



Waste Recycling Depot . Motorworks . Williamstown . Rhondda, CF40 1RL

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Fire Prevention 2017

Introduction The site shall be operated in accordance with the latest guidance. The measures taken to reduce the risk of fire fall into a number of areas;

1. Site Description
2. Daily Inputs
3. Fire in different waste types
4. Stockpile management & sizes
5. Rotation of stockpiles
6. Storage times
7. Contingency Planning
8. Measures to reduce spread of fire
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1. Site Description

Location The site is in a mixed Residential, Industrial & Commercial Area. The site is bordered by the Williamstown bypass and Penrhiwfer Road.

The nearest housing is next door bungalow and housing opposite.

Operating Hours The site is open from;

07:00 to 16:30 hours Monday to Friday and; 07:00 to 13:00 hours Saturday

Operating design capabilities The site is designed to handle up to 5,000 tonnes per annum of skip wastes, inert waste and dry recyclable materials. Each waste stream has its own operating area with concrete bays for the storage of wastes as appropriate. The tonnages of mixed general wastes are expected to be no more than 5,000 tonnes per annum.

Wastes are tipped in the general waste area and pre-sorted by hand before loading into the designated areas. Wood skips, Hardcore skips, Metal skips & General waste skips.

2. Daily Inputs The site is permitted to accept and treat up to 5,000 tonnes of a variety of non-hazardous. Some wastes accepted are non flammable e.g. dry scrap metal and inert wastes but the majority of waste handled is expected to be mixed municipal waste.

Waste inputs vary significantly throughout the year with seasonality and weather driving inputs to the site. In winter, inputs are very low indeed, with little domestic skip wastes.

Wood & Wood Chips

Potential sources of ignition for this type of material are:

- ☑ Arson
- ☑ Discarded smoking materials
- ☑ Naked flames from work/maintenance activities
- ☑ Placement of hot/smouldering materials into the stockpile from recycling machinery
- ☑ Self-heating
- ☑ Radiation from neighbouring fire

Wood, woodchips and sawdust material can undergo self-heating reactions, leading to spontaneous combustion, under certain storage conditions. Factors that will play a part in whether self-heating leading to combustion will occur are the size of the wood chips, the moisture content, the presence of other flammable waste materials within the stockpile that are easily ignitable, and the natural oil content of the wood. Sawdust has been tested extensively over many years and it has been found that the greater the proportion of oil present in the wood, the lower the critical ignition temperature (the temperature at which a runaway reaction occurs).

Wood that is largely intact and has not been shredded, would rarely undergo self heating and is of lower risk. Vigilance must still be exercised to ensure that wood piles are checked regularly to confirm that self heating is not occurring.

Mixed Municipal Waste

As with wood chips/sawdust, the potential sources of ignition of raw waste are numerous and can include self-heating. Some of the hazards that can arise from refuse fires include:

- ☑ Hazardous materials that may be toxic/corrosive/irritant/carcinogenic or produce combustion products that have these properties;
- ☑ Pressurised containers/LPG cylinders – explosion and fire;
- ☑ Biohazards;
- ☑ Particulates that produce respiratory problems;

Surface fires resulting from arson or accidental ignition can be fairly easily extinguished by sprinkler systems or fire-fighters. Fires started from self-heating, and hence are smouldering combustion mechanisms, are within the centre of the refuse and as such are difficult to access. For piles of refuse on the surface the stockpile would have to be excavated and pulled apart to obtain access to the seat of the fire. This needs to be done with extreme care as the initial ingress of additional oxygen could cause a flaming combustion from a previously smouldering combustion.

3. Stockpile management & sizes

The key to Fire Prevention is management of stockpiles to reduce the risk of accidental or deliberate ignition and also to prevent fires spreading between stockpiles.

All stockpiles will be kept within the size limits contained within Agency Guidance and reproduced below. Material Max Height (m) Length/ Width (m) Max Vol (m3) Max Area (m2) Min Separation (m)

Paper, cardboard and rags 5 20 750 235 6

Plastic, rubber and other materials 5 20 450 235 6

Fridges, computers and electrical equipment 5 20 300 235 15

Processed wood including sawdust, shavings and chips 3 10 150 100 6

RDF and fragmentiser fluff 5 20 450 235 6

Unprocessed wood 5 20 750 235 6

The site is laid out with clear areas for each waste stream as shown on drawing 1607 - Site Layout -

Wood waste Unprocessed wood waste will be stored in stockpiles each of no more than 6m x 6m and 4m high. Each stockpile will be maintained clear of any other flammable material with a separation distance in excess of 6m.

All wood is stored in two factory skips. Each stockpile will be no larger than 6m x 6m and the maximum height of the stockpile will be maintained at level height to skips.

Mixed municipal waste

Wastes from skip hire activities is also accepted on site and has the potential to cause fires if not handled correctly. Mixed municipal waste is brought on site in skips and sorted by hand into various fractions.

Quantities The anticipated quantities of material on site at any one time are as follows:

Unshredded waste wood - 180m³

Green waste - 180m³

Mixed municipal waste - 2 x 180m³

Plastics - 2 x 180m³

Paper & Cardboard - 40m³

4. Rotation of stockpiles Stockpile rotation will be practised by reducing the quantity in each stockpile to zero storage every month.

5. Storage Times Maximum storage times are less than one month.

6. Contingency Planning

In the event of a fire, the site would immediately cease operations and all efforts would be redirected to fighting the fire.

The gates would be closed but manned to ensure that no vehicles other than the FRS or Environment Agency could gain access to the site.

For the duration of the fire and the clean up, no wastes will be accepted on site.

7. Measures to reduce the risk of fire

The risk of a fire is a combination of both likelihood and severity and this plan seeks to reduce both the likelihood and severity of any fire on site.

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Good operation of the site in accordance with this plan and site procedures are key to minimising the risk of fire. The site has a number of rules to reduce the number of potential ignitions sources;

1. No Smoking Policy only in designated area by staff canteen..
2. No radiant heaters, particularly gas heaters to be used in any area of the site
3. No fires, i.e. no braziers, log burners etc
4. No hot work without a Permit to Work
5. No cutting, drilling or grinding of metal or concrete without a Permit to Work

The key measures are:

- ☑ Maintaining good site security; CCTV/fencing to minimise the risk of arson
- ☑ Maintaining stockpiles within the limits specified above; ☑ Inspecting and maintaining the concrete bays which act as fire breaks
- ☑ Inspecting stockpiles of all materials on a regular basis, taking temperature measurements at intervals not exceeding one week.
- ☑ Maintaining all plant in good condition on a programme of maintenance to reduce risk of plant fire
- ☑ Ensuring all electrical infrastructure is tested and certified safe by a qualified electrician
- ☑ Ensuring that any hot work or electrical work is carried out under a permit to work system which identifies the risk of fire and takes measures to mitigate this risk
- ☑ Storage of other flammable materials
- ☑ Maintaining good housekeeping at all times to ensure that waste materials are not windblown or otherwise spread and to ensure that there are no accumulations of wastes which could breach firebreaks or cause stockpiles to exceed their specified dimensions.

Security The site has not experienced any trespass or vandalism in the last few years.

The perimeter of the site is a combination of 3.0m walls with added fencing and 3m and 5m feather edge panel walling and this is maintained in good condition. Inspections. Daily inspections will be undertaken by site staff with weekly inspections by the COTC holder to ensure stockpile sizes and rotation remain within limits.

The daily and weekly inspections will also include inspections of the perimeter and security, together with monitoring of stockpile temperatures.

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Plant Maintenance Plant maintenance is a mix of daily checks by site staff and routine planned maintenance by specialist sub-contractors. A service schedule is maintained to ensure all servicing and statutory testing is undertaken at the specified intervals.

In the event that a defect is discovered during the routine daily inspection, this shall be rectified as soon as possible. Generally this will mean within 48 hours. If the defect is on a part which could give rise to a source of ignition or on a fire suppression system, the equipment will be immediately taken out of service until such time as a repair can be effected.

Part of daily plant maintenance is also a detailed clean of plant to prevent the build up of dusts, waste etc in parts of plant that may not be readily visible. Particular attention shall be paid to the engine bay and exhaust systems. This is subject to a Site Working Procedure.

All plant and vehicles have vertical exhausts above the plant bodies which will help to prevent contact between hot exhausts and wastes. No vehicles with underslung exhausts will be allowed on the elevated level of the site where the waste stockpiles are situated.

Where any new plant is procured, any metallic surfaces which may come into contact with the concrete floor will have an anti spark coating applied.

Electrical Safety The site has a current electrical test certificate and electrical infrastructure is included in the service schedule to ensure that this is maintained.

Permit to Work system The site operates a variety of Health and Safety systems and part of this is a Permit to Work system.

No hot work is required as part of normal site operations. Any hot work which may be required e.g. welding of skips, and any work which may give rise to sparks, e.g. drilling, grinding, cutting of metal or stone/concrete, or electrical work will be subject to the Permit to Work system. Each job under this system is risk assessed prior to work commencing and suitable measures taken to prevent ignition of waste and to deal with any nascent fire promptly before a fire can take hold.

Storage of flammable materials Other than office paperwork, the only flammable materials held on site are 2 no 205 l oil drums held in the building

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Housekeeping the daily inspections will identify if there are any areas where debris, dust, litter or waste are accumulating. Any such accumulations will be removed before the end of the working day. Generally manual sweeping will be sufficient for this purpose but if required a street sweeper will be used to clear the site.

Housekeeping is vital in ensuring that waste accumulations do not provide a source of fuel for a fire and also in ensuring that stockpiles are kept separate with no bridging between stockpiles.

8. Fire Fighting Measures The site has a number of ways in which to deal with any outbreak of fire

1. Available water

2. Fire & Rescue Service Response

3. Fire extinguishers

Fire control and elimination procedures All fires on site will be treated as a potential emergency and dealt with accordingly. In the event of a fire site management will be notified immediately and fire fighting equipment used to reduce or put out the fire. If it appears that the fire is larger than can be dealt with by site equipment the Fire & Rescue Service will be called immediately on 999.

In the event of a fire, however small, site inputs will be stopped and no visitors, contractors etc will be allowed to remain on site.

On the arrival of the FRS, site staff will work, as required, under their direction to assist in fighting the fire.

Fires may occur either in relation to:

☐ plant failure

☐ in containers of waste being delivered to the site

☐ in waste stored at the site

Plant failure All mobile plant are fitted with suitable extinguishers for fighting minor vehicle fires

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Open container fire Incoming wastes which, on inspection are found to be burning will be extinguished by dowsing with water prior to removal to a suitable disposal point. Such a situation will be treated as an emergency and immediate actions will be undertaken so as to prevent spread of fire either to other waste materials in storage on the site, in order to reduce the greater risk arising from a major fire at the site. This will include isolating the waste container and wastes from other materials and equipment at the site. In the case of such an emergency the vehicle will be directed to an external area clear from site buildings and wastes where the material known to be on fire or suspected of being so can be deposited, inspected and dealt with.

Fires in waste stockpiles

A water supply is available close to the office and may be used for controlling minor fires. Within the offices and the storage building additional fire-fighting equipment are available e.g. extinguishers etc.

In the event that waste is deposited and is found to be burning, if possible the material will be pushed away from previously deposited wastes, to prevent spread of the fire and allow the burning material to be dealt with. This will be achieved by smothering the burning material or dowsing with water. The same procedure will also apply to a minor fire occurring within wastes already deposited and in storage.

In the event of a major fire occurring within the wastes in storage, which cannot be readily dealt with by site personnel, the Fire Service will be summoned immediately and the site evacuated.

Other Fire fighting equipment and materials Other fire fighting equipment of a suitable type is kept at appropriate locations as advised by the fire service. All fire fighting equipment is kept in good condition, unobstructed and maintained as recommended by specialist contractors. Communication with the fire brigade may be undertaken via the landline telephone to the site offices.

Water sources The site has mains water, which provides water for the site and the fire water tank.

The fire water tank is a 20,000l tank which is kept permanently full and available for use in fighting fires.

There are no watercourses, wells or boreholes within the site or close to. The nearest water course is the canal some 100m to the west.

FRS Response The nearest Fire Station is In Tonypandy. This station currently has two front line appliances. The station is some 1.2m distant. Google Earth estimates the average time for travel from the Fire Station to the site is 5 minutes. It could be expected that this would somewhat less for emergency vehicles.

Tonypandy FRS publish data on response time targets and for a medium risk fire, their target is to attend site within 5 minutes of the first report.

We have assumed therefore that from first discovery to attendance by the FRS will be 8 minutes, allowing 2 minutes for the first assessment of the incident and the 999 phone call.

Using the guidance, the site requires 16000l/min of water for fire fighting prior to the arrival of the FRS, which is provided for by the 20,000l tank.

Before any wastes are stored in any building, a sprinkler system shall be installed by a suitably qualified person. At present, there are no plans to store any wastes within any building.

Reporting of fires Any fire arising on site will be reported to the Natural Resources Wales immediately, having due regard firstly to any steps necessary to tackle the fire and its immediate consequences. A record of the occurrence of a fire will also be maintained in the site diary, along with any actions taken.

9. Products of Combustion

The products of combustion are smoke, ash/burnt waste and contaminated run-off from fire fighting. Combustion products, even those from non-toxic materials, release airborne pollutants which can cause both short and long term effects on human health and the environment.

Smoke

Smoke consists of a mixture of gases, liquid droplets and solid particles, representing the decomposition and combustion products from fires.

In addition to particulates and other air pollutants such as carbon monoxide, nitrous oxide and sulphur dioxides, chemical vapours may also be released as a result of the fire. Some of these chemicals can cause strong odours that are detectable at very low levels below that which there is a direct harmful effect.

As with all fires there will be a large range of substances in the plume at low levels which may include dioxins and polychlorinated-biphenyls (PCBs). The risk of longer term health effects from exposures over weeks to the kinds of chemicals that are generally found in smoke is very low. The main concern associated with exposure to dioxins and PCBs arises from exposure over years.

It is difficult therefore to predict likely direction of smoke travel as winds tend to be lighter in sheltered locations and more unpredictable.