FIRE PREVENTION PLAN

Rev.	Date	Description	Issuer	Reviewer	Approver
00	2023.02.01	First issue	SIBB	EDRM	PEJO

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Site Details:

Site name:	Newport Energy from Waste Plant
Site address:	Tom Lewis Way, Alexandra Dock, Newport, Wales, NP20 2WF
Operator name:	SEC on behalf of CoGen UK

Copy to/Prepared for:

All Staff	
EPC	Scandinavian Energy Contractor A/S Gydevang 39-41 | DK-3450 Allerød | Denmark
EA (Environmental Agency)	
Health and Safety Advisors	
Fire and other First responders	

Emergency Contact List:

Fire Service (in the event of a major fire)	999 or 112
Environment Agency Hotline (24-hour service)	0800 80 70 60
Natural Resources Wales Hotline (24-hour service)	0300 065 3000
Local Businesses (with associated directions)	To be addressed
Sewage Service – Newport Water Emergency Number (24-hour service)	To be addressed
Newport energy from waste plant	Site and emergency number to be included once the facility is operational.

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1 Introduction

1.1 General

This Fire Safety Strategy, Fire Prevention Plan is issued for the development of Newport energy from waste plant. The Newport EfW plant is located in Alexandra Docks, Tom Lewis way, Newport, Wales.

1.2 Purpose

The purpose of this fire prevention plan is to set out the fire prevention measures and procedures that are put in place for the plant.

The fire prevention plan is a standalone document and forms part of the Plant management system providing easy reference for plant management and staff.

All staff and contractors working on site must understand the contents of the fire prevention plan so that they know what they must do:

- To prevent a fire happening
- During a fire if one breaks out

With the overall objectives of the fire prevention plan being to:

- Minimise the likelihood of a fire happening
- Aim for a fire to be extinguished within 4 hours
- Minimise the spread of fire within the site and to neighboring sites

1.3 Plant description

The Newport energy from waste plant is a single line waste to energy Power Plant, which at full load, generates approximately 20 MW electrical power to the grid. The fuel for the Power Plant will be non-hazardous waste originating from Municipal, Commercial and Industrial Waste (as each is defined in section 75 of the Environmental Protection Act 1990). The Power Plant infeed fuel requirement at full load is circa 28.8 tonnes per hour.

The Power Plant is designed to provide an enclosed process, from delivery, processing and storage of the feedstock, steam production in the boiler to the steam turbine generator set and finally electrical distribution. Baled RDF storage (Feedstock Transit Area) is planned for use during “long” weekends only.

Fuel is delivered to the Waste Fuel Unloading Area (Feedstock receiving area) by a single ISO accredited fuel supplier and unloaded directly into the reception/storage bunker by truck. Alternatively, the Fuel is delivered as baled RDF and temporarily stacked in the open Feedstock Transit Area. From the Transit Area, the bales are then transferred into the reception/storage bunker by telehandler.

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From the reception/storage bunker the Fuel will be transferred by two sets of cranes to the hopper of the boiler for combustion.

Combustion gas provides the heat to the boiler which produces steam for the steam-turbine-generator set producing electricity.

2 Types of combustible materials

The fuel utilized will be Refuse-derived-fuel (RDF), unsorted municipal solid waste (MSW) and commercial and industrial (C&I) waste of a similar nature to household waste for thermal processing.

Plant facilities shall be capable of receiving and processing 100% of unprocessed and/or unsorted waste streams. EWC codes for materials will be as per the Environmental Permit.

Please refer to appendix 1, for applicable feed stock specification.
Please refer to appendix 2, for EWC Codes for permitted waste types.

The wastes may include the following components which are defined as combustible materials in the FPP Guidance:

- Paper and cardboard,
- Plastics.
- Rags and textiles,
- Scrap metals,
- Mixed waste,
- Rubber; and
- Wood

2.1 Waste Capacity

For day-to-day operation the Site will be designed to have a 2-day and 3 hours internal waste storage capacity within the bunker, which equates to approximately 5016 m3 at design density of 300 kg/m3.

The baled RDF storage (Feedstock Transit Area) is planned for use during “long” weekends only. The baled storage capacity is approximate 2 days and 1 hour, which equates to approximately 2250 m3 at design density of 634 kg/m3.

The facility will also generate ash residues (IBA) which will be discharged from the end of the combustion grate directly into an ash quench bath and will therefore have a relatively high moisture content. The IBA ash is not considered to be a combustible waste and therefore is not considered within this FPP.

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2.2 Persistent organic pollutants

There are no persistent organic pollutants (POP) authorized for use of treatment at the facility. Please refer to the list of wastes in the Environmental Permit.

2.3 Other combustible materials

Subject	Type/description	Purpose
Fuel oil	The fuel oil shall comply with Industrial Gas Oil in accordance with BS2869-2010 + A1:2011, Class A2 or D, however, with max. sulphur content 0.1 %w and flash point min. 56oC. Otherwise with selected properties below as per BS2869: • Viscosity 1.5 - 5.0 cSt @40oC; and • CFPP temp. -12/-4oC (winter/summer).	• Fuel oil Fuel oil used for boiler start-up and support burners to maintain T2s requirement. • For emergency diesel generator.
Fuel oil	Commercial diesel oil	For vehicles on site such as telehandler or front loader.
Powered Activated Carbon (PAC)	Pulverised activated carbon is small activated carbon particles, with a size that is predominantly less than 0.075mm, produced by milling or pulverising activated carbon	In flue gas cleaning processes, powdered activated carbon is used for the removal of dioxins/furans and heavy metals from Energy Recovery plants.

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3 Using this fire prevention plan

3.1 Where the plan is kept and how staff know to use it

A copy of the Fire Prevention Plan will be in the Facility manager's office and in the operation room.

3.2 Testing the plan and staff training

All staff will receive training on the selection and use of fire extinguishers, fire safety, shut down procedures and site evacuation. Staff will be trained to identify fires and fire hazards and to contact emergency services when appropriate.

Training will ensure that all operational staff are aware of relevant procedures relating to normal and abnormal operations and emergencies scenarios.

There will always be at least one trained fire marshal working on Site at any one time.
All staff and contractors working on Site will be made aware of the contents of the FPP and the procedures that are in place in the event of a fire on Site.

The operation management of the facility will conduct refresher training, in addition to maintaining a copy of this FPP in the Facility manager's office, to ensure that all staff members' knowledge is current and up to date.

The management of the facility will test the FPP on an annual basis to ensure staff understanding.

Please refer to appendix 3, for procedures for Fire Risk Management and appendix 6, for procedures for Emergency Response and Preparedness.

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4 Activities on site

The main activity of the facility is to convert combustible waste to electricity to the grid. This can be described as the following sub-activities as

- Receiving and weighing the waste fuel.
- Unloading the waste fuel to waste bunker.
- Unloading the baled waste fuel to the open baled RDF storage.
- Mixing and feeding the grate by cranes.
- Operation of the hydraulic driven grate.
- Operation of the steam boilers.
- Operation of the steam turbine and generator.
- Operation of the Flue Gas Cleaning system.
- Feeding of product for the flue gas cleaning products such as lime, PAC and Urea.
- Conveying of bottom ash (slag) and boiler ash.
- Conveying of residues from the flue gas cleaning process.
- Loading of ash and residues to trucks
- Receiving and unloading of diesel oil needed for start-up and support oil burners and emergency diesel generator.

The overall operation and monitoring of the facility takes place from the control room by a distributed control system (DCS) which is a computerized control system for automatic operation for the process. The process is fully manned and fuel reception activities will be carried out under supervision.

Furthermore, there will maintenance work and replacement of equipment and sub-systems which involve activities such as welding, scaffolding and lifting by cranes.

More details regarding the sub-activities are stated below:

Activity/item	Machinery	Location	Description
Weighing of waste	Weigh bridge	At the gate of the facility	To weigh incoming waste fuel
Mix and feeding of waste fuel	2 cranes	Waste bunker	1st crane distribute, mix and feed 2nd crane. 2nd crane feed the waste hopper of the grate line. The cranes are operated from the control room.

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Thermal recovery of energy from waste	1 treatment line		Thermal recovery and energy generation
Flue gas treatment	1 treatment line		Flue gas treatment
Maintenance of facility	all		All activities regarding the maintenance of the facility over the expected lifetime of ca 25 years

Tabel 4-1: Site activities

4.1 Site plan

Please refer to the drawing attached showing the site plan.

4.2 Plan of sensitive receptors near the site.

Figure 4-1: Sensitive receptors illustrate the locations of receptors that have been identified as being potentially sensitive and could reasonably be affected by activities at the Site. These comprise relevant dwellings and environmental receptors.

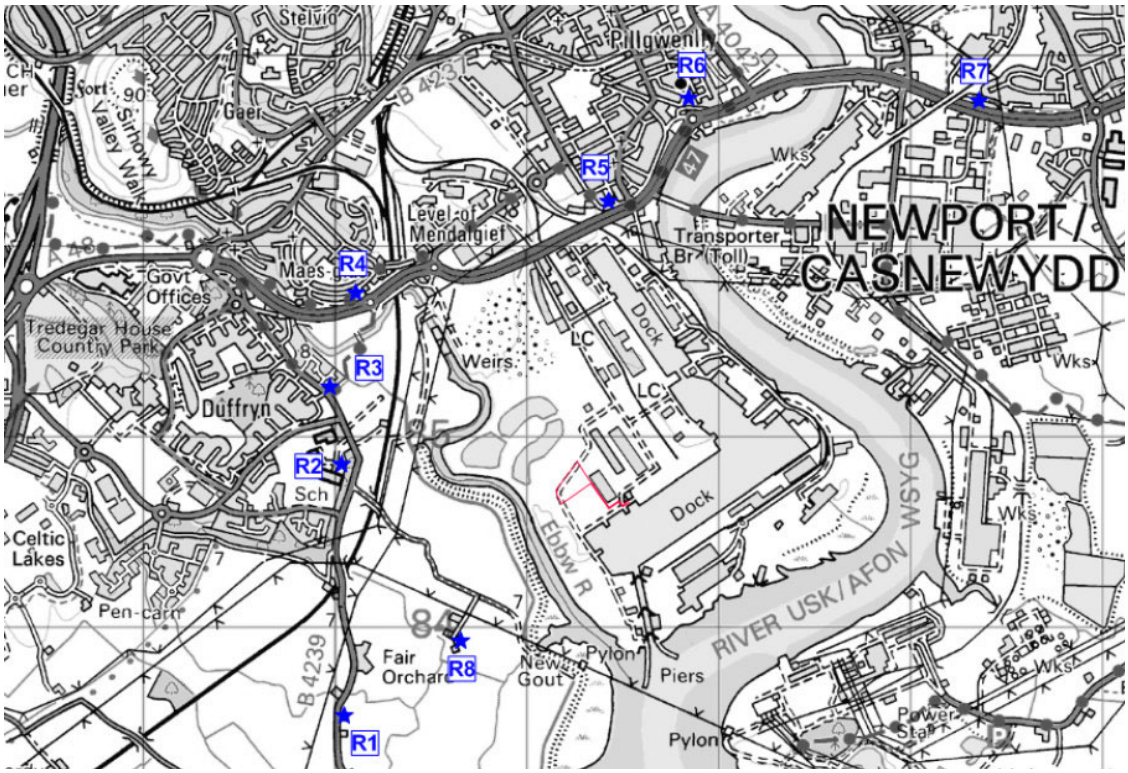

Figure 4-1: Sensitive receptors

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The sensitive receptors identified are summarized in Tabel 4-2: Identified receptors below.

No.:	Name:	NGR		Distance from Site Boundary (m)
		X	Y	
R1	Residential Property - Lighthouse Rd	330048	183533	1650
R2	Duffryn High School	330037	184853	1150
R3	Residential Property - Edney Way	329973	185261	1300
R4	Residential Property - Maesglas Crescent	330113	185752	1450
R5	Residential Property - Wolseley	331425	186235	1350
R6	Residential Property - St Michael	331843	186770	1985
R7	Residential Property - Spytty Lane	333355	186762	2830
R8	Residential Property - New Dairy Farm	330640	183949	935

Tabel 4-2: Identified receptors

4.3 Wind rose

Figure 4-2: Prominent wind directions, show the historical wind patterns for years 1973 – 2022 for weather stations in the vicinity, Bristol and Cardiff. The most prominent wind direction is from the west and south-west.

Winds from all other directions are relatively infrequent.

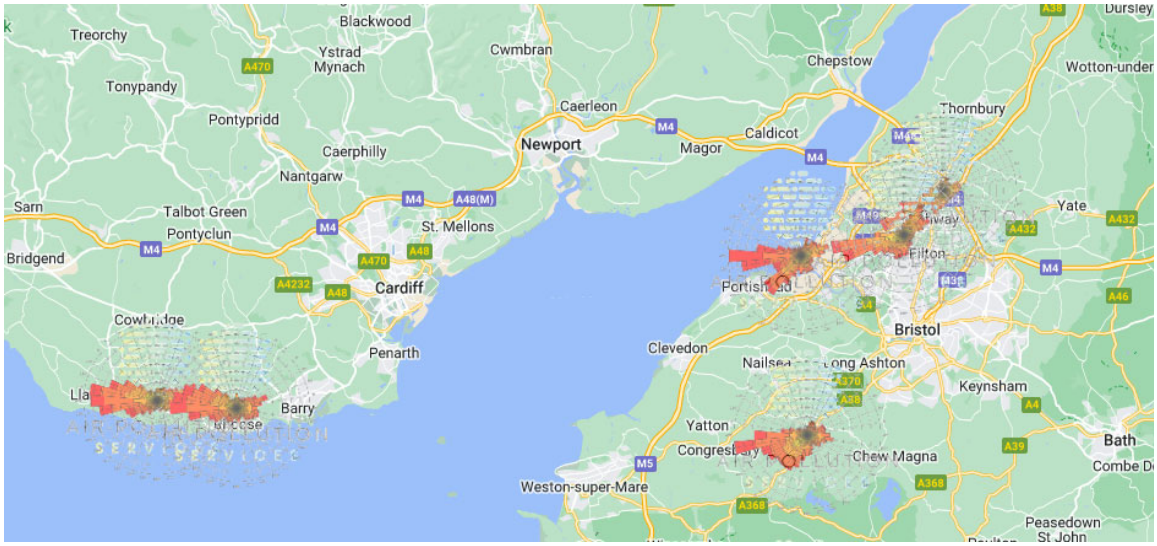

Figure 4-2: Prominent wind directions

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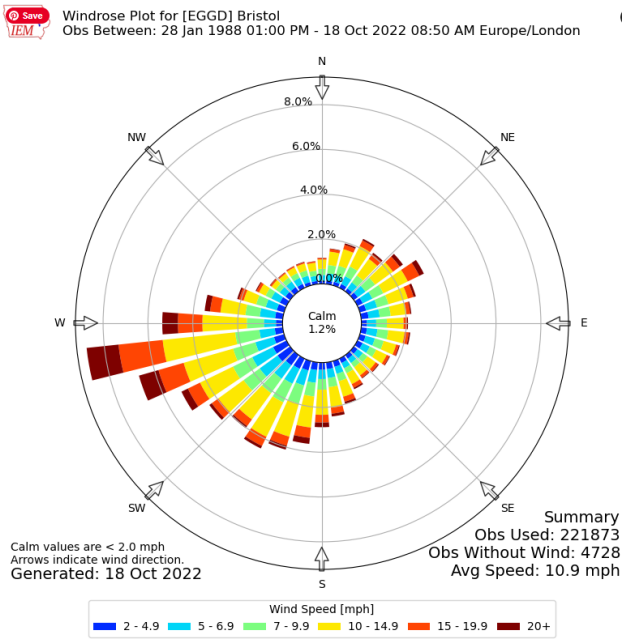

Figure 4-3: Windrose plot for Bristol

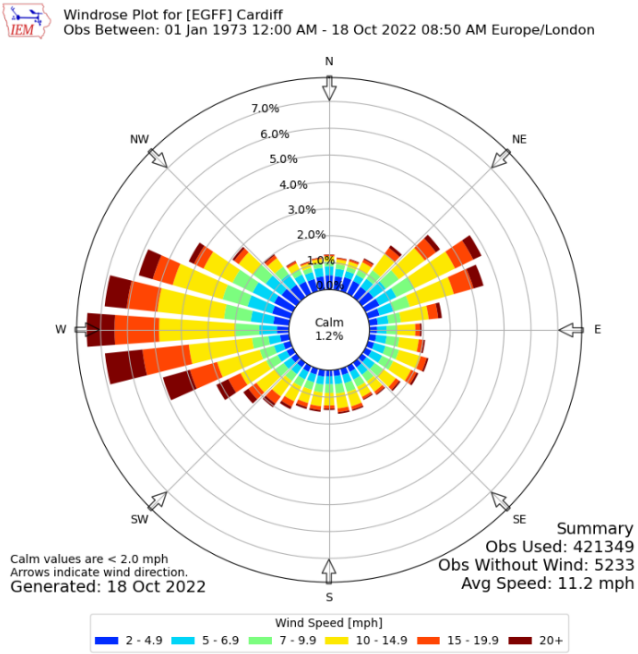

Figure 4-4: Windrose plot for Cardiff

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5 Plant and equipment

For overall layout of plant please refer drawing no. 1 General New EFW Plant.

For a detailed description of plant and equipment please refer to Appendix 8 - Technical Process Description.

For a separate description of overall drainage system refer Appendix 9 - Newport Drainage Description.

And for an outline of the implemented fire safety features for the power plant incorporating both life safety and property protection refer to Appendix 10 Fire safety strategy report.

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6 Common causes of fire

The Facility is located in a securely fenced area authorized for the receipt and treatment of waste materials.

There is a security gate that will be closed outside of normal operating hours.

The delivery period is:

0700- 1900 Monday to Saturday

The Site will be monitored 24/7 by CCTV. The CCTV will benefit from external lighting and will detect breaches of the boundary line by recording the external areas. The Tipping Hall and the open baled RDF storage will also be monitored by CCTV on a 24/7 basis from the control room.

Further an operator will carry out periodic inspections on site including the Tipping Hall and Baled RDF Storage ensuring that fires are detected rapidly, and the relevant authorities are contacted.

The location of CCTV and alarms for the Newport energy from waste plant is to be defined during detailed design. CCTV and alarms will be placed strategically all over site to secure the facility and to prevent arson and vandalism.

For information of the level to be performed for the New Port facility drawings for the Hooton project is attached. Please refer to drawing in appendix 4.

Common causes of fires and preventative measures implemented are listed in the following sections 6.1 to 6.18.

6.1 Arson and Vandalism

The Site will have several security measures in place to limit the likelihood of arson or vandalism including:

- Security fencing,
- Lockable site entrance gates,
- Security lighting,
- 24/7 CCTV in operation,
- 24/7 site operative's presence,
- Inspection and maintenance procedures for site security measures including daily perimeter checks,
- A visitor sign in system.

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The main waste bunker is located within a building with restricted access. In the event of a breach of security at the Site, the cause will be investigated, and appropriate mitigation measures implemented.

Records maintained will include inspections and maintenance of security fencing and gates, breaches of security, investigations and actions taken.

6.2 Self-Combustion

Effective stock management will limit the likelihood of the self-combustion of materials stored on Site.

Waste stored in the bunker will be continuously turned over and mixed. Waste stored in the RDF bale storage area is limited to storage for long weekends and storage time in general will be less than ten days.

In the waste bunker there will spark indicators, a water spray system and monitors.

Refer also chapter 7.4 Monitor and control temperature.

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6.3 Plant or Equipment Failure

The fire risk related to plant and equipment failure is assessed in detail in Appendix 11 Fire Risk assessment and is the basis for the overall plant design.

The risk assessment is limited to risks of a reasonable probability which includes (but is not limited to) fire from electrical malfunctions, self-heating in heaps of waste, malfunctions of mechanical equipment etc.

Automatic fire-fighting equipment is provided where found relevant according to the fire risk assessment. In addition, manual fire-fighting equipment is provided throughout the plant as according to the fire safety strategy. The manual fire-fighting equipment comprises outdoor fire hydrants, hose-reels and portable fire extinguishers (CO2 or dry powder)

Inspection and maintenance procedures will be in place before plant commissioning and start-up to ensure the plant and equipment is kept in good condition, reducing risk of mechanical or electrical equipment failures.

Induction training and refresher training will be provided to staff on the safe operation of plant and equipment relevant to their role, in accordance with the Environmental Management System (EMS).

Any mobile plant, when not in use, will be stored at least 6m from any storage areas of combustible materials.

In the event of a failure or suspected fault with an item of plant or piece of equipment, the operator will ensure that the equipment is shut off in a safe manner and not used until the equipment can be repaired or replaced.

Proper records of operator failure or failure of equipment will be kept on Site together with a summary of remedial action taken.

6.4 Discarded Smoking materials

Smoking will not be permitted within operational areas of the Site.

A designated smoking area will be identified that is at least 6m from the storage of combustible wastes and hazardous materials.

Staff and visitors are informed through site induction (signage where relevant)

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6.5 Hot works

Any hot works will be undertaken under a permit to work system and conducted in a cleared area of Site at least 6m from any combustible wastes. A site operative will perform a continuous fire watch during the hot work and for a minimum of 60 minutes after the work is completed.
No hot work will be undertaken by staff unless they are trained and have the relevant permit to work.

Please refer to appendix 7, 9000.RP.500.003 Hot Work.

6.6 Industrial heaters

No industrial heaters will be utilized on Site.

6.7 Hot Exhausts

Vehicles and mobile plant will be turned off when not in use.

Inspections will be carried out on all mobile plant and consideration will be given to the high-risk time for hot exhausts (one hour after switching off when dust can settle on hot surfaces). Site operatives will monitor vehicles at regular intervals for signs of fire caused by the settlement of dust and also at the end of a shift.

Flammable/combustible materials will be stored in the designated areas ensuring they are located away from frequent vehicle movements.

6.8 Open Burning

Open burning will not be permitted on Site.

6.9 Ignition sources

In general all ignition sources are identified in the design of the fire strategy via the fire risk assessment of the process and equipment and in general installed with active fire suppression.

Ref. appendix 10 and 11.

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Movable shredder:
By operation of the shredder in the waste fuel bunker sparks may occur. To prevent fire, spark indicator and fire suppression (water spray) is installed.

Fire water monitors are installed for firefighting in the bunker to assure the surface area in the bunker can be reached by water streams.

Maintenance work:
During maintenance work and outage of the plant welding work will be performed according to the safety procedures of the facility. External people working on the site will instructed in the safety procedures as a requirement to get access to the facility.

6.10 Batteries

To prevent delivery of off-specification to the feedstock bunker a waste acceptance procedure is complete which includes random inspection of the receiving waste. Off-spec feedstock will be back-loaded onto the trucks and removed from site.

Refer to appendix 1. Schedule 33, Feedstock specification

Small batteries which pass the inspection will be mixed with other waste in the waste bunker and feed to the incinerator.

Fire water monitors are installed for firefighting in the bunker to assure the surface area in the bunker can be reached by the water streams.

6.11 Batteries in ELV

Batteries in ELV shall not be received.

6.12 Leaks and spillages

The Site will operate in accordance with the Site's spill procedures to isolate the spill and initiate the clean up as soon as practicable.

Spill kits will be located at various locations across the Site.

All mobile plant and vehicles will be subject to planned preventative maintenance.

A site driver induction will be required prior to vehicles being allowed onto site. This will include ensuring that the vehicle is fit for purpose prior to entry. Failure to do so will potentially prevent future access to site.

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6.13 Build-up of loose combustible waste, dust and fluff

Cleaning maintenance procedures will be in place to ensure good housekeeping. This includes procedures for clean-up when maintenance work has been carried out as well as regular housekeeping for removing dust and waste material.

Please refer to attached procedure appendix 5, 9000.RP.500.001 Plant Housekeeping

6.14 Reaction between wastes

The Newport Energy from Waste Plant uses a Refuse Derived Fuel (RDF) fuel derived from residual waste such as municipal waste, commercial and industrial waste stated in appendix 3 delivered under the EWC codes and in compliance with the Environmental Permit.

Only vehicles that are accompanied by the correct documentation will be accepted onto Site.

The facility will have a written procedure for visual inspection and approval of the incoming waste fuel.

The inspection will be done by qualified site operatives at the point of disposal into the bunker.

Waste fuel which does not meet the acceptance requirement stipulated in appendix 3 will be rejected.

6.15 Waste acceptance and deposited hot loads

Only waste fuel stipulated in appendix 1 and 2 are accepted. All waste arriving on site will be checked in accordance with the waste acceptance procedure which includes strict waste acceptance and rejection procedures to ensure that non-conforming waste is rejected.

No burning, reactive/reacting or visibly hot (producing steam or heat) loads will be accepted on Site.

All waste will be visually inspected upon arrival at the tipping hall, therefore minimizing prohibited wastes and the acceptance of hot loads.

The pre-acceptance, acceptance and rejection procedures will be contained within the management system.

Spillages and leakages of fuels and oils will be handled in accordance with attached procedure appendix 6, 9000.RP.500.005 Emergency Response and Preparedness

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6.16 Hot and dry weather

During normal operation the fuel waste will unload to a closed and ventilated waste fuel bunker. The only openings in the building are gates for trucks to enter for unloading of the waste fuel. There will be no direct sunlight on the waste fuel.

The facility also includes an open fuel storage where fuel is stored in bales. The storage will only be used for long weekends and storage time is short < 10 days.

6.17 Electrical faults including damaged or exposed electrical cables

Refer 6.13 Plant or Equipment Failure.

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7 Prevent self-combustion

General maximum storage times are given in guideline according to below table from Natural Resources Wales, Fire Prevention & Mitigation Plan Guidance – Waste Management, Rev. 2.0.

Table 1: maximum storage times

Combustible Waste Type	Maximum Storage Time on Site
Non-shredded or similarly treated wastes (that is wastes whose particle size has not been reduced)	6 Months
Baled and compacted wastes (if kept for longer periods you should consider breaking the bales & re-bale to help reduce risk) **Please note that if you intend to do this, you must include this information in your FPMP.**	6 Months
Shredded and similarly treated wastes (that is wastes whose particle size has been reduced)	3 Months
Combustible fines/dusts & very small particle size wastes	1 Month

Bales will be delivered to site when requested by the operator (for long weekends), as such no bales will be required during periods of normal operation.

Average storage time during normal operation in bunker and in open baled storage of the Newport energy from waste plant is designed to be between 2 – 10 days thus avoiding the need for temperature monitoring.

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7.1 Manage storage time

For day-to-day operation the Site is designed to have a 2-day and 3 hours internal waste storage capacity within the bunker, which equates to approximately 5016 m3 at design density of 300 kg/m3 for a total of 1.504 tonnes.

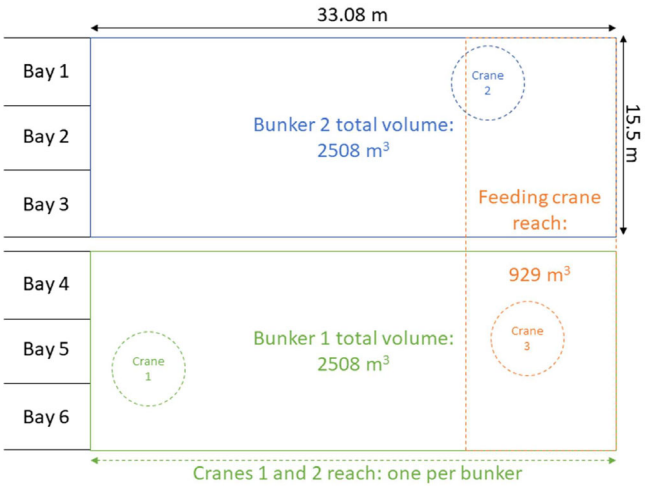

Figure 7-1: Top view from indoors bunker layout

Although the physical separation consists of two bunkers, there are three areas clearly defined by crane operation: two dedicated for fuel storage and mixing, and (1+1) one dedicated to storage for feeding the boiler. Figures 2 and 3 illustrate how cranes 1 and 2 unload and mix the fuel, while crane 3 and 4 are in charge of feeding the hopper.

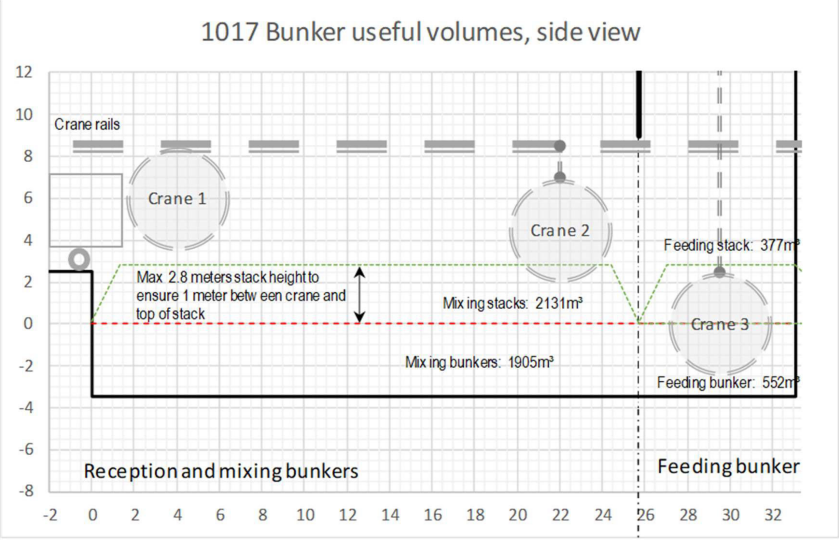

Figure 7-2: Indoors feedstock bunker sideview

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Vehicle drivers will deposit waste either on the floor for inspection or into the waste bunker.

Stock rotation and mixing within the waste bunker will be carried out continuously when receiving the waste and during operation of the plant to ensure the regular and well distributed turnover of waste. Turning the waste enables it to be mixed therefore producing a more homogenous fuel which is more efficient in the energy recovery process. Stock rotation aims to minimize decomposition of the waste as this leads to the undesirable reduction in fuel value for energy recovery and the risk of odours.

Therefore, although it is not possible to implement a 'first in, first out' policy, waste will remain within the bunker for normally 2 days, maximum of 3 days.

The crane operation will be managed by crane operator 24/7 who has the visual overview of the bunker and the feed chute.

The baled RDF storage (Feedstock Transit Area) is planned for use during "long" weekends only. The baled storage capacity is approximate 2 days and 1 hour, which equates to approximately 2250 m3 at design density of 634 kg/m3 for a total of 1427 ts.

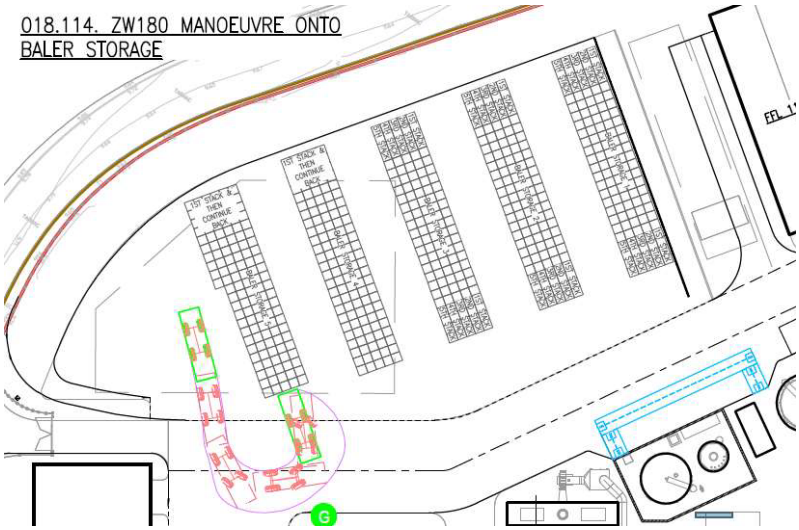

Figure 7-3: Open baled RDF storage

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The Feedstock Transit Area is only planned to be active 2-3 times a year.

The Bale Storage Area will be managed implementing a 'first in, first out' policy; waste will remain in the storage area for a maximum of 10 days.

Before a planned shutdown the facility will empty the waste fuel so no significant waste fuel remains in the bunker or in the Feedstock Transit Area during the outage period.

7.2 Method used to record and manage the storage of all waste on site.

All waste arriving on site will be checked in accordance with the waste acceptance procedure which includes strict waste acceptance and rejection procedures to ensure that non-conforming waste is rejected.

All waste will be visually inspected upon arrival at the tipping hall, therefore minimizing prohibited wastes.

The pre-acceptance, acceptance and rejection procedures will be contained within the management system.

7.3 Stock rotation policy

Stock rotation and mixing within the waste bunker will be carried out continuously when receiving the waste and during operation of the plant to ensure the regular and well distributed turnover of waste. Turning the waste enables it to be mixed therefore producing a more homogenous fuel which is more efficient in the Energy Recovery process. Stock rotation aims to minimise decomposition of the waste as this leads to the undesirable reduction in fuel value for Energy Recovery and the risk of odours.

7.4 Monitor and control temperature

Waste will be constantly turned over and mixed to create a more homogenous fuel ready for Energy recovery. Turning the waste also prevents the formation of hotspots by releasing any heat that has accumulated. In addition to dissipating built up heat, turning also increases the evaporation of water which is a known heat absorbing process.

In conjunction with the waste turning process, monitoring of hotspots within the waste bunker will be managed by Thermal Camaras and Flame Detectors. The temperature of the waste within the bunker will be monitored on a constant basis.

Hot spots or flames will start an acoustic alarms and manual operated water cannons will be started, operated from the control room. The water cannons are designed to cover the total bunker and waste surface.

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7.5 Waste bale storage

Refer 7.1

7.6 Waste ELV bales

Waste ELV shall not be received.

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8 Manage waste piles

The facility will receive waste fuel according to appendix 3. The fuel utilized will be Refuse-derived-fuel (RDF), unsorted municipal solid waste (MSW) and commercial and industrial (C&I) waste of a similar nature to household waste.

The maximum size of the waste fuel item is stated below table:

Feedstock size	mm	Height x Width x Length: max. 0.3 x 0.3 x 1.0 m Diameter: max. Ø 0.3m Long objects like wires and rods, pipes, profiles, square lumber etc. length max. 1.0m

Burnt or burning waste will be kept within the bunker to ensure coverage by the comprehensive automated suppression system. Waste that typically would be moved to a quarantine area, as stated in the FPP guidance, will remain in the waste bunker and be placed in the hopper for thermal processing as opposed to being removed from Site.

For rejected Feedstock please refer Section 11 Quarantine area.

8.1 Storing waste materials in their largest form

The waste will be received at the plant and transported directly to the tipping hall and unloaded into the bunker or arrive pre-baled and stored in the Feedstock Transit Area.

The facility will be equipped with one common mobile shredder to treat any oversize feedstock and to open the bales before unloading into the bunker.

8.2 Maximum pile size

The waste fuel will be stored inside in a dedicated bunker which is sized to meet the facility's energy recovery capacity. The fuel will be rotated and mixed to get a uniform heating value and stable operation. Please refer to section 7.1.

The Feedstock Transit Area follows the Residual Waste Fire Prevention Plan (FPP) guidelines, which determines that the maximum stacking volume should be maximum 450 m3 and that piles needs to be separated by at least 6 meters. Maximum height is limited to two bales in height <2.5 m << 4 m as pr guideline.

Figure 7-3 shows the location and distribution of baled waste in the Feedstock Storage Area. By stacking each row or bay of bales with two bales in height, it is possible to obtain 5 piles of bales, with a volume of 450 m3 each.

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9 Where maximum pile sizes do not apply

9.1 Whole ELVs

The facility does not receive or store ELVs.

9.2 Waste store in containers

Waste will not be stored in containers but in dedicated waste fuel bunker or in the Open Fuel Storage.

9.3 Compost production

The facility does not include any compost activities.

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10 Prevention of fire spread

The plant is segregated into separate fire zones in order to optimize detection, isolation and firefighting as well as limitation of consequences in the event of a fire.

Fire zones are defined based on a number of considerations, involving e.g.,

- Type and level of risk within various areas
- Material flows and process steps within the plant
- Practical fire detection options
- Practical separation/isolation possibilities considering site & plant layout
- Human risk and value/consequences for each zone
- Type of fire and fire-fighting options as well as access

10.1 Fire zones

With a few exceptions, the fire zones follow the general plant area division shown the Plant Layout and consists of the following general fire zones:

1. Substation
2. Electrical annex building
3. Step-up transformer area
4. Emergency generator area
5. Fuel Handling
6. Fuel and Urea tank area
7. Ash & residues storage area
8. Water treatment area
9. Effluent area
10. Boiler building
11. Slag storage building
12. Air cooled condenser area
13. Turbine building
14. Flue gas treatment area
15. Weighbridge areas
16. Welfare building
17. Raw water and Fire equipment area
18. Feedstock Transit Area

Each fire zone is separated from others to prevent a fire from spreading uncontrollably before firefighting can be employed in accordance with relevant standards.

Additionally process related detection and precautions are taken to avoid a fire spreading via material flow within the plant.

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Area related fire-fighting capability is designed in accordance with relevant standards (ref. Appendix 11 Fire-fighting Strategy plan) to cope with fires within each area and the plant-based fire-fighting capacity is designed to cope with the most demanding fire scenario within one area.

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11 Quarantine area

Any rejected Feedstock will be placed in a designated quarantine area. Rejected feedstock will be removed as soon as possible to prevent any risk of fire.

Feedstock may also be rejected by back-loading to the tipping hall by manual handling (e.g., front-loader), temporarily closing 1-2 unloading bays. Rejected Feedstock shall be moved from the tipping hall to the area of quarantine.

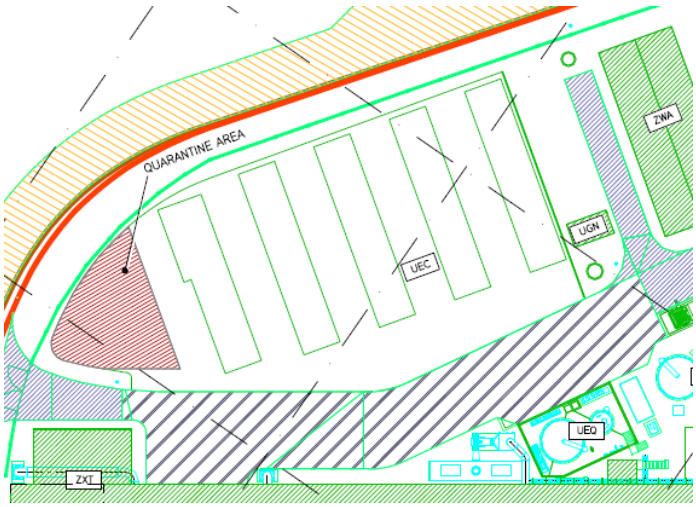
Burnt or burning waste will be kept within the bunker to ensure coverage by the comprehensive automated suppression system.

When inspecting any Feedstock sent to the quarantine area, the facility management shall conduct such tests as are reasonably required to determine any hazards. Sampling and analysis of the Feedstock may be completed to identify its specifications, characteristics, and hazards.

Rejected Feedstock placed in the quarantine area shall be dealt with in accordance with the requirements of all applicable procedures of the facility.

11.1 Quarantine area location and size

The western-most part of the Open Fuel Storage has been designated for quarantine area. The quarantine area is indicated on the attached drawing, Site Plan Layout 1017.D2.001.101.



The Concrete slab is within a bunded and controlled site drainage area. The runoff from this area can be isolated, and the water retained until the issue is resolved. The retained waters can be tankered away or tested and pumped away subject to analysis and regulatory consent.

The quarantine area has separation distance of at least 6m around the quarantined waste.

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The quarantine area is designed to hold a volume of at least 225m3 (50% of 450 m3).

11.2 How to use the use the quarantine area

Procedures for use of the quarantine area will be included in the management procedure of the facility.

12 Detecting fires

12.1 Detection systems in use

The detection system designed to be installed is described in detail for the separate Plant and process areas in the attached Fire Strategy Report - 1017.M0.J01.001 Fire safety strategy report in chapter 5 Means of warning.

The fire detecting system will include the following systems located strategically:

Smoke, heat and flame detectors including temperature probes
CCTV visual flame detection systems
Spark detections.

12.2 Certification for the systems

The system chosen will be designed, installed, and maintained in accordance with a UKAS accredited third party certification scheme.

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13 Suppressing fires

13.1 Suppression system in use

The passive and active fire suppressing systems are described in depth in the attached Fire Strategy Report - 1017.M0.J01.001 Fire safety strategy report in chapter 15 Fire safety provisions (Statutory requirement and Insurer's requirement).

Automatic water-based fire suppression on Site will likely comprise of one or more of the following:

- Automatic, electric driven water cannons; the water cannon system will be able to deploy water across all areas of the waste bunker. Manual controls will also be installed and implemented if required.

- Automatic, pre-action, Sprinkler system.
  - The sprinkler system will be located high within the tipping hall to cover, the roof, tipping hall floor, tipping apron, push walls and back-feed chutes.
  - The sprinkler system will be a high temperature activation system.
  - Manual override controls will be provided to minimize reliability issues.

Manual fire suppression measures on Site will include, but are not limited to the following:

- Fire hose reels; and Portable fire extinguishers.
- Fire extinguishers will be provided at designated points throughout the Site.

13.2 Certification for the systems

The systems are designed and installed to meet British Standard BS12845.

The system chosen will be designed, installed, and maintained in accordance with a UKAS accredited third party certification scheme.

Evidence will be provided during project execution.

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14 Firefighting techniques

14.1 Active firefighting

The operation and maintenance contractor will have procedures in place prior to commercial operation of the plant.

15 Water supplies

The firefighting water supply for the Newport energy from waste plant comprises a Fire Water Tank (supplied via a potable water connection), with distribution via a main electrical fire pump; the standby diesel driven fire pumps; and the main jockey pump.

As per the requirements of National Fire Protection Association (**NFPA**) 850, firewater supply (from the Fire Water Tank) for the permanent fire protection system is based on a 2-hour supply for either

- the largest fixed fire suppression system demand or
- any fixed fire suppression system demands that could reasonably be expected to operate simultaneously during a single event and
- The hydrant/hose stream demand of not less than 500 gallon/minute (1,890 l/min or 113.4 m3/h).

As per the above design principle, the Fire Tank capacity is based on the water requirement for the Fuel Hall, Boiler Feed area deluge and water spray systems and the hose stream demand.

Further EA guidance requires a water supply capable of providing 2,000L per minute, per 300m3 of fuel in the largest stockpile, for a period of 3 hours. This equates to 540m3.

The total minimum water supply volume within the Fire Water Tank dedicated for firefighting purposes is 1100 m3 being 2-hour x (113.4 m3/hour for hydrants plus 410 m3/hour for the largest fire suppression system inside Boiler Building).

The Fire Water Tank will be installed with a separate filling connection providing the option for an emergency filling connection (hose connection). In doing so, the attending Fire Service may rapidly replenish the water storage tank from e.g. a public fire main or tanker truck to maintain operation of the firefighting systems during a fire incident and extend the duration for which firewater can be supplied to fire-fighting systems via the Fire/Service Water Tank. Additionally, the looped Fire Ring Main provides two access points – Fire Department Connection – allowing additional emergency fire water to be pumped into the system.

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The Fire Water Tank will supply firefighting water to the looped Fire Ring Main, from which water is supplied to the water cannons, fire hoses, hydrants, sprinkler systems and fire tender hoses. The looped Fire Ring Main is pressurized from the containerized fire pump unit. To be able to achieve sufficient pressure for the various suppression system installed, the outlet pressure of the fire pumps is 10,3 bar. To be able to operate the outdoor hydrants the pressure will be reduced 7 bar (approximately) at the hydrants.

16 Managing fire water

16.1 Containing the run-off from water fire water

The Plant is designed to retain all fire water run-off. Activating the fire alarm will automatically isolate the sites drainage system for the discharge, shutting down the discharge pumpstation.

The handling of fire water runoff is described in depth in the attached Fire Strategy Report - 1017.M0.J01.001 Fire safety strategy report in chapter 12 Fire water run-off.

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17 During and after an incident

17.1 Dealing with issues during a fire

Newport energy from waste plant and the Operator and Maintenance Contractor will prepare an Emergency Response and Preparedness SMI, this will include who will be notified in the event of a fire before commencement of operations e.g. waste supplier, nearby residents and business.

We will instigate contact with the neighbors including the adjacent businesses to understand and liaise regarding any issues arising. This will be completed during commissioning.

17.2 Clearing and decontamination after a fire

Procedures for clearing and decontamination after a fire will be included in the management procedure of the facility.

Refer also chapter 16.

17.3 Making the site operational after a fire

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

Small fire:
A small and containable fire that can be dealt with in-house using suitably trained staff and firefighting equipment located on Site.

The fire will be recorded in the site logbook with the following details:

- Cause of the fire;
- Methods used to manage the fire;
- Disposal methods of any materials; and
- Clean up actions.

An assessment will also be completed to determine whether further mitigation measures could have prevented the fire. Any outcomes to be implemented onsite will be incorporated within this FPP and the Operation and Maintenance Procedures as required. All staff will be notified of the cause of the fire and any new mitigation measures implemented.

Large fire:
A larger fire that requires the presence of the Fire Service.

If the site operatives have been told to evacuate or cease operations by the Fire Service, the Site will wait until told it is safe to re-enter and resume operations. An assessment will be undertaken by the facilities management team with the assistance of any relevant insurance assessors, structural engineers, and fire specialists.

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Any damaged buildings will be made safe and any severely damaged equipment or building materials will be removed by a licensed scrap waste company. All building structures and equipment deemed to be safe will be cleaned as necessary.

Should damage be sufficient to prevent the Site from being able to treat and store waste, the Site will cease accepting waste and will divert to a suitably licensed facility. Depending on the extent of the fire and the levels of waste that will need to be diverted, the actual site will be determined at the time.

The Facility Manager will liaise with the EA to determine a plan-of-action to introduce waste treatment and storage operations back at the Site, and the timescales involved to achieve this.

The Site Management will determine what decontamination measures will be required to be carried out proportionately to the impact caused by the fire. The period 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.

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

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18 Document references

Refer to 1017.M0.J01.004 FPP – Fire Prevention Plan Appendices

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