

Fire Prevention & Mitigation Plan

Llantrisant Recycling Centre Ltd

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Customer:	Tom Prichard	Llantrisant Recycling Centre Ltd
Requirement:	Fire Prevention & Mitigation Plan	New application (variation)
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Introduction

The purpose of this report is to provide an assessment of the risk from fire on site and how the storage measures impact upon the risk. In addition to this where appropriate, recommendations will be made to ensure compliance with recommended fire guidance. Compliance with the recommendations will greatly reduce the risk to business continuity and the environment associated with large fires on sites of this nature.

Llantrisant Recycling Ltd is permitted to accept an annual throughput of 350,000T. See the issued permit and the EMS submitted to NRW for details of individual waste types.

The requirement for this document to be produced has come from NRW and a change to the permitting regime in an attempt to manage fire risk across waste facilities.

Summary information

The below table includes the following information as a summary for all incoming waste streams:

*approximate tonnages to be accepted on to site daily

*how it is managed

*in what form it is to be accepted

*approximate total to be stored on site at any one time (pre & post treatment inclusive of form)

*length of storage time

*how stored for pre & post treatment

*stockpile dimensions

Incoming waste type	Per day tonnage (approx.)	How managed	Form accepted	Storage total tonnage (pre/post treatment)	Length of storage (pre/post treatment)	How stored (pre/post treatment)	Stockpile size (LxWxH) and volume (m3)
Road sweepings	25	Mechanical processing	Loose	(400/400)	(4weeks / 4weeks)	(Loose/loose)	10x10x4 400
Green waste	300 (seasonal average)	Shredding	Loose/bags	(7200/na—in windrows see below)	(windrow formation)	(Loose/loose)	20x10x4 800
Green waste	300 (seasonal average)	Shredding	Oversize	(7200/na—in windrows see below)	(windrow formation)	(Loose/loose)	20x10x4 800
MDR	30	Mechanical grab	Loose	(720/na) per stockpile	(4weeks / na)	(Loose/loose)	20x10x4 800
Wood	100	Shredding	Loose-whole	(1600/400)	(4weeks / 1weeks)	(Loose/loose chipped)	20x10x4 (pre x 2) 10x10x4 (post) 800/400
Glass	30	Mechanical processing	Loose	(720/80)	(6weeks / 3weeks)	(Loose/loose)	10x8x4 (pre) 6x8x4 (post) 320/192
Nappies	5	Bulk up only	Loose	(120/na)	(1week/na)	(Loose/loose)	6x8x4 192

*compost	na	Open windrow	Loose	1,120m ³ /windrow	12 weeks	(Loose/loose)	40x7x4 1120
Textiles	<0.5	Bulk up only	loose	(20/na)	12 weeks	(loose/loose)	6x8x4 192

In summary, the site can safely hold approximately 24,281T of waste at any one time across all stockpiles and windrows.

All storage times are monitored by the site supervisor using the weighbridge and by following effective management processes inclusive of daily site checks and measurements. The totals received are tallied weekly to ensure an accurate figure is achieved. Each individual waste type is booked in for periodic collection in line with those timescales in the table above. This ensures that the waste materials are exported from site routinely to meet contractual agreements. The waste pile on site may be present for periods longer than those identified above, however, the material within them will not be the same.

It is also important to note that much of the materials are not on site at the same time. For example, the green waste is in abundance throughout the Spring and Summer months whereas the DMR materials are usually accepted as overflow at Christmas so these stockpiles are unlikely to be on site at the same time.

Fire prevention techniques, currently adopted throughout all site operations include measures such as visual monitoring of stacks, hotspot management, reporting and the recording of actions taken. The new wastes applied for the following will be checked. If steam or condensation is noticed or even if signs of melting or charred material is seen within the waste, this would initiate a review of the policies and procedures set out within this FPMP. The sections of the plan that would be reviewed in this type of situation would be stack sizes and separation distances, the waste storage time, frequency of monitoring, the type of monitoring being undertaken (i.e. would more extensive equipment be needed) and the preventing fire section to ensure that the measures being taken are still adequate. If these signs are noticed within the daily site checks, the environmental manager will be informed and will contact NRW. At this point waste inputs are to be stopped until the waste has been safely removed from site and NRW are in agreement for waste to be imported once more.

All monitoring of stacks will be undertaken daily and any changes within the wastes will be recorded on the daily log sheets that form part of the EMS held for site.

To prevent the fire spreading on site, appropriate separation distances in line with those recommended within the guidance are to be implemented between waste piles (detailed within this FPMP). In addition to this, if a fire is located within an individual stockpile, then the waste in the locations next to the pile will be removed as soon as possible to prevent the risk of fire spreading to other waste piles. This will be done by using the available plant on site and in agreement with the FRS commanding officer. All wastes will be taken off site and to other facilities owned and operated by the Prichard's group, detailed within this FPMP.

The risk of the fire spreading off site is extremely low and is not considered to be a relevant consideration due to the distances involved and the location of the site and its neighbours.

Access will be granted to the FRS safely as there are open highways leading to the site. When on site, all internal roadways are kept clear at all times and are always a minimum of 5m wide allowing sufficient access to all areas of the site, as detailed within this FPMP.

Review

This document is to be reviewed routinely, every 12 months against the latest version of the published guidance. It will review on site procedures and activities and will be updated proactively to suit operations and guidance should it be required. The document and its procedures will be reviewed outside of the routine review period if firstly, an incident occurs on site or secondly, if conditions are witnessed that may have resulted in a fire on site. For example, if steam or condensation is noticed or even if signs of melting or charred material is seen within the waste, this would initiate a review of the policies and procedures set out within this FPMP. The document will also be reviewed if there are significant changes in the waste type, waste quantity to be accepted, any new infrastructure is to be installed on site and if any new plant is to become operational.

Regular toolbox talks will be provided to staff on site to ensure that they understand the requirements of the FPMP and how it fits in with the operations on site.

Monitoring of the site will be undertaken daily, both the site supervisor (in hours) and the security officer (out of hours). These checks will be logged/recorded on the site checklists and stored in the LRC office. The checks will include a fire watch walk around to ensure there are no sources of ignition and signs of combustion in the wastes and separation distances are appropriate. More infrequent monitoring (weekly or monthly) will include the testing of firefighting equipment, maintaining service history of plant and equipment as well as ensuring the effective turnaround of wastes within stockpiles.

If any of these checks were to highlight areas for concern then the sections of the plan that would be reviewed in this type of situation would be:

- *stack sizes and separation distances
- *waste storage time
- *frequency of monitoring
- *the type of monitoring being undertaken (i.e. would more extensive equipment be needed), and
- *the preventing fire section to ensure that the measures being taken are still adequate.

If these signs are noticed within the daily site checks, the environmental manager will be informed and will contact NRW. At this point waste inputs are to be stopped until the waste has been safely removed from site and NRW are in agreement for waste to be imported once more.

Details of the property:

The site comprises 2 steel-frame constructed buildings from which the new recycling operation (drying) is to occur under an Environmental permit. This application is to alter the processes that are currently occurring on site and to introduce new waste streams to the permit. The site is located on the edge of the Llantrisant Business Park and within a parcel of land that is leased from a local farmer and shared with a local authority CA site. Within the footprint of the site is a weighbridge building and canteen. These buildings are separate from the yard and buildings used for recycling and are some 50m+ away. The recycling buildings are constructed of a mixture of materials including, concrete and steel frame, with a concrete floors and drainage that leads to a sealed and submerged tank (currently used by the site for contaminated water capture). See Figure 1 in Appendix A that details the site layout within the permit boundary and is to scale.

The site is used generally for the receipt, processing and recycling of waste materials from various local authority contracts. The materials are largely soils, aggregates, green waste and glass materials however, the proposed EWC codes within this application are typically municipal type wastes that will be stored, separated outside and bulked up within the new building. The mixed waste materials are to be stored pending processing and awaiting removal off-site for recovery. Relatively small quantities of wastes will be accepted into dedicated bays for sorting manually and mechanically before being bulked up and removed from site.

Site neighbours and local Geography:

Site neighbours located in the vicinity of the site consist of:

- Extensive farm land surrounds the site and is the only industry/residents within a Northerly/North Easterly direction of the site.
- There are several residential and commercial premises that are both lived in properties and properties that are only inhabited within normal working hours. The distances of these properties varies significantly from 50m to over 500m.
- Llantrisant Business Park and the associated businesses are also within 1km of the site.

Contact details for the local receptors etc. (within 500m) will not be included within this plan for data protection purposes. Full contact details will be held on site within the site offices and will be used/provided in the event of an emergency only. Please see Figure 2 in Appendix A for a plan showing the locations of the receptors within 1km of the site. During a declared major incident, the receptors will be notified by knocking doors, undertaken by senior members of staff for those within 500m and by use of a loud speaker for those of between 500-1,000m due to the significant numbers involved.

Additional information

Materials accepted at the facility do not vary significantly on a daily and weekly basis and so this plan can provide reasonably accurate figures for the storage of wastes at any one time. However, actual input figures over each quarter are made available via quarterly waste return submissions to NRW.

The following estimates are determined using the current situation with the waste at present that is being accepted under contractual agreements. It is important to note that these tonnages/volumes are based on the maximum to be stored and accepted at any one time safely and do not breach any of the conditions published in the Fire Prevention & Mitigation Plan Guidance document. No baled waste or waste to be stored in containers is to be accepted on to site as part of this application. For the wastes already accepted at the site, please see the table above for the data required (storage time, quantity accepted, form stored etc).

The following list details the materials for the entire site inclusive of those applied for within this variation:

*2 stockpiles: measuring 20m x 10m x 4m (l x w x h) of unprocessed loose (non wood/green) wastes can be stored within the site safely. Each stockpile will be approximately 800m³ and will be stored in bays using concrete blocks constructed to the relevant standard (detailed below).

*7 stockpiles each measuring 6m x 8m x 4m will be used for the separately collected fractions and sorted outputs from the unprocessed material such as i.e. compost product, paper & cardboard, metals, fines, glass, textiles and plastics. These wastes will be stored loose, in bays that have concrete walls on 3 sides with roller shutter doors (within the building). Each stockpile will only hold approximately 192m³.

*2 stockpiles: measuring 20m x 10m x 4m will be used for the green waste accepted, 1 stockpile in its unprocessed form and the other after processing but before windrowing takes place. The material will be stored loose in bays with concrete walls on 2 sides. Each stockpile will hold approximately 800m³.

*2 stockpiles: measuring 20m x 10m x 4m will be used for the storage of unprocessed wood waste. The stockpile will hold approximately 800m³ of material and will be within bays made of concrete blocks on 3 sides. The wood processing area will also hold the processed wood materials. The piles will be graded into sawdust and woodchip. This material is removed from site daily and so is not stored for periods of time likely to increase any fire risk on site (5m x 5m x 4m each).

*2 stockpiles: of the glass fines will be located on the site as the processing phases progress. For example, the drying bays will be used (6m x 8m x 4m) initially (detailed above), the material will be screened and stored once more externally (10m x 8m x 4m) before being dried once more and re-screened a final time. Stockpile sizes throughout will not exceed those stated above (detailed on the site plan attached).

*5 windrows: measuring 40m x 7m x 4m will be used as a maximum at any one time. Each windrow will hold approximately 1120m³ of material and will be stored as part of the open system in a dedicated area of the site.

It is important to remember that due to the nature of the business and economic aspects that influence waste removal from site; these figures may never be stored on site at any one time. The quantities stored on site will both increase and decrease throughout the year but will never exceed the maximum volumes identified above. Llantrisant Recycling Centre Ltd will comply with the published fire guidance where appropriate as detailed within this plan.

The management of waste and throughput is controlled through an effective Environmental Management System (EMS) that is supported by detailed operational procedures (previously submitted to NRW and within this application). In summary however, they propose that the FRS will be called if the fire is deemed as being serious and not controllable with the use of on-site equipment. Full co-operation with the FRS and NRW will be provided by any means possible from the site operators to facilitate an effective outcome from firefighting operations should the need arise.

Management responsibilities reside with the director and nominated supervisor at site, however the first-line management of waste control is best carried out where a single individual has overall control or responsibility so that there is little risk of issues becoming neglected through communication problems. This responsibility will be held by the Environmental manager George Harvey.

The concrete walls used for the construction of the waste storage bays will be made in accordance with the requirements of BS EN 771-3 and will conform with the specifications outlined under EN 13501-1:2007-A1:2009 where the material performs as a class A1 against fire resistance (120mins).

The walls themselves would be made on site from solid concrete 'lego' block design where each block measures approximately 1.5m(l)x0.75m(w)x0.75m(h) and weighs circa 2.5T each. The concrete is not made on site however, this is delivered from an external contractor (Tarmac) via ready-mix trucks and poured into the moulds ensuring that the concrete is compliant with the relevant BS.

The bays themselves will be constructed so that they are interlinked for maximum strength but to a height that would allow a minimum distance of 1m free board to be achieved from the top of each waste pile to the top of the bay wall (maximum of 5m). The blocks are to be installed and constructed by suitably qualified site staff and have been independently verified by a structural engineer.

Site History – incident log

There has been just 1 reported incident at LRC since it began operations in 2015. This was an event (02/11/18) where a mechanical failure within the wood shredder resulted in the plant catching fire. The FRS were called for assurance only, the fire being contained by staff on site using fire extinguishers. The FRS used just 800l of water and this contained within the immediate area.

No waste was involved within the fire as the site are already adopting the relevant separation distances between operation plant and waste stockpiles. During the fire incident the waste stockpile was within 5m of the plant (due to the length of the arm on the machine), this waste was the closest to the plant and was not affected by the fire.

Site processes

The site is operated as a waste recycling plant under an environmental permit: *EPR/AB3092FR*. Material is brought to the site by various means but largely through skips and garbage disposal lorries and is deposited at the applicable receiving area within reception area of the site. At this point, material is unloaded onto the concrete floor and undergoes immediate segregation and sorting using hand picking and mechanical grab methods only. If the materials are source segregated then they will be tipped straight into the building, bulked up and removed for recovery elsewhere.

The building is to be used for the storage of separated materials and the glass fines. There will also be a sealed skip within the building to store any food wastes accepted on to the site, though at present this is not foreseen.

Wastes from private contracts will need to be sorted on site to ensure that no contamination is within the waste type. The outlets for the wastes are as follows:

*Bayliss Metals for all metal wastes; if not available GLJ metal Recycling

*Viridor (Cardiff) for any fine (non-recyclable) material that results from the sorting process; if not available Bryn Pica landfill site

*SiteServ Recycling for any paper, cardboard and plastic wastes; if not available Project Black Recycling Ltd

*Bryn Power Ltd for any food wastes that are accepted on to site

*URM (UK) Ltd for all glass wastes; if not available Recresco Ltd

Please refer to the already submitted EMS for the onsite procedures for waste acceptance, handling, rejection and treatment.

As mentioned above, the site will hold a maximum volume of waste as detailed; providing that the storage parameters set out within this plan can be complied with. If this cannot be achieved, then these figures will reduce to allow for compliance with the guidance.

Site Process –in the event of a major fire incident

It is important to note that due to the relatively small quantities of waste being stored on site at any one time (detailed above) a major incident is unlikely to occur at the site. However, if in the case that a major incident is declared, the first action would be to ensure that all staff and contractors are safely evacuated from the building and offices as well as contacting the FRS.

Contingency arrangements will be made for waste imports so that no more material will be brought on to site until it is deemed acceptable to do so in agreement with the FRS and NRW. Until NRW agree for waste to be accepted on to site once more, all waste will be diverted to another one of Tom Prichard's companies; Project Black Recycling (EPR/UP3295FU). Project Black Recycling has a permitted throughput of 75,000T and ample storage for approximately 3,000T of material as a contingency site. Project Red Recycling (EPR/XB3393HM) will also be used and has an annual throughput of 100,000T with the on site storage capacity of approximately 15,000T.

Additionally, the local authority has agreed to the use of the Bryn Pica waste transfer station and landfill sites if required. For the waste linked to the composting and road sweeping operations, the transfer station at Bryn Pica will be used as temporary storage site.

In order for the site to become operational again, all fire damaged waste will be removed from site and the infrastructure inspected for integrity by a suitable qualified engineer. If any of the infrastructure is not suitable, as per the definitions within the permit, it is to be repaired/replaced before waste is imported again. NRW site officers will be invited to site to inspect the infrastructure for themselves before any waste will be accepted. The inspection will be of all surfaces, buildings (if applicable) and the drainage system.

The first action would be to raise the alarm and to call the Fire Service to respond to any major incident on site. If safe to do so, the staff on site under the control of the suitably trained supervisor would use the appropriate fire extinguishers/water supplies to tackle the fire. The environmental manager as well as the company director would be informed. NRW would be contacted to help provide advice to both the FRS and our site operations.

The agreed plan of action (though this could change in accordance with the FRS requirements as the leading authority on the incident) would be to gain access to the burning materials by whatever means necessary. If required, the waste is to be pulled out from within the building and damped down where it will then be stored on an area of concrete to the front of the building in an emergency only. The damping down of the waste material would be undertaken by the FRS. When there is enough free space within the building itself, this operation will stop and all damping down and waste storage will occur within the footprint of the building, on the internal concrete surface. The building itself will at this point have a clay bund installed to prevent any fire water from leaving the area where the waste is being stored (if required). The bund will be compacted with a loading shovel to ensure that the material becomes impermeable to the firewater flow. It will be constructed to be approximately 1m thick and 0.5m high; this will allow for additional clay to be added to the height if required. The construction of the bund would not impede the FRS as it would

be located through mutual agreement so that it would benefit operations, for example, it would be used to pool water to aid the damping down process if required but would not hinder access to the fire. In the unlikely situation that the bund was to fail, the drainage system that serves the site would be shut off by using the water shut off valves on site and additionally the 2 shut off valves feeding the settlement lagoon and river.

The bund would be repaired immediately to prevent any major firewater flows getting off site (if required).

If clay were to be used, it would be in agreement with the FRS and NRW. The infrastructure on site is concrete and bordered by a kerb that is 0.5m high. This essentially creates an enclosed area to contain any firewater created. Clay would only be required to be used at the top of the access road to prevent firewater escaping down it and onto the public highway. The amount of material required to construct this barrier to a width of 1m, length of 8m and depth of 0.5m would be approximately 4m^3 (5T based on the WRAP 2004 conversion factor of 1.25).

The total capacity of water that captured by the site would be approximately $5,400\text{m}^3$ (excluding the buildings) which equates to 5,400,000l. Based on the proposed waste volumes on site (for the largest stockpile) of 800m^3 of waste that could be stored at any one time. Therefore, the requirement for water on site will be 960,000l for a burn time of 3 hours if all the waste in the stockpile was to catch fire at the same time. The volume of all wastes to be stored on site will need to be accounted for and factored into the storage area (only the lowest 0.5m of each stockpile to match the height of the bund/boundary curb). A total volume of waste of $1,612.5\text{m}^3$ could be stored at any one time as a maximum, this allows for a free space volume of $3,787.52\text{m}^3$. Therefore, a storage capacity of 3,787,520l could potentially be available to contain firewater created during an incident. This volume is by far in excess of the amount required for the largest waste stack on site.

The creation of clay bunds are a 'tried and tested' method on waste sites to ensure the escape of firewater does not occur during an emergency incident. The clay bund to be used in this situation would be constructed quickly and professionally by employees and machine drivers who have had 15 years of experience working within the soil and aggregate industry. The material would be laid out to the desired thickness and length but higher than those measurements outlined within this plan. This would be to allow for the compaction of the material to be undertaken using an excavator bucket. This compaction will reduce the height of the material and create an impermeable bank of clay that would be sufficient to withstand a relatively low-pressure water store. The edges of the bund are linked to the existing concrete walls by over edging the corners of the infrastructure.

The natural properties of the structures within clay would mean that when the material comes in to contact with water the soil particles stick together and bind the materials in contact with them. This natural process is sufficient to allow for adequate water storage on site preventing the off-site movement of water created due to extinguishing the fire on site at this location.

Clay is stockpiled at site as part of the soil and aggregate business for sale as a building product and so would need to be imported waste. In addition to this, Project Yellow Recycling (part of the Prichard's group of companies) is located just 5-minutes away in Llantrisant. Project Yellow has several thousand tons of material that can be used if required.

Controlling fire water will be a priority during a major incident. Tankers (OK Environmental Ltd as well as company owned) are to be used to pump any significant pooling/flooding waters away to protect any environmental receptors locally. Llantrisant Recycling Centre already have a system in place to pump out contaminated water as per the current permit. A series of hose connections, already situated within the drainage system to cope with periods of increased flow (during extreme rainfall events) can be utilised within a fire incident. The tanker can connect onto the existing hoses and suck-out the water contained within the pooling area. The location of the pipework can be easily altered to suit the FRS requirements and so not to hinder firefighting operations. The water will be taken to a Welsh water facility as currently used to be disposed of to the foul system. The level of water used is anticipated to be minimal due to the storage arrangements and quantities held. During a fire, a high percentage of water will evaporate off as steam and will absorb into the material itself, the excess water will need to be contained and taken off site if not re-circulated. The FRS will determine that if the re-use of firewater is appropriate on site.

The control of emissions to air is far more difficult for staff at Llantrisant Recycling to control personally. The most effective way to control air emissions during a fire is to put the fire out as quickly and as effectively as possible. Fire curtains can be used to try to limit smoke within the area and so may be an option if appropriate; this is done through discussion with both the FRS and NRW.

If local receptors are being impacted severely by air pollution or the fire is at risk of spreading off site or to other waste piles, the operator will seek approval from NRW to use soil or crushed aggregate to suppress the fire and to prevent further air pollution if possible. Both Llantrisant Recycling Centre and other companies within the Prichard's Group have easy access to vast quantities of this material if required. Once the fire has been suppressed/extinguished the contaminated materials will need to be carefully excavated with water supplies ready in case of a flare up within the material. Once the site management, NRW and the FRS are happy that the waste poses no further threat of re-ignition the material will be assessed for its recoverability potential and treated accordingly. If the waste is deemed as being too contaminated/damaged for recovery to be a valid option, the waste will be taken to an appropriate landfill for disposal.

Emissions from a fire to air are extremely difficult for any waste operator to control. Llantrisant Recycling would seek advice and guidance from NRW and the FRS on how to reduce the emissions if a fire was to occur. The operator would be unable to implement measures without this consultation as in doing so may potentially make emissions worse or hinder firefighting operations.

In all cases and eventualities, the amount of water being used will be minimised where possible. Any unburned material will be excavated and removed from the fire to prevent any further spreading. If some material is too close for this to be practical, some small volumes of water will be sprayed onto the areas to cool them sufficiently. Water jets are to be used as little as possible.

When there is sufficient space within the building and the fire is extinguished, any waste from the external area will be moved to be back onto the concrete pad within the building that benefits from a clay bund.

For the stockpiles located at the rear of the site, outside of a building, the same principles will apply in that a clay bund will be used to enclose the fire water into an area away from other waste types (if permitted by the FRS and NRW). The material will be excavated where required to help the FRS with

effective fire-fighting operations. The stockpiles will be suitably stored on site to allow access from more than one side of the fire.

To aid with the firefighting operations the Tom Prichard Group of companies have access to an array of plant and approximately 20 fully qualified personnel that would be available to drive the plant on site 24/7 if required. Across the group there are:

*x 75 machines such as 360 excavators, high reach loading shovels, material handling equipment, bull dozers and cutting plant.

*x 8 grab machines of varying sizes

*x 85 8-wheel tipper trucks for waste removal (or soil/aggregate import), 40 owned and on site

*x 6 3,000G (13,500l) mobile water bowsers with hose attachments

There is a 40,000l water storage tank held at the rear of the building that is fed and topped up by the clean rainwater from the roof of the building with a further already full 20,000l water tank near to the biomass 1 building. These tanks are both already filled by rainwater to ensure that a supply is ready for waste acceptance. An overflow system will discharge any excess clean water to the clean water discharge that flows across to the site. There will be a hose attachment fitted to the tank that will enable firefighters to use the water if required. The attachment will be determined through discussion with the FRS to ensure that the fitting used is compatible with the hose attachments currently used by the FRS. Water will be used to spray unburned material in an attempt to prevent the fire from spreading to other areas of waste on site.

When considering the best actions to take on site, full discussions will be had with both the FRS and NRW to ensure that the environment and human health is protected. The scale of the incident, the types of materials in question and the local area/receptors will all be considered before any decisions are made.

All waste that has been subjected to the fire will be assessed to see if it can be recovered or whether it is too badly damaged and so cannot be recovered. This assessment will be undertaken by the Environmental Manager and Operations Manager for LRC. Once the assessment has been undertaken NRW will be informed of the findings. If the assessment supports recovery, then the waste will be sent to the usual outlets for recycling. If the wastes are deemed too badly damaged, then the waste will be sent to landfill in agreement with NRW. Upon site clearance, the company owned road sweepers will be actioned to clean the site surface so an engineer can inspect the integrity of the surface and to ascertain whether it is suitable for use or whether repair work is required. If required, the drainage systems will also be pumped and flushed out to ensure no firewater is left within them.

Before the site becomes operational once more, NRW will be invited to site to assess all areas impacted by the fire.

NRW will be informed immediately if any flare-ups do occur within the waste post incident.

The company has sufficient financial resources available to cope with a major incident on site; the finances can be accessed immediately if required by the company director or financial controller.

Site storage – risk reduction

The storage of material on-site is considered to pose a low risk of fire if managed correctly. Firstly, the quantities of waste being held are relatively low and would not cause a major incident if a fire were to occur and secondly, the time periods of waste storage are also minimal due to space constraints on site and contractual agreements. If waste is to accumulate then this would severely hinder operations and business continuity. Taking reasonable measures to ensure that storage on site is in accordance with recommended guidance or is based on site-specific assessment will assist greatly in reducing the impact of fire at the site. This will improve the situation from both a business continuity perspective whilst at the same time reducing the impact on the FRS resources necessary to fight a large fire. The effect on the environment will also be substantially reduced. Recommendations made in this plan are made in line with the guidance referred to above.

The current assessment of waste on site is based on how Llantrisant Recycling expect that the storage will be undertaken when waste is accepted on to site. Due to the nature of the business and industry markets, waste movements and quantities will be changing daily in to and out of site. These waste streams have a high turnaround due to a buoyant market and are monitored through weekly checks of the input and output tonnages. This is to be done via visual checks within the storage area and then through further audit of the input and output figures for these wastes. It is not anticipated that any wastes are stored for longer than a 6-week period after initial acceptance; this will be managed through the weighbridge office via a newly installed electronic Isys-system and by the site supervisor. The bays will be totally emptied within a 6-week period ensuring that this period is not exceeded and so eliminating the risk for this waste type.

The bays will be constructed to a height greater than the waste (1m freeboard) and so will act as wind barriers to the waste piles. If the waste is to be turned, it will be done via the use of a grab 360 machine. The entire stockpile will be removed from the bay and turned so that the older waste is now at the front of the bay, this will be undertaken weekly. At this point, temperature and moisture readings will be taken (by using existing on site equipment) from various locations within the pile to ensure representative readings are taken from the core of the stockpile. Staff, already trained in this area as the monitoring of temperature and moisture is undertaken weekly across other areas of waste management on site. The equipment used will only be able to monitor the temperature throughout the pile when turning is being done. The probe measures 2m long and so must be used from within the pile as well as the surface to ensure that accurate and representative readings are being taken. Increases in temperature and reductions in moisture concurrently will be used as a warning, however, due to the frequency of turning and the low storage time, this is not foreseen to be an issue.

Segregation of material will be managed by the site supervisor and will be undertaken by waste type post processing. The capacity of waste acceptance will be monitored through the weighbridge operative and environmental manager.

The 1m freeboard area at the top of each pile is recommended by the guidance to ensure that the fire will not spread from one pile to the next. This gap allows for the containment of windblown materials and the bridging of materials. This will be visually monitored by the size of the 'lego' blocks that construct the wall. These are approximately 1m high and can be used as an appropriate guide.

Waste storage area

The storage area for wastes on site are small due to the constraints of the building (for the segregated wastes), the permit and its boundary. The general layout for storage is detailed above and in the attached plans. These stockpiles will vary in size but will always maintain an adequate separation in all directions towards other waste (minimum 10m). The vehicles will deposit the waste directly into the reception area where it will be bulked up into individual stockpiles or into the external sorting area. The stockpiles will be created from the rear first, allowing for ease of operations.

The waste, when the weekly collections have been all received and appropriately sorted into the separate fractions, will then be taken from site to another facility that is permitted to accept them for onward recovery and recycling operations. The segregated waste stockpiles will be taken from the rear of the building first to ensure that all 'older' wastes are removed and not simply pushed further back. The principle of 'first in first out' will always be maintained when a proportion of the waste is to remain in the building. If the building is to be totally emptied, then there is no need for this principle to be followed. The building will be totally emptied every 4-6 weeks if viable substantially lowering the risk of self-combustion. The waste will be stored in separate bays for paper & cardboard, plastics, metals and non-recyclable wastes and the material will be loose in form. The stockpiles will be no greater than those previously identified and will allow for the 1m of freeboard so that the risk of spreading of fire is significantly reduced. Any fire escapes will be kept free of waste and so will the pathways to it. All fire extinguishers are readily accessible and all staff are aware of their location. No waste will be stored in the same building as any offices or workshop etc. No plant is stored or operated permanently within the building, a front loading bucket is used to fill and empty the waste from the building.

A clear area will be maintained around the perimeter to allow for FRS access if required. This area is approximately 4-5m and is on site at present as the concrete area does not extend to the edge of the permitted area.

The stack sizes and separation distances appropriate to the materials that are on site will not exceed:

Mixed wastes and those of a general nature will not exceed stack widths of 20m x 4m high when loose; the separation distance will be approximately 20m between waste stockpiles in all directions that do not have concrete walls between them. Consideration will be given to rear and side access for stock rotation purposes if required. However, it is not considered as being required as the stacks will not be on site for periods of longer than 6 weeks in an unprocessed form. All wastes will be stored in 3 sided concrete bays both within the building (processed wastes) and outside (unprocessed wastes). A minimum of 1m 'free board' will be maintained within the bays to prevent fire spread across different stockpiles.

Plastic (as well as the other sorted fractions) wastes will not exceed stack widths of 6m x 4m high when loose and will be stored in concrete bunkers; the separation distance will be in line with that required by using the guidance; this will be approximately 5m in the direction of other wastes. Consideration will be given to rear and side access for stock rotation purposes if required. However, it is not considered as being required as the stacks will not be on site for periods of longer than 6 weeks. A minimum of 1m 'free board' will be maintained within the bunkers to prevent fire spread across different bunkers.

Waste storage within the buildings

Segregated wastes resultant from the unsegregated waste reception will be stored within a building on site once processed. The building will house 7 bays constructed with concrete walls on 3 sides. The 'open' side of the bay will be closed at the end of each working day as each bay front is fitted with roller shutter doors.

The buildings are heated with a space heater but has also been fitted with CCTV, a heat and smoke sensor to detect any elevated levels of heat within the building above what is usual working temperature. The heat/smoke detector is connected to the fire alarm for the site.

The heated building, will not significantly impact upon self-heating of the waste as the temperatures will not reach high enough levels (typically the heat exchangers permit an output air temperature of between 40-50°C), additionally, the waste will be totally removed every 4 weeks at a maximum as this is the total time of processing. However, throughout this time the wastes within the drying bays will be turned every week and monitored for temperature daily.

The building with the 4 drying floors, also has the CCTV etc, are at a greater risk to the waste materials as the temperatures pumped through the exchangers are higher. This waste is actively heated to dry out the material faster to allow a higher turnaround of material. The temperatures are typically 70°C and consequently the materials are never held for more than 2 days without being emptied and turned. They are dried in this building for a maximum of 7 days. Throughout this time the wastes within the drying bays will be turned every week and monitored for temperature daily.

There is no electrical equipment near to the waste within the buildings and all fire escape routes will remain free of waste and clear.

In addition, each bay within the building has a full-length roller shutter door that will be opened to allow smoke out.

The heat is provided from the biomass boilers via heat exchangers. The floor heaters are fed off a 500kw and 2x 250kw exchangers from biomass 1, the air heaters are fed off a single 500kw exchanger and via the ORC that also has lower powered heat exchangers from biomass 2.

As regards the risk of fire to the waste from a failure on one of the boilers, there are built in fire suppression and safety mechanisms within each boiler to prevent any fire or explosion risk. These systems are automatic and inspected regularly to ensure operational functionality. They also have their own specific maintenance programme. Inspections on the boilers are undertaken daily.

Methods for determination of drying completion

Waste will be monitored for moisture on a regular 72 hour basis, the content of which will be recorded as a percentage, recorded and logged. A representative sample will be taken from the stockpile for analysis and the percentage is obtained using a PMB 202 moisture analyser. Moisture content will only be determined while the material is undergoing active drying.

Ranges for determination:

All waste streams have a range that it needs to meet so that the material can be appropriately recycled.

Compost Product - will be determined to be appropriately dried when the moisture percentage is within the 40-60% range.

Paper and Cardboard - Paper and cardboard will be dried so that the moisture content is within the range of 5% and 10%. Determination of moisture content within this range has been set by paper and cardboard mills so that the waste can undergo recycling. This can change.

Fines - will be determined to be appropriately dried when the moisture percentage is no lower than 5% and no higher than 15%.

Monitoring

As material moisture content is monitored on a 72 hour maximum frequency period, the risk of material remaining in place and drying unnecessarily is essentially removed.

If the material is determined to be above the maximum moisture threshold for the relevant waste, drying will resume, and moisture monitoring will resume once every 72 hours. If the material is determined below the moisture content threshold, material drying will cease and material will be removed.

Rotation

The waste will be turned on a basis of at least once per week. This process involves the;

- Entire removal of the stockpile from the bay,
- Thorough mixing of the wastes outside of the bay,
- Placement of the waste back into the bay.

This process of movement is sufficient to effectively move the inner contents outwards, and the outer contents inwards to ensure an even drying process.

Quarantine area

The area marked on the site map as being designated as a quarantine area is with location in mind. The area is centrally located to the higher risk wastes that are stored and treated on site. Additionally, it can be accessed from 2 sides allowing for ease of waste movements from site if required in an emergency situation. The quarantine area is approximately 1,250m² (62 x 20), if waste were stored in here at a height of 2m (for damping down) the holding volume would be approximately 2,500m³, this is much larger than the area allocated to the largest waste stack on site (800m³).

The area is to be used for the pulling out of waste to allow for various processes to be effective. If the FRS require the area for damping down of waste material then as much of this area as required will be provided.

However, the area can be used to relocate waste in the bays next to the one on fire to prevent the fire from spreading further. If this is deemed by the site management as being an initial priority (if the fire

is advanced within a bay and the FRS are not on site), then the now empty bays resultant from this movement of waste can be used by the FRS for small scale damping down. The quarantine bay however is large enough to accommodate a waste relocation from the neighbouring bays as well as damping down processes while maintaining adequate separation distances of 15m. For example, two bays can be emptied onto the area allocated and stored as per the size of the bay (20 x 10 x 4), allowing a 15m separation distance between waste piles results in a free area within the quarantine bay for a damping down stockpile size of 20 x 10 x the depth required by the FRS.

To ease the pressure on the quarantine area, when the initial relocation of waste has occurred to prevent the fire from spreading the stockpiled wastes will be removed from this area and taken off site. This will be done as soon as possible during the incident to allow for as much area to be used for firefighting operations/requirements. The waste will be loaded into 8-wheeler and articulated vehicles (18-25T per load) and taken to Project Black/Red Recycling Ltd. To empty the stored wastes taken from the adjacent bays, it's estimated that 12 loads per bay would be required. The Prichard Group owns and has instant access to an extensive fleet of vehicles (20+ x 8 wheelers and 8 x articulated) and are licenced to operate over 45 if required. The vehicles will be loaded and operated through the side of the quarantine area furthest away from the fire and the access route not being used so as to not interfere with FRS operations.

Seasonality and market assessment

The waste types to be stored at LRC; are not, effected by seasonal changes from an outlet point of view. The markets for metals, paper & cardboard and to a lesser extent plastics are buoyant and the material can be readily removed from site. The material is transported to the recycling plant or material re-processor for further treatment. LRC has long-standing commercial agreements with all of the outlet companies as these are routinely dealt with across other areas of the Prichard's group of companies.

Season variations will change so far as input materials are concerned as period such as Christmas would see an increase in supply to the site. However, this will not impact upon stockpile storage time as the processes on site are effectively managed and can easily cope with an increase in supply. The material will be booked out from site within the same periods as detailed above, the number of trucks will be increased to cope with the additionally tonnage.

When researching market conditions, by using the 'letsrecycle' website for market data, it is apparent that the prices across all waste streams detailed within this application are stable. Additionally, with the increasing push for the circular economy ethos across the industry, recycling of materials to bring them back into use is allowing the industry to develop and to maintain outlet feasibility.

If the timescales committed to within this plan for some reason cannot be met due to market conditions; LRC have several other options and permitted sites that we could divert material to (Project Black Recycling Ltd, Project Red Recycling Ltd as well as those listed above). Additionally, if the end user outlets usually used cannot cope with the increase in demand, detailed below are contingency sites that can be used to cope with the increased material throughput. These sites are to be used in addition to the normal contractual agreements but also in isolation if required to ensure stockpiling does not occur at LRC.

The green waste accepted for the composting operations are at peak through April-September where the tonnages increase compared to those received in the surrounding periods of the year. This is what the permitted processes are aimed towards and so are fully prepared for this increase in volume. All tonnages and processes are based upon peak amounts and so the systems employed are able to manage effectively throughout this time of the year. Additionally, this is the time-period where the greatest demand is required for the compost output. This allows an effective circular balance of input vs output materials to be maintained.

The textiles will need to be stored on site for up to a maximum of 3 months. This is due to the low amount of the materials being accepted to site and to make the onward transport commercially viable.

Preventing Fires

In addition to the above storage arrangements across the site there are several other processes that could be undertaken to reduce the risk of fires starting on waste sites. The first step is to identify the possible causes of a fire on a site such as Llantrisant Recycling Ltd and identify how to implement control measures against the causes identified:

Cause of fire	Control measures
Arson/vandalism	A comprehensive and operational CCTV system is in place at the site that can be remotely controlled by the company employees via mobile phone and head office/security staff via computer. The site is fully enclosed by a fence in all areas where public access can be gained.
Self Combustion	The waste on site is subject to quick turnaround periods and it is not anticipated that the waste will be stored for longer than 3 months (site wide-other than composting windrows). Please refer to the section below for more information regarding self-combustion.
Plant/equipment failure	Regular vehicle and equipment maintenance is carried out on all plant/equipment used at the facility. Daily and weekly checklists are carried out as routine procedure on site to ensure that everything is in full working order. Any problems that are identified are logged and dealt with as soon as possible.
Smoking materials discarded	There is a strict no smoking policy across all areas of the site where there are waste materials processed, stored or treated. There is a designated smoking area that is away from the waste processing/storage areas.
Hot exhaust system/heat sources	All relevant staff that are trained in the use of the machinery are made aware of the risks that the exhaust system poses with relation to causing a fire. The gaps that are implemented between the waste stockpiles are sufficient to allow for all vehicles to turn without the risk of getting too close to the waste mass. Additionally, the mobile plant on site can be fitted with small fire extinguishers in the event of a small fire caused by the exhaust.
Sparks from loading buckets	The risk of this occurring is extremely low. However, the use of rubber sleeves across all tips of the loading shovels could be

Electrical Faults	<p>used to ensure that sparks will not occur when the buckets run along the concrete surface.</p> <p>Regular inspections are undertaken of all electrical installations and equipment. Where required, the electrical kit will be PAT tested and certified by a qualified electrician ensuring electrical safety.</p>
Batteries within waste deposit	<p>Due to the short period of time that the wastes are to be stored on site, it is not foreseen that batteries within the waste will pose a significant risk. However, if batteries are noticed within the waste deposit, they will be picked out and stored in a separate container away from the rest of the materials on site.</p>
Visitors & Contractors	<p>All visitors and contractors that enter site will be fully inducted by the site supervisor to ensure that they are aware of the on-site procedures surrounding fire risk. They will not be permitted to enter site without the site induction. All visitors will be accompanied by a member of the site staff at all times.</p>
Leaks and spillages of oils and fuel	<p>When a leak/spillages is identified on site it is cleaned up immediately using the on-site spill kits. The area is isolated and no working vehicles or plant are to be operated near to the spill until the area in question has been adequately cleaned and the risk removed.</p>
Ignition sources	<p>The only identifiable ignition source is from within the biomass building. However, this source is contained within a sealed chamber and is in excess of 6m from all waste storage areas.</p>
Reaction between wastes	<p>All waste acceptance checks are detailed within the submitted EMS. Any items such as batteries, that are identified will be stored in isolation within the quarantine area detailed within the site plan. Due to the nature of the wastes, it is not anticipated that severe reactions will occur between waste types.</p>
Build-up of loose combustible material (dust/fluff etc)	<p>This is not applicable for the EWC codes applied for is relevant for other wastes on site. The wood processing activity creates levels of saw dust that can accumulate on plant. Operatives remove this material from the plant every hour to prevent accumulations.</p>
'Tramp' materials	<p>All 'tramp' materials are removed by the use of overhead magnets when the waste is to be put through the plant on site for treatment. However, the material applied for within this application will be largely manually sorted.</p>
Industrial Heaters	<p>The heaters referred to are those from the biomass boilers and have been detailed previously. Regular temperature and moisture monitoring is to be undertaken along with turned stockpiles. The material subjected to the heating is not stored on site for long periods and so the risk is sufficiently managed.</p> <p>No other heaters are used on site.</p>

The above areas are the items within the guidance that are applicable to the operations and site. The following parameters are not relevant as they are either not in use or are not undertaken at site:

- Hot works
- Hot loads deposited

There are various safeguards and common-sense measures that have been implemented across the site to help in the reduction of risk:

- Ensure that ignition sources such as heat exchangers, lamps, naked flames, incinerators and dedicated smoking areas are away from waste processing areas. It is recommended that a 6m gap is maintained between them and waste materials.
- A fire watch is to be implemented at the beginning and end of each shift to ensure that all areas are inspected this will be a visual inspection.
- All plant and machinery are to be maintained and inspected at regular intervals.
- Inspections of plant are to be undertaken daily to ensure that no build-up of paper/fibre etc is happening around moving parts that could get hot etc.
- Regular training sessions will occur every 6 months (or following an incident) in line with current company procedures that will detail FPMP requirements. These are done through toolbox talks which are completed by all employees.
- A dedicated quarantine area has been allocated for emergency waste storage outside of the building should it be required (identified on the site plan). This area is extremely large and is capable of holding 50% of the stored waste volume; a separation distance of at least 6m to be maintained between the waste pile and the waste in quarantine. The area identified as the quarantine zone is capable of holding at least 2000m³ of waste material.

Spontaneous combustion and storage

Some materials may spontaneously combust under certain conditions. The risk is greater with certain material types/processes and the risk increases when materials are stored for long periods.

The materials stored on site do not present a significant risk from spontaneous combustion or self-heating when stored for periods of time of less than 3 months as per the guidance (drying sheds detailed above). The waste to be accepted on site will not be stored for longer than 6 weeks (with the exception of textiles), therefore, well within the 3-month period highlighted within the guidance as being the key time for spontaneous combustion to become a high-risk element. Nevertheless, it is recommended that monitoring of the wastes is to be undertaken on a regular basis. There are methods that can be employed, for stacks and piles that conform to the recommendations and commitments made in this fire plan, equipment such as thermal imaging cameras or thermal lances would not be required. Due to the small quantities of waste being stored on site and for the small amount of time; these requirements are not needed as the waste is removed from site, 6-weekly at very worst; consequently, visual monitoring will be undertaken daily. The visual monitoring will look for signs of heating within the waste piles such as accumulations of condensation within plastic materials, steam being produced from the stockpiles and scorch marks on material brought out from within the piles. If any of these signs of heating are noted, then the waste pile will be split into smaller piles, cooled down with clean water sprays (if required) and removed from site. The FRS and NRW will be notified of the recorded sighting within the waste and updated on actions undertaken to prevent a fire occurring.

Despite this, the LRC have opted to use a thermal lance (detailed below) routinely and should the piles require turning, this will be undertaken also.

The following applicable materials should not be stored for longer than 3 months:

- Wood and wood products
- General waste including RDF and fines
- Material that has not been checked for potential hazards before storing e.g. exposed rust that may increase heating (although this is unlikely due to waste acceptance checks on site).

In the unlikely situation where the facility reaches its maximum storage capacity (as detailed above), waste will cease to be accepted and will be diverted to another facility that is appropriately permitted. Levels of waste on site will be monitored by the TCM and supervisor, visually and by use of the weighbridge system. The quantities of waste will then be passed to the directors and decision to cease

waste acceptance due to being at maximum storage capacity will be made. Only directors can make this decision as it would have significant financial impacts on the business.

Where appropriate, the following measures will be implemented on site:

- Minimise stack size wherever possible.
- Manage stock levels to prevent piles being left for long periods of time.
- Use older material first.
- Keep material in its largest form prior to processing for its end market.
- An on-site thermal lance will be used to gain an indication of core temperatures if the stacks are showing signs of internal heating. The Type K Thermocouple is used for the monitoring of the stacks, full specifications can be found at www.peaksensors.co.uk. The temperature probe attached is a Therma 3 instrument for digital display of temperature recordings.
- If the stockpiles are not processed within 5 days and removed from site within a 6-week period; weekly turning of stacks will be undertaken. Textile turning will be undertaken from 6 weeks after initial acceptance.
- If hotspots are identified by the thermal lance, this area will be cooled by use of a water spray and removed to an appropriate facility once safe to do so.
- Moisture levels will be controlled if deemed necessary. This is particularly important when in periods of prolonged dry and warm weather. Shade will be provided where possible to cool the surface of the waste and to prevent direct sunlight exposure.
- Exposed metal will be reduced as this will be taken out manually upon acceptance. There are to be no fines produced as trommelling of the waste is not planned to be undertaken. Mechanical treatment is to be limited to grab machinery and so heat generation is not likely to be an issue.

Security & Fire Detection/Suppression

The site is very secure as there is only one way in and out of the site. The site has a CCTV system in operation 24hrs / day. The CCTV system has been installed to allow visual access to the majority of the operational areas on site (all waste storage areas). The company directors have 24hr remote access to the CCTV cameras and they are checked regularly afterhours as well as security patrols overnight. The security patrols are carried out each hour physically by walking the site and checking each individual waste storage pile. The security officer is based on site at LRC, behind the weighbridge in the security cabin. When the physical rounds are completed, the CCTV cameras are then monitored constantly between walk around. Throughout the operational area there are water storage tanks that are fitted with a high-pressure hose connection. These tanks can be used as an initial fire-fighting method to combat a fire should one occur before the FRS arrive on site to take control. Additionally, Tower Fire Group are being liaised with ensuring that the measures adopted on site are appropriate to the needs of the site when considering the scale of the operations. Under the advice provided by the Tower Fire group, LRC have recently acquired a large mobile foam trolley that staff have been trained to use in the case of a fire on site. The trolley is stored within a separate area of the waste reception building (easily accessible and not close to fire source).

It will be necessary to continually monitor the effectiveness of the CCTV and the security system to review the provisions as necessary.

There are several systems available that can monitor sites of this nature. These include:

- Flame/smoke detectors
- CCTV based flame detection systems
- Infrared and ultraviolet systems
- Sprinklers
- Manual deluge systems
- Water spray systems
- Water monitors etc

In considering if such a system is appropriate it is necessary to consider what other provisions that are currently in place and can provide an equivalent level of confidence that a fire incident will be detected at an early stage if an automatic detection system is not provided.

Current provisions on site are a CCTV and security presence when the site is on shut down, 2 large water storage tanks (60,000l) that has a high-pressure hose connection, a large mobile foam trolley,

numerous fire extinguishers, access to 1,024,500l of water lagoon (site created), 375,000l of water in a separate lagoon (captured from natural springs) and access to the river if permitted (detailed below).

The CCTV system is in operation and provides the ability to monitor the site for both unauthorised access and site conditions including visual monitoring of waste storage conditions. The cameras are internal and external, the areas of waste storage subject to this variation application are directly covered by the CCTV system. Additionally, manned security patrols occur throughout periods of shut down.

Due to the relatively low quantities of waste, the low storage time and the weekly management (turning and stack monitoring for temperature and moisture, if required) of the waste piles, it is not deemed appropriate for any further measures to be required at this stage. However, this is to be reviewed in consultation with Tower Fire Group annually and updates to the suppression/monitoring systems will be initiated if deemed necessary.

The effectiveness of the security measures should be reviewed/tested frequently and should any of these provisions be changed or removed the risk assessment should be immediately reviewed. It should be highlighted that the measures referred to above are considered to be the minimum necessary to provide a degree of confidence that an incident will be either prevented or discovered at an early stage.

The building that is to be used will allow for the smoke to escape the building freely as the building has an automated fan system currently installed in each bay. The roller shutter doors can also be opened manually to allow smoke to escape.

The building is also fitted with a heat detection system that sounds an alarm when an increase in heat is noticed against what is the usual level within the building.

All staff on site have been trained (as mentioned above), by the Tower Fire Group. Records of this training are maintained in the site head office. Adequately trained staff will use the resources available to actively fight the fire and prevent its spread if safe to do so. The aim of this would be to cool waste adjacent to the fire before and during its removal from the fire by the use of heavy plant. This would be an effective process to lower the risk of spread of fire. Site operative would also, if appropriate, remove some burning material to wet in pools of water on site if available (ideally, this would be done under the supervision of the fire service to prevent any potential flare-ups etc.).

Site access

Access to the site is acceptable for FRS purposes. The same access road (through Llantrisant Business Park) is used by large vehicles on a regular basis.

Access within the yard can easily be gained directly off the road that runs along the front of the site. If there were to be a fire at the site; all areas can be easily accessed through the main gates and around the site. This is now detailed within the attached plans.

Responsibilities

The assembly point controller and fire marshals will undertake the following duties:

Assembly point controller

Once the fire alarm has been raised, the assembly point controller should collect the site signing-in registers from the office and go to the fire assembly point. They should then check all persons off at the fire assembly point and inform the FRS commander of any personnel who are not present. If an employee is logged in but **not** present at the muster point at the time the register is called, it must then be assumed that the individual is in mortal danger and the fire brigade must be informed immediately so they can negotiate a rescue.

Fire Marshals

In the event of a fire, the Fire Marshals are responsible for checking that their designated area is clear and that staff are safe. In addition, they must:

- a. Report to the Fire Assembly Controller and confirm “area clear or unable to check area” as applicable.
- b. Inform the Deputy Fire Controller of any staff on holiday or on days off.

Risk control

It is considered that the recommendations outlined below should be implemented against the assigned priority in order to reduce the risk to the environment from fire.

Definition of priorities:

1	Serious hazard or deficiency requiring immediate remedial action within 3 months
2	Hazard or deficiency identified requiring remedial action within 6 months
3	Recommendations to improve fire safety incorporating changes in standards and best practice within 12 months

Recommendation	Priority	Insert completion date
Creation of a fire logbook (will become part of site inspection sheets).	2	Upon permit issue

Fire controller training, assembly point controller training, fire marshal training & logbook training to be given to nominated personnel.	1	Upon permit issue
Prominent 'No Smoking' signs should be displayed on the recycling site. Continual monitoring of staff for smoking activities on the recycling area should be instigated.	1	Upon permit issue
Portable appliance testing (PAT) should be undertaken on all appropriate electrical equipment.	3	Currently in place
Ensure that fire escapes are clear of all materials and machinery at all times.	1	Upon permit issue
All staff should undertake annual refresher training detailing the action to be taken in the event of a fire.	1	Will be added to training schedule upon permit issue
Ensure all wastes that are accepted on to the facility have robust waste acceptance procedures in place; so that storage of materials for periods longer than 3 months, does not occur.	1	Currently in place
Undertake an up to date fire risk assessment if the materials accepted on to site change in characterisation or composition.	3	Ongoing monitoring

If all the above recommendations are implemented in accordance with this FPMP and the guidance published by Natural Resources Wales, the risk to the environment from fire on this site would be considered:

Low	✓	Normal		High	
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Water and FRS access

The Fire Prevention and Mitigation Plan Guidance highlights that a 300m³ stack of combustible material will normally require a water supply of 2000 l/min for a minimum of 3 hours.

Based on the proposed waste volumes on site (for the largest stockpile) of 800m³ of waste that could be stored at any one time. Therefore, the requirement for water on site will be 960,000l for a burn time of 3 hours if all the waste in the stockpile was to catch fire at the same time.

Due to the storage arrangements of the stockpiles of waste, the above situation is a highly unlikely scenario. However, as previously mentioned 2 water storage tanks are held on site and linked to a high-pressure hose system (60,000l). The tank is checked weekly for water level and are to be topped up if required. However, once full, the sealed system will lose water very slowly through evaporation and so it not anticipated to be required to be topped-up very frequently. This will be used as an early fire-fighting measure to limit the spread of any fire on site in the time that it takes for the FRS to attend site.

The level of water within the tank will be checked weekly to ensure it remains full. These checks will be visual and will include checking of the tank integrity ensuring that no damage is noted within the skin of the tank or that valves etc. feeding the system are fully operational. These checks will be documented within the site EMS and maintenance checklist. Additionally, a common hose attachment is to be fitted allowing for small scale and initial firefighting operations if safe to do so. Sufficient length of hose will be stored on site so that all areas of the site are reachable.

There are a series of natural springs that run off from the adjoining farmland that enter the LRC along the North Western boundary. The spring water is in constant flow and is collected in a drainage channel that is piped under the concrete of the LRC and surfaces behind the Nappy store building (detailed on the site plan). The flow rate of this spring water has recently been calculated for planning purposes and an average flow rate of 60l/min (10,800l for a 3-hour burn time), this area can be shut off using the outlet shut off valve to be captured for firefighting operations.

The settlement lagoon that has been engineered on site to prevent any silt escape measures 25 x 10 x 1.5; this allows a volume of approximately 375m³ of water to be stored. As the system is filled by the springs mentioned above, the water level is always maintained and maximised allowing a storage capacity of approximately 375,000l to be held. This water is available for firefighting purposes and can be accessed via double gates towards the entrance for the site, highlighted by the yellow triangle on the site plan attached.

The site also has a water collection lagoon that deals with the run-off from the site (non-leachate). This area for this is 683m² and is approximately 1.5m deep providing a volume of 1025.5m³ to be stored. The water within this area is approximately 1,024,500l and can be easily accessed from the site to help with fire-fighting operations.

In total, LRC can offer approximately 1,459,500l of water for firefighting operations (1,024,500l in the storage lagoon, 375,000l from the spring inlet if dammed off and 60,000l via the water storage tanks). This is exclusive of the water that could be utilised as re-circulated firewater if deemed appropriate by the FRS when the site is bunded off.

In a worst-case scenario, the FRS may need access to the River that flows adjacent to the site. Highlighted within Figure 1 of Appendix A are 2 points of access to the River that are the safest for the FRS. The point that is near to the site entrance can be accessed via the road into the car park. There is a steep banking towards the river, however this can be walked to place a pump within the river. This point is approximately 50m from the buildings location.

The second point of access is to the rear of the site and is accessed through a farmer's gate in the corner of the site. There is a gentle slope to the river from here and this is easily walked in order to get a pump in the watercourse. This point is approximately 40m from the waste location.

NRW have been contacted to ascertain the flow rate of the river that flows alongside the site, but a response has not yet been provided.

In any event, it will be necessary to consider the possibility of a pollution incident where water run-off causes pollution off-site. This would be controlled by measures detailed within the Site Process-in the event of a major fire incident section above.

In order that fire appliances can move safely and effectively around the site, access roads are provided in accordance with the published guidance document and are a minimum of 5m wide.

Appendix A

Figure 1—Drawing showing more detailed areas on the drawing.

Figure 2—Location of receptors within 1km of site.

Appendix A

Figure 1 Appendix A



