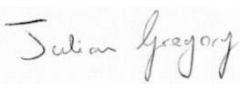
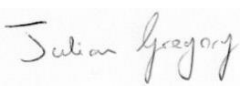


TEGFAN RECYCLING FIRE PREVENTION AND MITIGATION PLAN

Ynysgerwyn Depot, Aberdulais, Neath, SA10 8HN

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1. Site Details

Name of the applicant	Tegfan Waste
Activity address	Ynysgerwyn Depot, Aberdulais, Neath, SA10 8HN
National Grid Reference	SN789001
Document reference	Fire Prevention and Mitigation Plan

This Fire Prevention Plan has been prepared for Tegfan Waste's operations at Ynysgerwyn Depot, Aberdulais, Neath, SA10 8HN.

Tegfan Waste operates a Waste Management and Recycling facility, which includes:

- Tipping and sorting skips of mixed waste into waste streams for onward recovery / recycling / disposal;
- Storage of segregated wastes, pending onward recovery / recycling / disposal;
- The processing of inert soils and construction and demolition waste into topsoil and recycled aggregates;

1.2 At Risk Materials Stored at the Tegfan Recycling Facility

The following combustible materials could be stored at the site:

- paper or cardboard
- plastics
- wood and wood composites
- rags and textiles
- scrap metals
- plant material
- electrical cable

2. Fire prevention:

Specific fire risks and mitigation requirements have been considered in Table 1 below. The following good practice will be applied to the facility to ensure the risk of fire is minimised:

- No burning or naked flames will be allowed on site;
- Smoking ban on site, with a designated smoking point established outside the site boundary;
- Signage erected around the site enforcing the no smoking / no naked flames rule;
- Flammable materials will be stored as illustrated on the drawing in Appendix 1. Wastes will be stored as described in Section 2.3;
- Personnel will be given instruction on the contents of this plan;
- A copy of this plan will be maintained in the site office.

The following Fire Risks have been identified and assessed:

Mitigation within the following table is risk specific. For site specific mitigation please refer to Site Specific Fire Risk Reduction, below:

Table 1 – Fire Risks and Mitigation

Cause of Fire	Risk	Mitigation
Arson or vandalism	Persons unknown gaining access to the facility and deliberately or maliciously starting fires.	The site is securely fenced with a 3m high galvanised steel palisade fence. The entrance is controlled by a 3m high steel palisade gate. This fence is topped with anti-intruder spikes. The yard is covered by 6 CCTV cameras operated by a control centre. Motion detectors and an interactive alarm system have also been installed.
Self-Combustion (e.g. due to chemical oxidation)	Stockpiled materials reaching a temperature where they self-combust due to chemical oxidation or microbial action.	Oxidising materials are not knowingly accepted onto site. Potentially oxidizing materials will be removed from waste streams and quarantined. Organic materials will not be retained on site for more than 7 days (generally less) to ensure anaerobic decomposition does not occur, resulting in heating up and ignition. Organic materials will be contained in a 40yd RORO bin which can be easily moved away from other materials stored on site.

Cause of Fire	Risk	Mitigation
Storage of incompatible wastes.	Storage of flammable or oxidizing wastes.	Flammable or oxidizing wastes are not accepted on site. If wastes which are oxidizing or flammable are received on site and are identified prior to skips being tipped, the skip will be rejected and returned to the customer with a letter explaining why. If such wastes are not identified until the skip has been tipped, a risk assessment will be undertaken by the Competent Person as to the handling and storage of the wastes (based on the condition of the waste, its physical and chemical form and the container in which it is stored) and arrangements made for its removal from site to a suitable permitted facility. Costs for this may be recharged to the customer.
Plant or equipment failure.	Faults with plant and equipment resulting in overheating due to inadequate cooling of combustion engines, heat due to friction or electrical failure resulting in sparks being emitted.	Plant and equipment will be serviced in line with manufacturers recommendations. Daily inspections will be undertaken of all plant and equipment to be used within that shift. Faults will be reported and the machinery will not be used until these have been rectified. All faults will be reported to the Site Manager and will be recorded on the fault log. Faults will be assessed and if required the machinery will be removed from service until the fault is repaired.
Electrical faults	Electrical faults causing overheating of components or flames.	Plant and equipment will be serviced in line with manufacturers recommendations. Electrics on site have been inspected and certified for BS7671, by a qualified electrician. All electrical apparatus will be PAT tested annually. All electrical faults will be reported immediately and the piece of equipment will be isolated from the supply until

Cause of Fire	Risk	Mitigation
		repairs have been made and the equipment tested.
Naked lights / Open burning / Discarded smoking materials.	Ignition from naked lights. Ignition from discarded cigarettes and cigars.	No fires will be allowed on site. Smoking will only be allowed in designated areas, which will be designed to be remote from flammable materials.
Hot works (e.g. welding or cutting)	Uncontrolled release of sparks from welders, disc cutter and grinders.	Hot Works Permit procedure to be implemented. All works which could produce sparks will require a permit. In order for a permit to be put in place, the following conditions: - Works which produce sparks will not be allowed in areas where flammable materials are stored. - Guarding is put in place where required. - A Watch Person will be appointed to inspect for sparks and ensure all sparks are extinguished. - That suitable firefighting equipment is available prior to works commencing.
Neighbouring site activities.	Use of naked flames, cutting equipment, fires, etc on neighbouring sites.	There are no neighbouring sites. The B4242 lies to the north with agricultural grazing land to the south and west and a forestry block to the east. The fire risk from neighbouring activities is low.

2.2 Site Specific Fire Risk Reduction:

The following actions will be taken in addition to the risk specific actions outlined in Table 1.

Signs will be erected around the site stating 'No Smoking' and designated smoking areas will be established.

Fire extinguishers will be located within workshops, offices and canteens and within plant and vehicles.

Hot works permits will be used for all hot works, including grinding, cutting, welding, oxy / plasma cutting. These will take account of materials surrounding and will require a risk assessment of the activity.

2.3 Storage of Wastes:

Waste volumes will not exceed those specified within the Environmental Permit for the facility:

The maximum time each type of waste will be stored on site and how it will be managed.

The waste will be managed by sorting all the general waste into diverse types of recyclable waste leaving the only wastes which cannot be easily separated, to be bulked up for onward movement to a Materials Recovery Facility. Each waste type will be baled through the day and will leave no materials in the waste hall overnight therefore leaving the bays empty and all the segregated materials will be placed into the segregated skips outside. When there will be enough waste to complete a load i.e. cardboard and paper will be part loaded together before 30 days comes to an end and all the plastic will be part loaded to create one load will be moved from site before the 30 days maximum limit storage time. Glass and wood will be loaded into 40 cu. yd. container for bulking and will also be transported to treatment facilities before the end of 30 Days.

The maximum time each type of waste will be stored on site	
Waste Type	Length of storage (Days)
RDF	3-5 Days Maximum
Cardboard	14 Days Maximum
Paper	14 Days Maximum
Aluminium	1 Bale every 30 Days Maximum
Transparent Plastic Film	30 Days Maximum
Clear HDPE Plastic	30 Days Maximum
Coloured HDPE Plastic	30 Days Maximum
Clear PET Plastic	30 Days Maximum
Mixed Glass	30 Days Maximum
Wood Waste	30 Days Maximum

Calculation Formula = (Height x width x depth + 10% = Xm3)

We have allowed for an extra 10% for the extra waste to ensure we allow for the maximum amount of volume.

The Maximum Volume of each Waste Stockpile in m3				
Waste Type	Height	Width	Depth	Volume (m3)
General Waste Reception Bay	2.5m	11.6m	6.7m	213.7m3
Cardboard indoor bay	2.9m	3m	3.4m	32.5m3
Paper indoor bay	2.9m	3m	3.4m	32.5m3
Clear HDPE plastic indoor bay	2.9m	3m	3.4m	32.5m3
Aluminium Cans indoor bay	2.9m	3m	3.4m	32.5m3
Food waste indoor bay	2.9m	3m	3.4m	32.5m3
Coloured HDPE indoor bay	2.9m	3m	3.4m	32.5m3
Clear PET bottle indoor bay	2.9m	3m	3.4m	32.5m3
Mixed Glass Storage bay	2.4m	5.2m	5.5m	75.5m3
Wood Waste Storage bay	2.4m	5.2m	5.5m	75.5m3

3. Fire Detection:

Huw Jones has been appointed as Fire Marshall for the facility. Huw will be responsible for ensuring all of the actions set out in this plan are enforced.

Combustible (non-inert) waste which is retained on site for more than 48hrs will be inspected for signs of combustion. Stockpiles of materials organic materials (cardboard, paper, wood chip, green waste) have potential for self-heating due to anaerobic conditions and will ignite in stockpiles when temperatures reach approximately 125°C. Indicators of self-heating within stockpiles is the generation of carbon monoxide, followed by temperature increase.



Stockpiles will be monitored for evidence of self-heating. This will involve a visual inspection for evidence of combustion i.e. odours, steam / smoke. Temperature probes will be inserted into the centre and sides of stockpiles of loose materials with the reading compared against ambient temperatures.

Carbon monoxide alarms will be installed within the sorting building (these would not be effective in open air conditions)

2m Manual Temperature Probe.

If fire occurs, it is the responsibility of the person discovering the fire to raise the alarm. This will initially be done by shouting 'FIRE'.

This will be followed up by activating the fire alarm on the wall of the Skip Waste Sorting Building of the Workshop. They will notify all other people in the area and then notify the Fire Marshal / Site Manager.



A fire-watch is undertaken at the end of each shift and the results of this are recorded, actions taken and concerns (when dust from processing operations can settle onto hot exhausts and engine parts) are recorded.

During hours when the site is not staffed (outside operational hours), the site is monitored by 6 CCTV Cameras. 24hour contact details for Huw Jones – Fire Marshall and the Deputy Fire Marshall will be retained on site and security personnel will contact the Fire Marshall or Deputy and the Emergency Services on discovery of a fire.

The fire brigade will then be called by dialling 999 and requesting fire. The fire service will require the address of the site:

**Tegfan Recycling
Yntsgerwyn Depot
Aberdulais,
SA10 8HN**

4. Containing and Suppressing Fires

We have consulted South Wales Fire and Rescue Service on how they would fight a fire within a waste management facility, particularly one where waste wood is stored.

The key control for limiting the size, duration and impact of a fire at the site will be minimising the volume of combustible material stored at any one place within the facility.

Fuels will only be stored in the main bunded fuel area on the eastern boundary of the site.

Gas cylinders will only be stored in the workshop. Only gas cylinders required for the operation of the site and a reasonable number of spares will be stored.

On discovery of a fire, the Fire Service and the MoD will be notified immediately. If a member of staff feels confident to attempt to put out the fire i.e. the fire has not taken hold, they may do so, using one of the fire extinguishers available on site.

Personnel will move to the muster point adjacent to the site entrance (please refer to the Fire Management Plan Drawing in Appendix 1) The Fire Marshal will take a register to ensure everyone has evacuated the site.

Once the Fire and Rescue Service arrives on site, they will be met by the Fire Marshal who will brief them on the situation and give them information on the locations of flammable materials and water supplies. The Fire Marshal will also advise on potential hazards within the areas which will be entered by the Service.

The South Wales Fire and Rescue Service have told us that the fire would be fought by removing unburnt material from around the fire and then laying out the materials to allow water to get to the fire. They have told us that waste stockpile fires generally smoulder for several days and hence sufficient space has to be cleared to allow chip to be laid out and sprayed with water to cool it. This is done using a water spray as opposed to a deluge system.

Tegfan Recycling will also contact their insurance company as it is likely that they will be able to offer specialist input.

4.1 Water supplies

A 300m³ pile of combustible material will normally require a water supply of at least 2,000 litres a minute for a minimum of 3 hours. If two of the 37m³ RORO skips of combustible waste were to ignite and the fire become established it would therefore require 500 litres of water a minute for a minimum of 3 hours.

There is a 50mm diameter water supply to the site with good water pressure. Flow from this would be approximately 180l/m.

The nearest fire hydrant to the site is approximately 770m away adjacent to Groundhog Ltd SW of the site.

Unburnt materials will be pulled away from the fire into the quarantine area using excavators or loading shovels (available on site). Nearby stockpiles will be moved away to

give additional space for firefighting. Burning material could also be pulled out of the fire and spread out to aid with the firefighting process, this would only be done under the supervision of the Fire and Rescue Service. Soils stored at the site could also be used to smother the fire, again this would need to be under the direction of the Fire and Rescue Service.

5. Emissions to Air

The environment could be affected by the fire itself from toxins released into the environment from the fire. These include Carbon Dioxide (CO₂), Nitrogen Oxides (NO₂), Sulphur Dioxide (SO₂) and Chlorides and other halogenated compounds. Dioxins will also be released into the environment. This will directly affect the ozone layer and will affect the natural habitats around the site such as wildlife, water sources, rivers and streams. Soil and land can also be affected by burnt fire particles that might be carried by the air these particles could be implanted in soil and carried into rivers and streams by rainfall and erosion and could cause the local rivers and streams to be polluted. Affects from emergency services responding to fire could also affect the environment if water and chemicals used to put out fire are not contained and enter the soil, rivers, streams and water sources it could cause the land to be polluted along with wild life and natural habitats. The extra emergency services vehicles also give out Carbon Dioxide that contributes to climate change and is an additional affect to the emergency services response.

Due to the nature of these impacts we do not propose any specific mitigation beyond ensuring that the volume of combustible material is minimised and fires are extinguished as quickly as possible.

6. Managing fire water

The area of the site with the highest risk of fire is the full skip storage area, within the northern section of the site. Materials stored within the southern section of the site are inert.

In the event of fire and the need to use firefighting water it is likely that this would occur within the northern section of the site.

Water from this area drains SE across the site towards the hardcore and inert waste storage areas. These materials would be shaped using one of the excavators based on site to form a bunded area to contain the water. This would eventually overfill and run around the edge of the bund into the field below. The excavator will form a gap in the boundary fence and will then construct a bund in the field below to provide additional storage for water until it can be assessed and disposed in line with the nature of contamination within the water. A 14m x 30m HDPE liner will be retained at the site as part of the firefighting inventory.

South Wales Fire and Rescue have told us that as part of their standard practice they deploy water filled booms to channel water away from sensitive receptors. A stock of sand bags will be stored at the site and these will be used to direct firewater and block drains.

Water from the lagoon could be recirculated if sufficient settlement of particulates can be achieved, or can be tinkered off site if required (access gained from adjacent site)

Provision would need to be made to remove solids from the ponds, test this material and dispose of it within the Duty of Care for the material, following the fire.

7. Disposal of ash and burnt materials:

Ash and burnt materials from the fire will need to be tested to allow the waste to be fully described. Determinands tested for will depend on the nature of the materials and the potential contaminants likely to be present.

The results of this testing will be assessed in line with WM3 to determine its nature and disposal requirements.

Wastes will then be sent to a facility / facility permitted to accept them.

8. Training:

All staff and sub-contractors will be briefed into the contents of this plan during site inductions. Key issues they will be made aware of are:

- Actions on the discovery of fire, how to raise the alarm, who should be contacted.
- The location of the muster point.
- The location of water sources for firefighting.
- Staff at the site will be fully briefed on the requirements for fire prevention.
- Regular fire drills will be undertaken to ensure personnel are familiar with the actions required on the discovery of a fire.

Additional training will be provided on the safe use of firefighting equipment and what personnel should and should not take on. This will include the use of fire extinguishers, the use of plant and machinery to aid firefighting i.e. the removal of non-combusted material from stockpiles to quarantine areas, the use of earth at the site to smother fires and create fire breaks. This will include scenarios to aid staff in making decisions as to safe and unsafe practice.

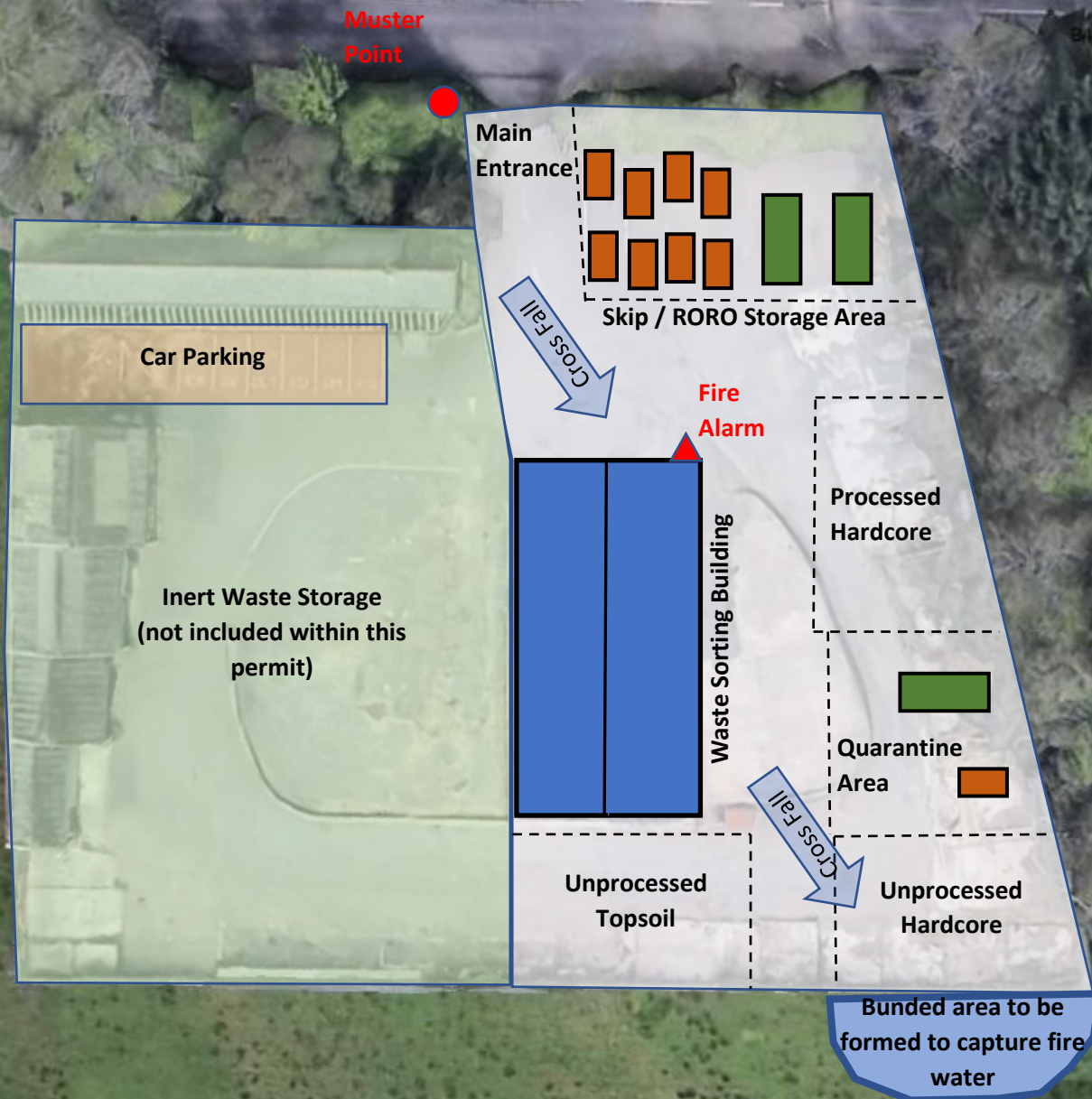
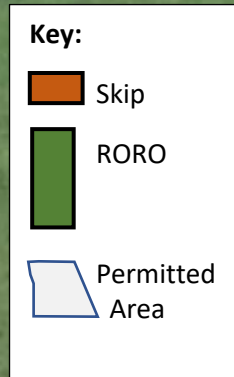
9. Fire Action Check List

Action:	Complete
Weekly test of fire alarm / smoke / CO detector systems. To be recorded on the check form. Test call to be undertaken to the alarm companies switchboard through the GSM system.	
Fire drill to be undertaken quarterly and the results recorded.	
Wastes to be stored as illustrated on the Fire Prevention Plan Drawing and in Table 2.	
The following materials will be retained on site to assist the Fire Service: - 70 empty sandbags and quantities of sand and stone dust; - A 14m x 30m HDPE sheet to create additional fire water storage; - Excavators and loading shovels to move waste materials away from fires and to suppress fires using soils; - A towable bowser to remove fire water from site to the mains sewer; - A 2m long temperature probe to monitor core temperatures within stockpiles. Results of this monitoring will be recorded;	
Weekly inspection of the site by the Fire Marshal to ensure the requirements of this plan have been complied with.	
All plant and areas to be inspected at the end of each shift to identify fire risks i.e. damage to electrical infrastructure, dust settling on plant exhausts.	
Core temperatures of wood chip stockpiles to be measured weekly using the temperature probe.	
Training to be given to all personnel as outlined in Section 7 of this document.	
Key points of this plan to be included within Site Inductions. Visitors and contractors to the site to be informed of the location of Muster Points and actions to be taken in the event of discovery of fire.	

10. Appendix 1 – Fire Management Plan Drawing

Tegfan Recycling

Site Layout Plan



Google Earth

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