinguish a fire involving them; and
- The availability of firewater containment facilities.

3.7 Water Supplies

The site's drainage system is illustrated on Drawing SPM-ARUP-01-ZZ-M2-CU-003101-12.

There are several supplies of water available for use in the event of a fire on site. All areas of the site have access to the following:



- A site wide water main with associated fire hydrants on site as illustrated on Drawing 298002-00. Hydrants are accessible and suitable for emergency use. All conform to BS 750;
- 2 x Onsite lagoons with a total capacity of 80,000m³; and
- Ability to import 25,000m³ of fresh water if required. This supply would be re-directed from paper production operations if supplementary water supply was required over and above the fire hydrants, lagoons and water tanks. It would be supplied via current infrastructure and is therefore suitable for use with NWFRS equipment.

Furthermore, each material storage area has access to additional supplies of water as detailed in Table H below.

Table H: Water Supplies

Area of Site	Water Supplies
Tissue Pulp Bales External Storage	2 x 1,475 m ³ water tanks. 1 x 8,000 m ³ water tank.
Tissue Bale Handling Building	2 x 1,500m ³ water tanks
OCC Pulp Bales Internal Storage	2 x 1,475 m ³ water tanks. 1 x 8,000 m ³ water tank.
Wood Recycling Facility	2 x 1,475 m ³ water tanks. 1 x 8,000 m ³ water tank.

The tanks are compatible with NWFRS equipment and are inspected daily by operational staff and maintained/serviced regularly by on site maintenance teams in conjunction with plant shutdowns and in line with the OEM manuals and best practice. The water stored in the tanks is the fresh water supply to site and is tested frequently to ensure suitable quality. The tanks supply the fire hydrants and deluge systems across site and are designed to ensure easy access in the event of an emergency.

It is anticipated that the supply of water on site can meet the estimate provided in NRW's FPMP guidance.

3.8 Managing Water Run-off

Any firewater used to manage a fire will be contained on site via the primary and secondary means included in Table I below.

Table I: Water Supplies

Area of Site	Primary Containment	Secondary Containment
Tissue Pulp Bales External Storage	N/A	Surface Water Drainage System
Tissue Bale Handling Building	329.4m ³ contained within the building via speed bumps at building entrances and exits. No drains within the building.	Surface Water Drainage System
OCC Pulp Bales Internal Storage	830.55m ³ contained within the building via speed bumps at building entrances and exits. No drains within the building.	Surface Water Drainage System
Wood Recycling Facility	N/A	Surface Water Drainage System



There are two types of shut off valve on the surface water drainage system that will prevent firewater from entering the site pond and lagoon. Their locations are illustrated on Drawing 298002-00.

- Automatic Closure Device (ACD) within the oil separators: the ACD will close the separator off automatically when the maximum capacity of light liquid/oil is reached.
- Penstock valves: the penstock valves will be closed manually upon activation of the fire alarm system. The ERT will coordinate the closure and it will be carried out by site operatives trained to do so. At least 4 members of the ERT are present on site 24/7 therefore the closure of the penstock valves can be carried out immediately upon activation of the fire alarm system.

Once the shut off valves are activated, firewater will be contained within the surface water drainage system and on the concrete hardstanding areas of the site via kerbing. From here it can be pumped using the onsite diesel pump to the overspill bund or to a contract vacuum tanker for disposal within the effluent treatment plant. Any firewater contained within the buildings will also be pumped away via this method.

3.9 During and After an Incident

Techniques used to minimise fire spread within the site during an incident are included in Section 3.6 above.

After a fire event, the following procedure will be implemented depending on the severity of the fire:

- A small and containable fire that can be safely dealt with in-house using suitably trained staff and firefighting equipment located on site: The fire will be recorded in the site diary, including the causes of the fire and methods used to manage the fire. An assessment will be carried out to determine whether further mitigation measures could have prevented the fire. Any outcomes to be implemented onsite will be incorporated within this FPMP and the site's EMS as required.
- A larger fire that requires the presence of NWFRS: If the site operatives have been told to evacuate or cease operations by NWFRS, the site staff will wait until told safe to re-enter site and resume operations. All incoming material will be paused or diverted to alternative facilities. Any closure of the site will be followed by informing customers and the regulatory authorities. The fire will be recorded in the Daily Site Log and will detail the causes of the fire and methods used to manage the fire. An assessment will be carried out to determine whether further mitigation measures could have prevented the fire. Any outcomes to be implemented onsite will be incorporated within this FPMP and the site's EMS as required.

3.9.1 Fire Damaged Material

A visual assessment will be carried out by the site manager to determine whether the material can remain on site. Wherever possible, unburnt materials will be separated from fire damaged piles. It is likely that waste paper will be removed from site to a suitably permitted facility. Burnt wood waste from the WRF could be fed into the boiler.

3.9.2 Clearing and Decontaminating the Site and Steps to Becoming Operational Again

Site Management will determine what decontamination and cleaning measures will be required to be carried out proportionately to the impact caused by the fire. Measures to be implemented include (but are not limited to):

- Clean the quarantine area(s) ensuring all unburnt and burnt material is removed;

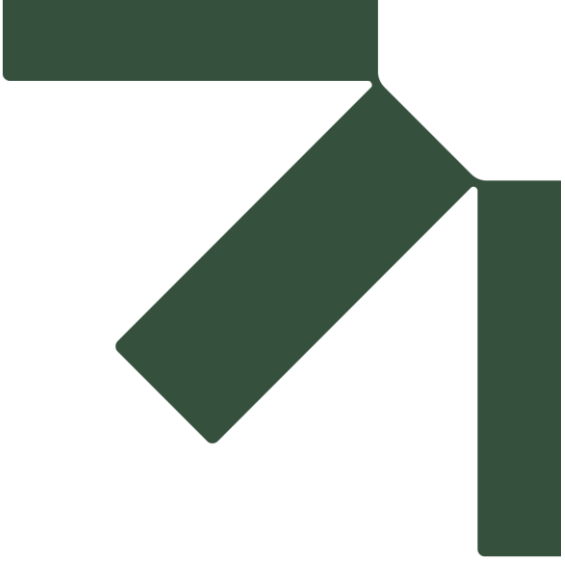


- Hose down affected areas;
- Sweep/brush up any loose burnt material or contaminated firewater ready for removal from site; and
- Assess any damage to site infrastructure as detailed below.

After a significant incident, an assessment will be undertaken by a suitably qualified individual. Technically competent managers and/or engineers and/or the insurance company will assess the degree of damage caused by a fire and the residual risk from fire damaged material, emissions or equipment. Burnt material will be kept on site for a short period of time if required for a subsequent internal investigation. Following this, the material will be dealt with as described in Section 3.9.1.

The period of time taken to restore the site or affected part of the site to operational status will be determined by the nature and extent of the fire. If the affected area does not impact the rest of the site's operation, operations will re-start as and when appropriate.





Appendix A Thermal Radiation Calculations

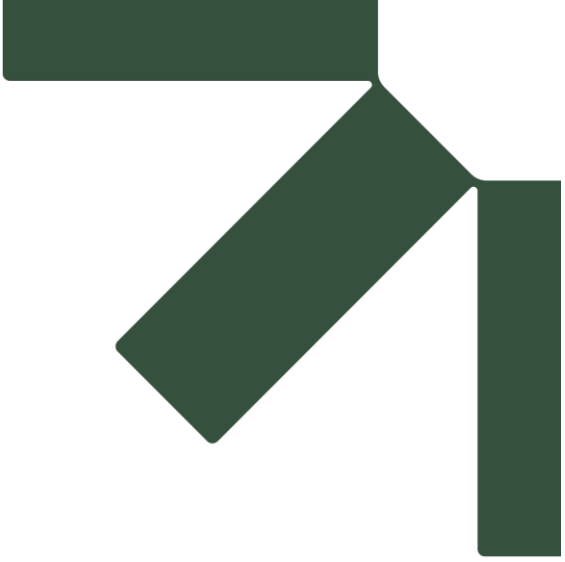
Fire Prevention & Mitigation Plan

Shotton Mill Permit Variation Application

Shotton Mill Limited

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Appendix B Example Maintenance Schedule

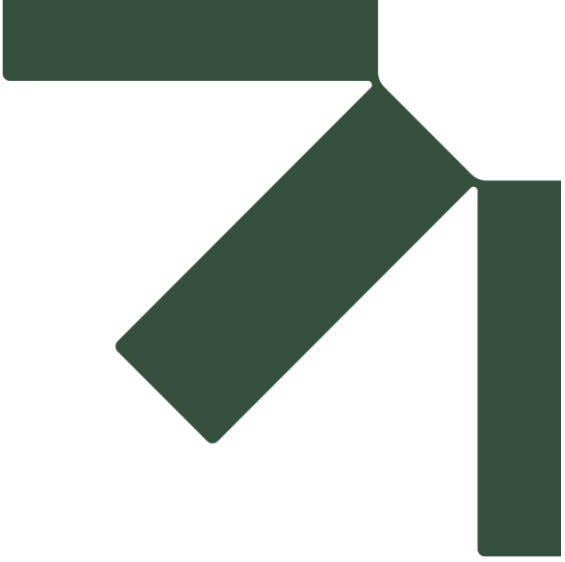
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Appendix C Daily Plant Checklist

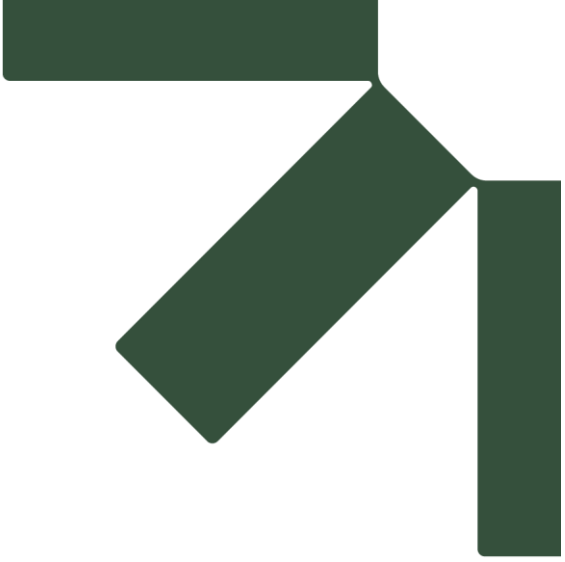
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Appendix D Hot Works Permit

Fire Prevention & Mitigation Plan

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Drawings

Fire Prevention & Mitigation Plan

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