



FIRE PREVENTION AND MITIGATION PLAN

EPS MATERIALS RECOVERY Ltd.
Kings Dock, Swansea, SA1 8QT



FIRE PREVENTION AND MITIGATION PLAN

CONTENTS

PAGE

1 INTRODUCTION

1.1 Background

1.2 Purpose of this Fire Prevention and Mitigation Plan

2 SITE LOCATION AND OPERATIONS

2.1 Site Location

2.2 Waste Management Operations

2.3 Waste Inventory

2.4 Other Materials

3 CAUSES OF FIRES, PREVENTATIVE MEASURES AND POTENTIAL IMPACTS

3.1 Fire Prevention

3.2 Causes of Fires

3.2.1 Arson or Vandalism

3.2.2 Self-Ignition

3.2.3 Discarded Smoking Materials

3.2.4 Plant or Equipment Failure

3.2.5 Hot Exhausts

3.2.6 Electrical Faults

3.2.7 Reactions between Incompatible Materials

3.2.8 Hot Loads Leaving at

3.2.9 Hot Works

3.2.10 Open Burning

3.2.11 Sparks from Loading Buckets

3.2.12 Damaged or Exposed Electrical Cables

3.2.13 Neighbouring Site Activities

3.2.14 Industrial Heaters

3.3 Potential Impacts of Fire

3.3.1 Potential Impacts of Fire Incidents on Receptors

3.3.2 Receptors

3.3.3 Toxic Smoke Plumes—Air Quality Impacts

3.3.4 Potential Impacts and Response Measures

3.3.5 Fire Water Run-Off

3.3.6 Thermal Radiation

3.3.7 Combustion Residues



FIRE PREVENTION AND MITIGATION PLAN

4 STORAGE AND SEPARATION OF WASTES

Un-processed Metal
Processed Metal

5 FIRE DETECTION AND SUPPRESSION SYSTEMS

5.1 Fire Detection Systems

- 5.1.1 Site Inspections
- 5.1.2 Heat Detection

5.2 Fire Suppression Systems

- 5.2.1 Portable Fire Extinguishers
- 5.2.2 Inert Stockpiles
- 5.2.3 Fire Pump

6 EMERGENCY FIRE RESPONSE AND ACTIVATION PLAN IN CASE OF FIRE

- 6.1 Emergency Fire Response
- 6.2 Firefighting Methods
- 6.3 Fire Marshals
- 6.4 Staff Training
- 6.5 Notification of Fires to NRW

7 ACCESS AND TRAFFIC MANAGEMENT PLAN FOR EMERGENCY SERVICES

8 FIRE WATER RUN OFF

9 REMOVAL OF FIRE WASTE



FIRE PREVENTION AND MITIGATION PLAN

1 INTRODUCTION

1.1 Background

Fires involving combustible materials can cause significant harm to people and the environment as a result of:

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;

Fire water run-off: this can transport pollutants into drainage systems, rivers and lakes, groundwater and soil, threatening water supplies, public health, wildlife and recreational use;

Thermal radiation: which harms people and the environment and can lead to fire spread;

Hazardous waste: which can be created by the fire and has important ramifications for firefighting

Explosions and projectiles: which can harm people and spread the fire to unaffected areas

Harm to people and property: fire can threaten life and cause property damage

The impact of a fire may be both immediate and long lasting and can present a significant burden for the Fire and Rescue Services, other agencies and the public — including the risk of death, and harm to public health.

As a polluter the company responsible for the fire is likely to be required to pay the cost of any subsequent clean-up. This can be expensive, as in many cases the solid remains of combustion products and partially burnt material is classified as hazardous waste. There may be other costs associated with responders' incident response and/or fines or costs through the criminal and/or civil courts.

Other indirect effects on a business can result from a fire; its reputation may suffer and insurance costs are likely to rise.

1.2 Purpose of this Fire Management and Mitigation Plan

This Fire Prevention Plan (FPP) outlines the methods by which EPS Materials Recovery will systematically assess, prevent and act to control fire within combustible materials) stored at Graigola Wharf, Kings Dock, Swansea, SA1 SQT with an annual throughput of 75,000 tonnes per annum.

This Fire Prevention and Mitigation Plan (FPMP) serves two purposes; to provide a management system to control fire risks at the site during its clearance and to provide a management system to control future fire risks at the Graigola Wharf site that is the subject of the ongoing permit application. It forms part of a suite of Management Plans (including Odour, Fire, Surface Water and Pests) that have been prepared to enable the operation of the facility to be undertaken in a manner that minimises any risk of environmental harm.



FIRE PREVENTION AND MITIGATION PLAN

The fire management and Mitigation plan is a working document with the specific aim of ensuring that:

Fire prevention is a day to day activity delivered through good operational practices, including physical and management control measures; and

All appropriate measures are taken to prevent fire but, in the event of a fire occurring, plans are in place and are effective in minimising environmental risks.

The following operations will be undertaken at the site:

- Receipt of oversize scrap metal (over 5tf)
- Receipt of scrap metal (under 5tf)
- Storage of scrap metal (under 5tf)
- Storage of scrap metal (over 5tf)
- Flame cutting of oversized metal
- Mechanical cutting of oversized metal
- Mechanical sorting of scrap metal
- Loading of processed metal onto vessels for export
- Loading of processed metal onto vehicles for disposal at another facility

This FPMP has been produced to address the impacts of fire outbreak, monitoring procedures and the control measures employed to mitigate any risk and considers:

- Feedstock Inventory;
- Storage Conditions and Process Management;
- Prevention Techniques;
- Fire Procedures;
- Combustion Products, Minimisation and Control;
- Safe Access; and Site Plans.



FIRE PREVENTION AND MITIGATION PLAN

2 SITE LOCATION AND OPERATIONS

2.1 Site Location

The facility is located at Graigola Wharf, Kings Dock, Swansea, SA1 8QT (Drawing 10927- 000- B). The facility is accessed via Swansea Docks access road which connects with the A483 Fabian Way. The facility is located within an industrial area and the immediate neighbours to the site are industrial users and waste management companies. There is the potential of impact of fires to adjacent sites and these impacts and locations are reviewed in more detail in this plan along with a plan showing the location of the potential receptors.

2.2 Waste Management Operations

The following operations will be undertaken at the site:

- Receipt of oversize scrap metal (over 5tf)
- Receipt of scrap metal (under 5tf)
- Storage of scrap metal (under 5tf)
- Storage of scrap metal (over 5tf)
- Flame cutting of oversized metal
- Mechanical cutting of oversized metal
- Mechanical sorting of scrap metal
- Loading of processed metal onto vessels for export
- Loading of processed metal onto vehicles for disposal at another facility

2.3 Waste Inventory

In order to understand the fire risk of the different waste streams that enter these processes, a feedstock inventory has been provided for the various waste types. Table 1 below provides an assessment of each waste type by source of material, identifying the typical and abnormal compositions of those waste types and providing an overall potential of that feedstock based upon the likelihood of abnormal compositions being encountered at site.

FIRE PREVENTION AND MITIGATION PLAN

Table 1

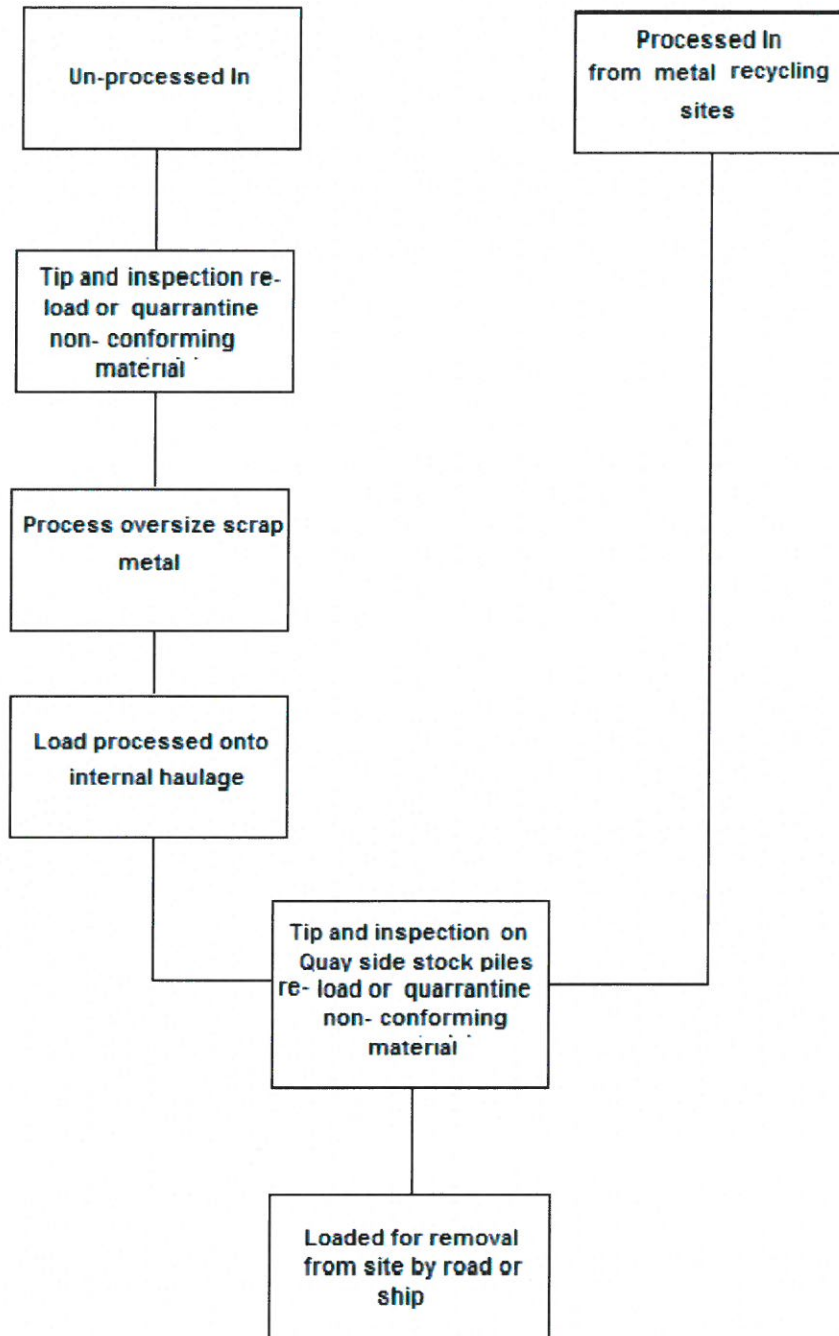
Waste Type	Waste Source	Likelihood	Fire Risk
Over 5ft ferrous metals (unprocessed)	CA Sites, Householders, Demolition sites	Low	Low- Properly inspected, processed and stored waste are unlikely to be at risk of self-ignition Risks are largely limited to external ignition
Over 5ft Non-ferrous metals (unprocessed)		Low	
Under 5ft ferrous metals (processed)	Other MRS Facilities,	Low	Low- Properly inspected and stored waste are unlikely to be at risk of self-ignition Risks are largely limited to external ignition
Under 5ft Non-ferrous metals (processed)		Low	

On completion of the processing operation, material is transferred to processed stock piles. Processed material from all streams are floor tipped 2-3 meters from the processed stock piles for inspection for non-conforming material before mechanically placed on the stockpiles pending transfer onto Quay side vessels for export or on lorries for domestic transfer. Any non-conforming materials are re-loaded or placed in Quarantine.

Materials are processed on a 1st in 1st processed basis.

Processed materials are shipped/loaded out on a 1st in 1st out basis to ensure stock rotation.

FIRE PREVENTION AND MITIGATION PLAN



Material	Storage Area	Storage Time
Oversize scrap metal	Oversize processing area	< 2 months
Cut to size scrap metal	Quay side storage area	< 3 months

FIRE PREVENTION AND MITIGATION PLAN

2.4 Other Materials

Storage of flammable liquids, combustible liquids or gases, hazardous waste or dangerous substances.

Flammable Liquids

Material	Maximum Quantity	Type and size of storage	Type and size of Secondary Containment
Heating oil	1,500 litres	Plastic tank	External integrated plastic bund >110% of capacity
Diesel (Main Storage)	5,000 litres	Single skin steel tank	External concrete bund >110% of capacity
Diesel (Baler)	4,000 litres	Plastic tank	External integrated plastic bund >110% of capacity
Diesel (Shears)	4,000 litres	Plastic tank	External integrated plastic bund >110% of capacity
Petrol	None	N/A	N/A
Engine oil	None	N/A	N/A
Engine Coolant	None	N/A	N/A
Screen Washer Fluids	None	5 litre plastic containers	Metal container
Workshop Oil	50 litres	N/A	N/A
Caustic Chemicals, Acids, etc	None	N/A	N/A

Combustible liquids or gases

Oxygen/Propane (Flame Cutting) Stored at the West side of facility at a minimum distance of 6m away from stockpiles and buildings. All flame cutting operations ceased at least half an hour before end of shift ensuring there is no risk of fire as a result of the days operations. (Fire Watch)

Hazardous Waste (Batteries)

Lead acid batteries stored in containers with an impermeable, acid resistant base and a cover to prevent ingress of water. Batteries are stacked in containers as not to cause short circuit of the terminals that could result in a fire.



FIRE PREVENTION AND MITIGATION PLAN

3 CAUSES OF FIRES, PREVENTATIVE MEASURES AND POTENTIAL IMPACTS

3.1 Fire Prevention

For a fire to start it is necessary to have fuel, a source of ignition (heat) and oxygen. If any one of the components of the fire triangle is missing, a fire cannot start. Taking measures to avoid the three coming together will reduce the chances of a fire occurring.

3.2 Causes of Fires

The following potential causes of fires have been identified from a risk assessment of the site.

3.2.1 Arson or Vandalism

The risk of fire from Arson or Vandalism has been assessed as medium. The following measures will be implemented to reduce the risk to low:

- Provision of a secure 2 metre high fencing system around the entire perimeter of the site.
- Daily/Weekly Inspection programme to ensure no breaches in the external fencing.
- CCTV installed to monitor site out of hours.

In addition, the following general mitigation measures will be will be implemented.

- All combustible wastes will be kept within the storage area in accordance with section 6 of this Fire Prevention Plan.

- A Fire Marshall will carry out end of shift inspections to ensure no heat or smoke is present within the storage areas and stockpiles.

- Fire extinguishers and water pump on-site to manage fire outbreaks before emergency services arrive.

- Penstocks and drain covers (blockers) will be available on-site to control run-off in the event of a fire.

- Staff will be trained in fire prevention/management and emergency procedures will be in place to deal with any fire on-site.

3.2.2 Self-Ignition

As the materials handled at the facility are predominantly from municipal sources, or are household-type waste from commercial and industrial sources, the risk of self-ignition, due to the release of heat is assessed as medium. The following measures will be implemented to reduce the risk to low:

- Robust waste acceptance procedures will ensure that waste received meets the sites waste acceptance criteria and does not represent any elevated self-ignition risk.

- Daily check of stockpile to identify "hotspots" steam smoke flames



FIRE PREVENTION AND MITIGATION PLAN

3.2.3 Discarded Smoking Materials

The risk of fire from smoking materials has been assessed as medium. The following measures will be implemented to reduce the risk to low:

The site operates a strict no smoking policy, with the only permitted smoking outside of the main entrance gates off-site.

Cigarette disposal bins to be provided in smoking area outside of the main entrance gates to ensure all discarded smoking materials are kept off-site.

3.2.4 Plant or Equipment Failure

The following measures will be implemented to reduce the risk to low:

All plant and equipment to be serviced and maintained as per the manufacturers' requirements to ensure reliability and to reduce the possibility of failure. This includes the maintenance of fire extinguishers fitted to plant and equipment.

Daily maintenance inspections are to be carried out by trained plant operatives with any and all defects being reported by no later than the end of the working day. Should the daily inspection locate a serious defect the plant or equipment will not be put in to service and will be quarantined in the plant parking area until the defect has been rectified.

All plant to be parked at the end of shift a minimum of 6 metres from stockpiles. Where the plant is static or cannot be moved readily then the plant must be cleaned down to ensure no potential combustible waste in and around the item of plant or equipment.

Provisions for back-up plant and equipment to be in place to ensure failed plant or equipment can be replaced within a reasonable timescale which will allow the operations to continue safely and without increasing the risk of fire.

3.2.6 Electrical Faults

The risk of fire from electrical faults has been assessed as medium. The following measures will be implemented to reduce the risk to low:

All electrical cables will be tested and isolated prior to the start of operations.

The use of mobile power tools and power supplies will be limited to essential maintenance only.

Firefighting equipment suitable for electrical fires will be available on site at all times.



FIRE PREVENTION AND MITIGATION PLAN

3.2.7 Reactions between Incompatible Materials

As the materials handled at the facility are predominantly from municipal sources, or are household-type waste from commercial and industrial sources the risk of reactions between incompatible materials has been identified as Low. Whilst acceptable without further mitigation, the following measures will be implemented to reduce the risk to negligible:

Robust waste acceptance and inspection procedures.

Should any material be discovered that is likely to cause a reaction with other wastes this would be removed from any potential combustible materials and placed in quarantine.

3.2.8 Hot Loads Leaving at Site

The risk of fire from Hot Loads has been assessed as low. Whilst acceptable without further mitigation, the following measures will be implemented:

A hot load should NOT be allowed to leave site.

If the load is hot, depending on the severity of the heat the load will be removed to a quarantine area where it can be extinguished, emergency services must be called immediately should the site management be unable to manage the hot load.

The load must be directed to a safe and contained area It must be tipped as directed by the Site Manager (or responsible person). This will be done on a concrete area within the site located at least 6 metres from any other waste materials.

If the operators have any doubts about the suitability of the area, they should raise them before offloading the vehicle.

A site Fire Marshall should be present during all hot load management to ensure full compliance with any instructions from the site management. The Fire Marshall will inspect the area after extinguishing of the hot loads to ensure no heat sources or fires are present.

Regardless of the outcome of this inspection, the area where the hot load was tipped will be dowsed with water to minimise the risk of secondary fires.

Firefighting equipment including fire extinguishers will be available at all times during the management of hot loads.

FIRE PREVENTION AND MITIGATION PLAN

3.2.9 Hot Works

The risk of fire from Hot Works has been assessed as low. Whilst acceptable without further mitigation, the following measures will be implemented:

Where possible all hot works must be carried out away from the waste processing operations or away from any stockpiles of waste that have the potential to cause fire. If hot works must be carried out near combustible materials then a minimum of 6 metres must be maintained at all times during the hot works.

All hot works must be carried out under permit to work which is part of the sites Environmental Management System which is attached as part of this Fire Prevention Plan. A site Fire Marshall will be present during all hot works to ensure full compliance with any permit issued under hot works rules. The Fire Marshall will inspect the area after the completion of the hot works to ensure no heat sources or fires are present.

The area of the hot works will be doused with water to minimise risk of fires.

Firefighting equipment including fire extinguishers will be available at all times during hot works.

3.2.10 Open Burning

The risk of fire from Open Burning has been assessed as negligible. Whilst acceptable without further mitigation, the following measures will be implemented:

The burning of wastes of any kind is strictly prohibited on-site.

Site rules and induction programme for staff.

Disciplinary procedure to make specific reference to burning of waste – gross misconduct.

3.2.11 Sparks from Loading Buckets and Grab Attachments

The risk of fire from sparks from loading buckets has been assessed as negligible. Whilst acceptable without further mitigation, the following measures will be implemented:

The dragging/pushing of buckets along concrete surfaces should be kept to a minimum.

The site yard brush should be used to maintain site cleanliness rather than scraping with a loading bucket or grab.

All loading buckets should be inspected daily as part of inspection programme to ensure they are flat and level to avoid any uneven contact with possible surfaces that could lead to sparking.

The use of rubber across the bottom edge of loading shovels or grabs would be ineffective as any strip would be damaged or removed during the handling of wastes. Alternative methods of spark reduction will be investigated should sparking become a noted problem during the operation of the equipment. All operators will be instructed to monitor their buckets/grabs and report any sparks.



FIRE PREVENTION AND MITIGATION PLAN

3.2.12 Damaged or Exposed Electrical Cables

The risk of fire from damaged or exposed electrical cables has been assessed as negligible. Whilst acceptable without further mitigation, the following measures will be implemented:

All electrical cables will be isolated before any works can begin.

The use of mobile power tools and power supplies will be limited to essential maintenance only, this will reduce the possibility of damage to electrical equipment and cables.

An annual inspection of all electrical systems will be carried out to ensure that all systems are sound and safe.

Annual PAT testing will be carried out on all relevant equipment to ensure they are compliant and safe to use.

Firefighting equipment suitable for electrical fires will be available in suitable locations around the site.

3.2.13 Neighbouring Site Activities

The risk of fire from neighbouring site activities has been assessed as negligible. The adjacent site activities are unlikely to cause fire risk as the plant is located some distance from waste storage areas.

3.2.14 Industrial Heaters

The site does not use industrial heating of any kind.

3.3 Potential Impacts of Fire

3.3.1 Potential Impacts of Fire Incidents on Receptors

Fires involving combustible materials can cause significant harm to people and the environment as a result of:

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;

Fire water run-off: this can transport pollutants into drainage systems, rivers and lakes, groundwater and soil, threatening water supplies, public health, wildlife and recreational use;

Thermal radiation: which harms people and the environment and can lead to fire spread;
hazardous waste: which can be created by the fire and has important ramifications for fire fighting

Explosions and projectiles: which can harm people and spread the fire to unaffected areas
Harm to people and property: fire can threaten life and cause property damage

The impact of a fire may be both immediate and long lasting and can present a significant burden for the Fire and Rescue Services, other agencies and the public – including the risk of death, and harm to public health.

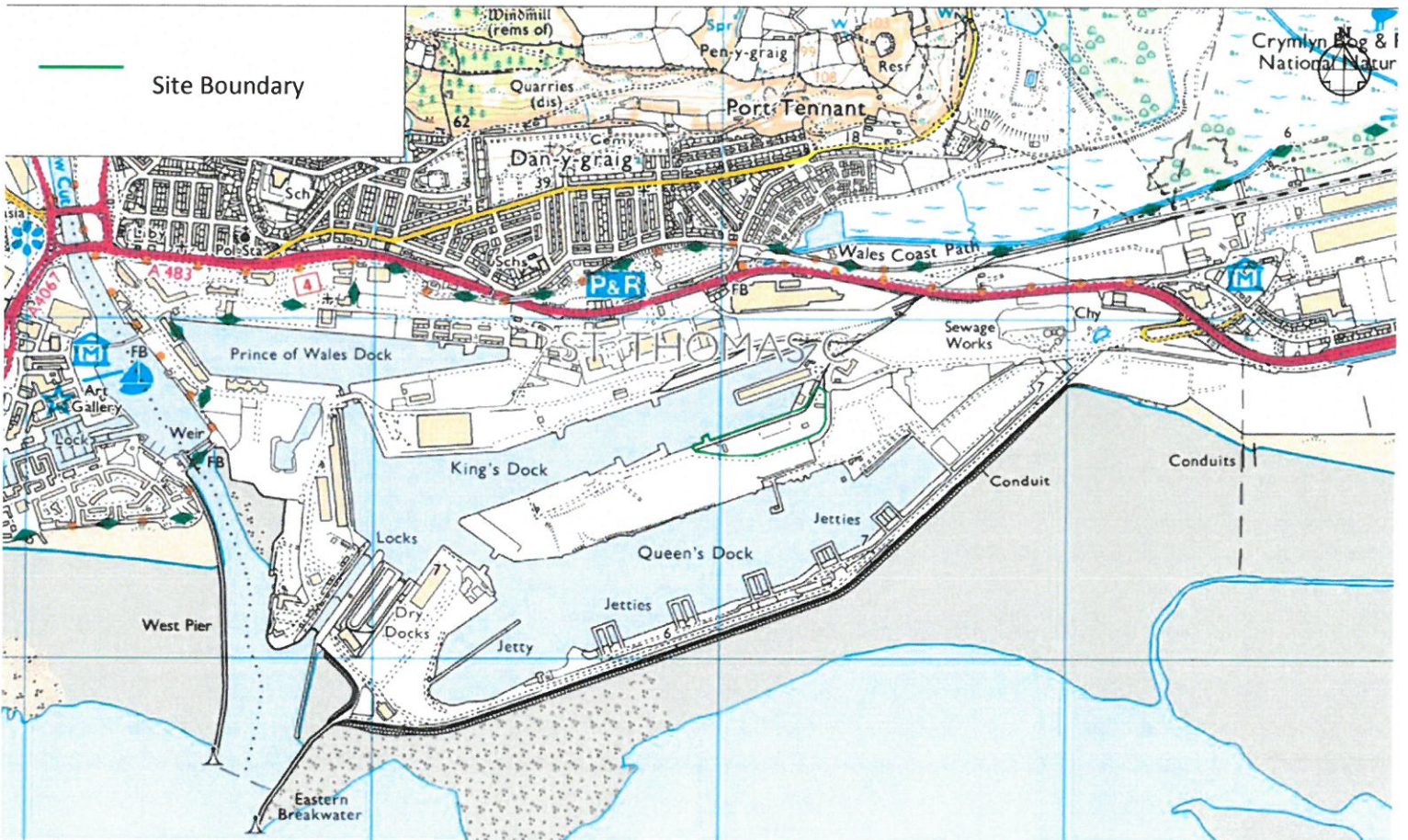


MATERIALS RECOVERY LTD

FIRE PREVENTION AND MITIGATION PLAN

3.3.2 Receptors

Site Boundary



TECHNIA ENVIRONMENT AND PLANNING
SUITE 4 ST. MARGARET'S PARK
PENGAN ROAD, ABERBARGOED, CF81 9FA
TEL 01443 821619
EMAIL PLANNING@TEPLEU

EPS MR LTD

SITE AND SURROUNDING AREA

Job No. EPS Drg No.

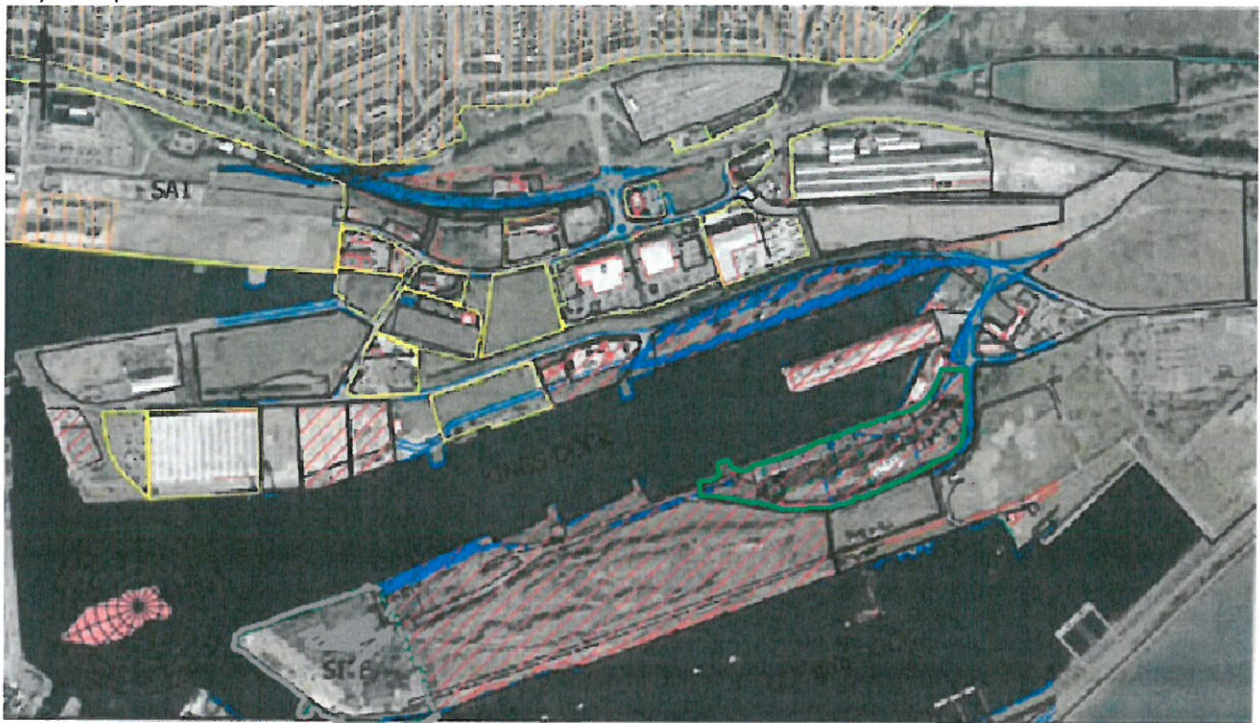
Drawn	SW	Scale
Ch'kd	BS	1:10,000
App'd	BS	@A3
Date	08/12/15	

10934 - 000 - A

FIRE PREVENTION AND MITIGATION PLAN

In reviewing the potential Impacts of Waste Fires and also considered the location of local receptors including critical infrastructure such as schools, hospitals, residential areas, workplaces, protected habitats, rivers and coastal waters within a 1km radius of the site. These receptors have been identified on the aerial photograph.

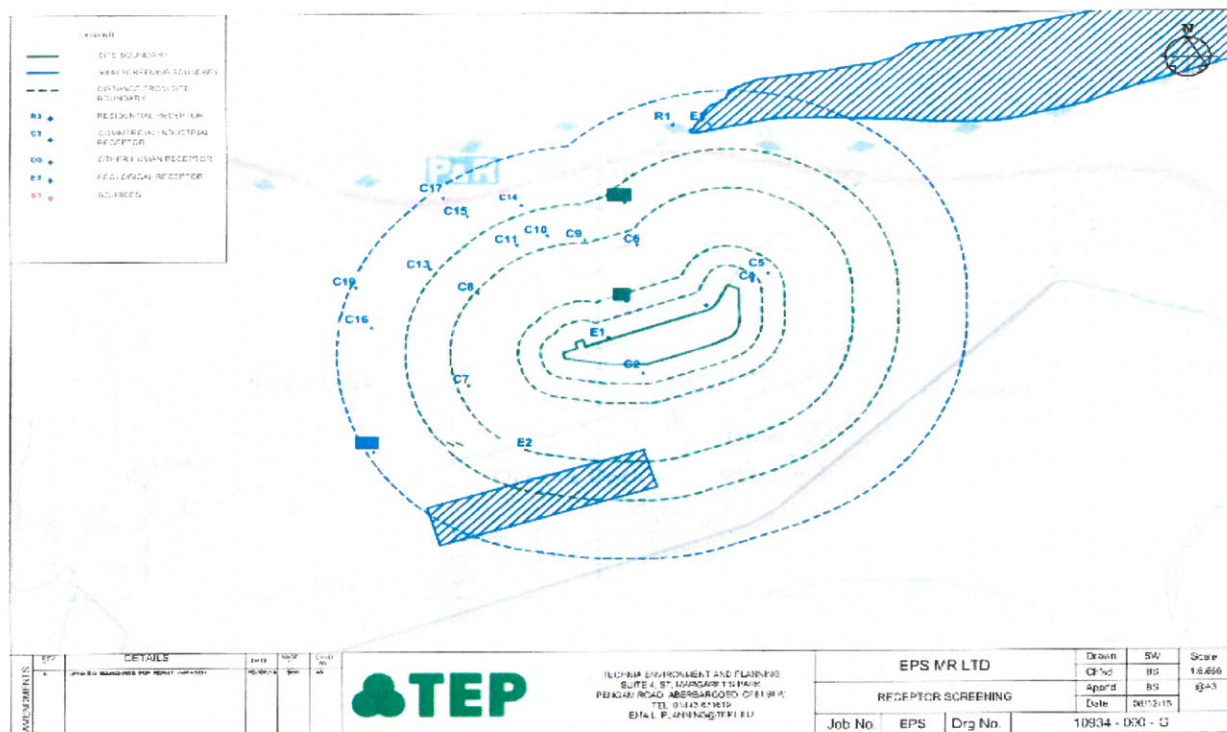
Key Receptor Areas



LEGEND

 Permit Boundary	 Commercial Areas (Primarily Indoor)
 Residential Areas	 Other Industrial/Waste Activities (Primarily Outdoor)
 Undeveloped Areas	

FIRE PREVENTION AND MITIGATION PLAN



3.3.3 Toxic Smoke Plumes – Air Quality Impacts

Air emissions from uncontrolled waste fires have shown to be more toxic than those from controlled combustion sources (i.e., waste to energy facilities, cement kilns, etc.). These emissions contain contaminants that may include: oxides of nitrogen or Sulphur (NO_x, SO_x), Carbon Monoxide (CO), volatile organic compounds (VOCs) and various metal compounds. Depending on the length and degree of exposure, these emissions may cause irritation of the skin, eyes, mucous membranes and cause respiratory effects.

As the smoke plume is most likely to impact the local residents, local shops and local work places the quick management and control of a fire is an important factor in minimising impacts on receptors. This FPMP provides details and procedures for achieving this.

Wind direction and speed will play a significant role in the dispersion of smoke plumes, with rainfall also playing a lesser role by removing airborne particles. To manage the impacts of smoke once released from a fire it is essential that information regarding the direction of the smoke released is identified and that the plume is monitored to establish its extent and likely dispersion radius.

3.3.3.1 Wind Direction and Rainfall

The pathway by which plumes may impact upon receptor locations is a result of atmospheric dispersion. In

general, high wind speeds lead to a plume being more rapidly dispersed and diluted due to turbulence, and

low wind speeds inhibit dispersion.

FIRE PREVENTION AND MITIGATION PLAN

A wind rose based on 10 years data for Mumbles Head observation station located approximately 6.5km to the south west of the site (at an elevation of 32m ASML) is presented in the Table below. It is evident that winds from the west to south west predominate in the area and winds from the south, north and east tend to be infrequent and characterised by light winds. Low wind speeds (<3.1m/s) occur for 18.8% of time each year.

Rainfall data obtained for the Mumbles Head observation station (1981 – 2010 averages) from the Meteorological Office website indicates that the average number of rainfall days per year is 147.9 (days with rainfall >1mm) i.e. occurring on approximately 40.5% of days throughout the year. Rainy days were more prevalent between October and January. The map showing annual average for days greater than 0.2mm shows that the site received an average of 180-200 days of rainfall each year between 1981 and 2010.

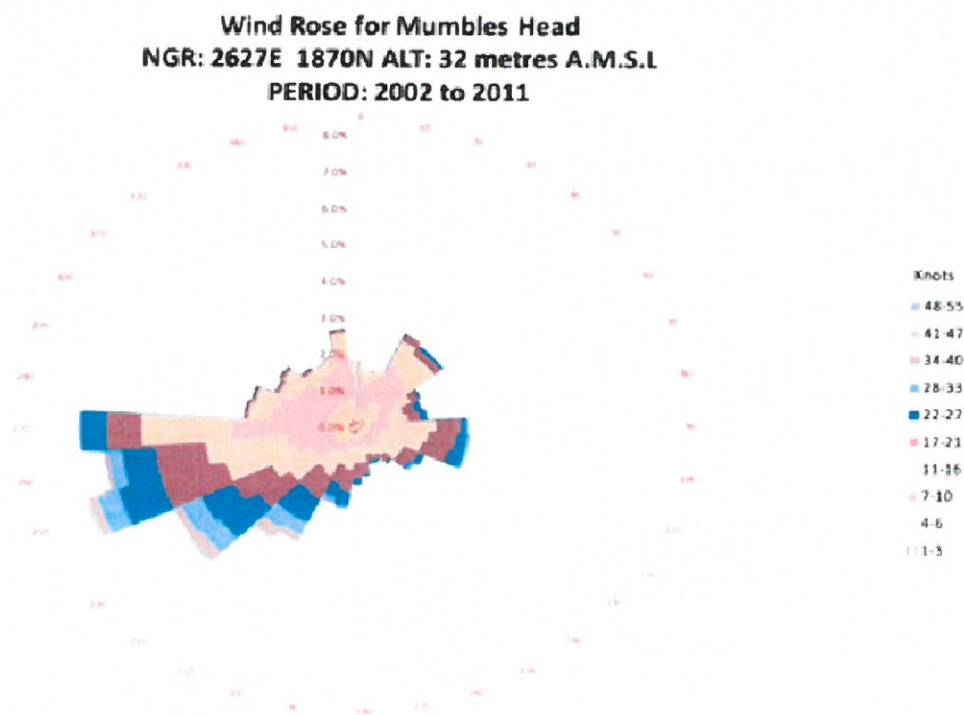
3.3.4 Potential Impacts and Response Measures

Based on the windrow presented in Table 2 the prevailing wind direction shows a strong tendency to come from the west. As a consequence, it is more likely that any fire effects will be experienced by receptors located to the east of the site (albeit the wind direction may be in a different direction at the time of a fire).

The closest receptors to the east of the site are commercial businesses within the Swansea Dock site. At present there are two businesses within 500m to the east of the site:

Stenor Ltd – an inert waste recycling facility and also the Sewage works

Measures to minimise the impact of fire on people present within these premises (and all premises within 500m of the site) has been considered as part of the fire emergency response procedure presented in section 6.



FIRE PREVENTION AND MITIGATION PLAN

3.3.5 Fire Water Run-Off

Fire water run-off has the potential to contain harmful combustion by-products, or un-combusted waste materials washed from other areas of the site. The volume of water involved and the subsequent dilution of these compounds will vary based on the scale and nature of any fire. Minimising potential impacts to the environment and local infrastructure is a key consideration. Consultation with the Fire Services, NRW and Swansea Port Authority at the start of any fire will be needed to reduce any impacts from fire water. If it is not possible to prevent fire water from entering the dock then consideration will be given to how damage to the local environment can be mitigated.

3.3.6 Thermal Radiation

Heat from a fire may burn human or fauna/flora receptors or be absorbed by other combustible materials causing them to heat up and ignite. The main principle of radiation is: the closer the material is to the fire the more radiated heat it will receive.

The emergency response plan included in section 6 takes steps to remove people and objects to a safe distance from the fire and gives consideration to nearby land usage and the potential for secondary fires as a result of thermal radiation. In addition, the inclusion of fire breaks within the stockpiles will reduce the potential for any fire spreading into nearby stockpiles as well as allowing unimpeded access around the stockpiles by the emergency services.

3.3.7

Combustion Residues

Residues from fires have the potential to cause environmental damage if not correctly managed following a fire. Residues in some circumstances may be considered hazardous and require specific management controls to ensure recovery or disposal is undertaken to minimise any potential for environmental damage. As part of this FPMP the impact of residual wastes from waste fire has also been considered and is covered in more detail in section 9. In general residues will be sampled and characterised before being removed from site for recovery/disposal at suitably licensed facilities.

4 STORAGE AND SEPARATION OF WASTES

The list of the materials stored on-site comprises the following:

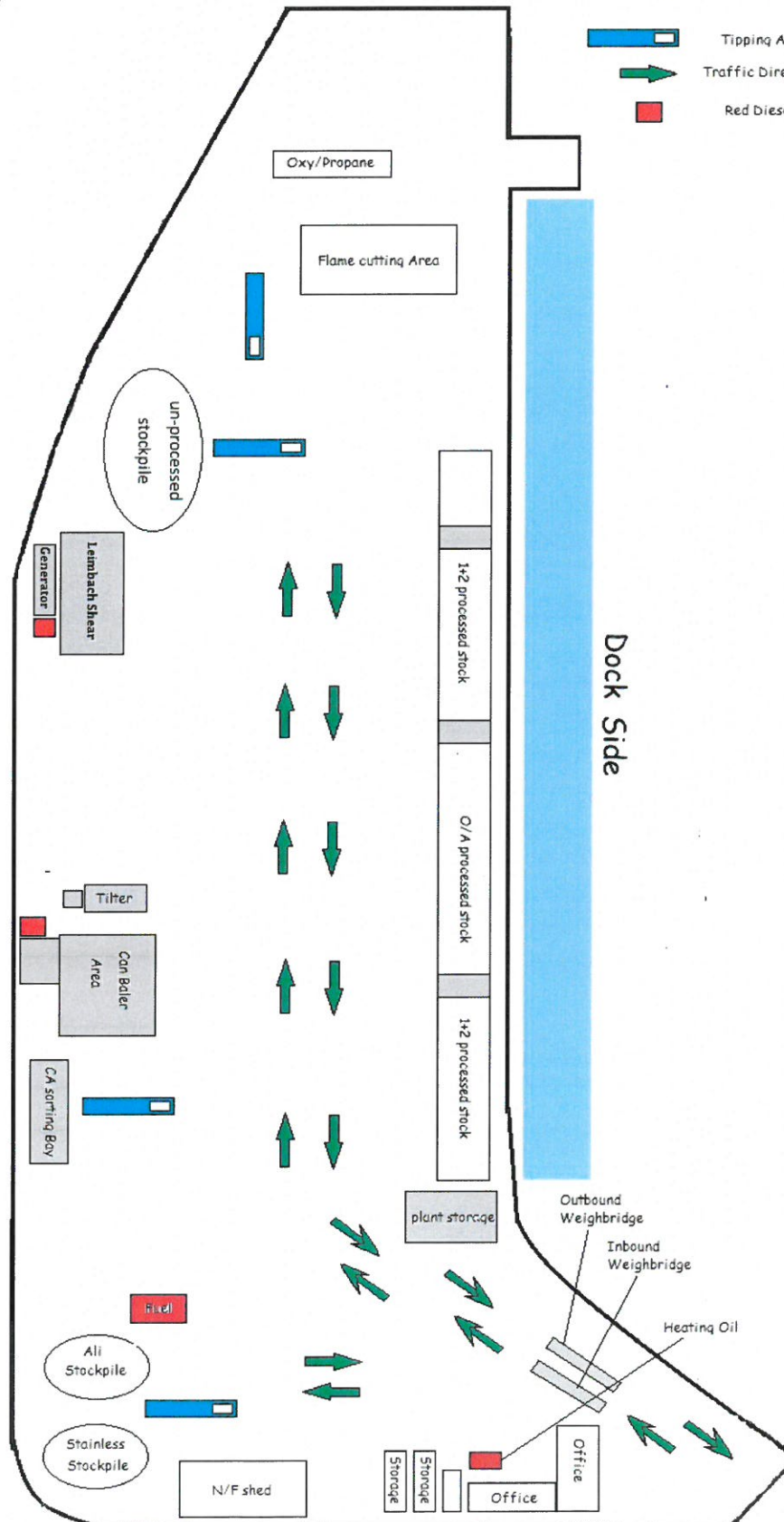
Material	Storage Area	Storage Time
Oversize scrap metal	Oversize processing area	< 2 months
Cut to size scrap metal	Quay side storage area	< 3 months
Aluminium	Aluminium Storage area <30t	< 2 months
Stainless Steel	Stainless storage area <30t	< 2 months
Copper Brass Lead	Inside metal shed <30t	< 2 months
Lead Acid Batteries	Acid retardant Boxes inside metal shed <25t	< 2 months

FIRE PREVENTION AND MITIGATION PLAN



Traffic Plan

-  Tipping Area
-  Traffic Direction
-  Red Diesel





FIRE PREVENTION AND MITIGATION PLAN

5 FIRE DETECTION AND SUPPRESSION SYSTEMS

5.1 Fire Detection Systems

5.1.1 Site Inspections

The Site Manager will carry out site inspections as least twice per day. Visual inspection of the site and Stock piles will be undertaken with a view to identifying evidence of fire or potential fire risks. Any risks will be recorded on the daily inspection sheet, remedial action identified and implemented.

5.1.2 Heat Detection

The stockpiles and working faces will be checked at least once per day as part of the daily inspections to ensure they are not showing signs of overheating by the Site Manager/Fire Marshall

5.2 Fire Suppression Systems

The following fire suppression systems are available at the facility.

5.2.1 Portable Fire Extinguishers

The facility will be equipped with fire extinguishers of a type, size, location, and number as recommended by the local fire service. Each fire extinguisher will be fully charged and ready for use at all times. The site accident/incident plan indicate the location of these appliances.

The following types of fire extinguisher will be available:

Dry Powder Fire Extinguisher

Water Fire Extinguisher

Carbon Dioxide

Foam

Each extinguisher will be inspected on an annual basis and recharged as necessary. A qualified service company will perform these inspections, and all extinguishers will display a current inspection tag. Inspection and recharging will be performed following each use.

All operating plant that is used to handle the waste is also fitted with Fire Extinguishers which can be used to suppress small fires should the operator or staff notice them.

5.2.2 Inert Stockpiles

Soil and other inert materials that are free of organic materials is helpful in extinguishing fires. Soil absorbs heat and suffocates a fire and can be used as a useful suppressant when fighting waste fires. Approximately 250m³ of soil/inert material will be stockpiled adjacent to the storage area for use as a fire suppressant.

5.2.3 Fire Pump

The company has its own Pump to enable an immediate response to a significant fire incident while the emergency services are notified and arrive on-site.



FIRE PREVENTION AND MITIGATION PLAN

6 EMERGENCY FIRE RESPONSE AND ACTIVATION PLAN IN CASE OF FIRE

6.1 Emergency Fire Response

The following emergency fire plan will be followed when fire or smoke is suspected or discovered. The sequence of these steps may vary according to the circumstances of the fire emergency, but priority must always be given to the safety of staff and visitors, followed by the prevention of impact on local human or environmental receptors.

The following procedures are to be followed on the discovery of fire or smoke;

Upon discovering smoke or fire the alarm must be raised via the site radio/mobile phone call to the Site Manager or Main Office, or by repeated horn blasts and/or shouting to indicate a fire has been discovered.

The person discovering a fire should inform the Site Manager/Supervisor immediately (or if not immediately contactable a Fire Marshall) and provide an assessment of the situation. The Site Manager/Supervisor must immediately go to the vicinity of the fire to assess the situation and decide upon a course of action.

The person discovering a fire should then call the fire brigade on "999" providing details of the fire's location and scale.

All non-essential persons should be instructed to leave the area and report to the designated site assembly point. Where possible machine operators are to move their machines to a safe area only returning to assist in the movement of waste at the direction of the senior fire officer.

Persons evacuating must

Obey Fire Marshals' instructions;

Ensure others in the vicinity also evacuate;

Assist any person who needs help, if safe to do so;

Not stop to collect any personal belongings;

Proceed directly to the Assembly Point at Rose Wharf, east of the site; and

Remain there until officially instructed otherwise.

The Site Manager/Supervisor is to instruct the weighbridge operator to hold all incoming traffic and await further instructions.

If safe to do so, the person or persons discovering the fire should seal off the area and fight the fire using appliances provided. Persons with no specific training are not expected to fight a fire, but all staff should familiarise themselves with the location and basic operating principles of the equipment, in case they need to use it. Where safe to do so, the person discovering the fire should delegate tasks to available staff members in relation to fighting or preventing the spread of fires.

The Site Manager or a designated Fire Marshall will collect the roll call list and confirm the presence of staff and visitors at the assembly point.

If it is safe to do so, a search of all effective areas of the site will be undertaken by the Site Manager/Supervisor to ensure that everybody has evacuated the site.

The Site Manager/Supervisor is to ensure the fire water management measures are implemented at the earliest opportunity to prevent fire water from discharging into the dock.

Upon arrival the Site Manager will issue the Emergency services with the site accident plan and the emergency services will assume control of the situation, all instructions/advice given by them will be followed.



FIRE PREVENTION AND MITIGATION PLAN

The Site Manager/Supervisor is to advise the Officer in Charge of the emergency services if someone is missing.

After all occupants are evacuated, and visitors and staff are accounted for, the Site Manager will be responsible for contacting businesses within 500m of the site, starting with those downwind of the fire and the Swansea Port Authority to advise them of any particular measures required while the fire is being brought under control (e.g. the evacuation of nearby premises, closing of windows, etc.).

After all occupants are evacuated, and visitors and staff are accounted for, wait for the 'all-clear' from the fire brigade before returning staff to any affected area.

The Site Manager is responsible for ensuring the conditions that led to the fire are investigated (in association with the Fire Service and South Wales Police as appropriate), plant is safely recommissioned, accident plans and management systems documents are reviewed and improved, training requirements for staff personnel are reviewed and that any remedial measures (including further fire reduction measures and new procedures) are implemented

6.2 Firefighting Methods

Firefighting methods for burning solid waste include smothering the waste, separating burning material from other waste, or spraying with water from the on-site Pump.

The Site Supervisor or available staff may attempt to extinguish a fire using the correct extinguisher or the on-site pump if:

It is safe to do so;

It is a small fire that can be managed by the on-site staff (e.g. A smouldering waste, overheating/smouldering electrical equipment, small isolated area of waste);

Staff and Visitors have been moved from the danger area and an evacuation has commenced;

The fire brigade has been called; and,

The person using the extinguisher or fire appliance has been trained in their use.

If a fire occurs on a vehicle or piece of equipment, the equipment operator will bring the vehicle or equipment to a safe stop. If safety of personnel will allow, the vehicle will be parked away from fuel supplies, uncovered solid wastes, and other vehicles. The engine will be shut off and the brake engaged to prevent movement of the vehicle or piece of equipment.

6.3 Fire Marshalls

The Site Manager (and several deputies) will be trained as Fire Marshalls. They will also be responsible for implementing response plans and co-ordinating with the emergency services (and NRW) in the event of a fire.

6.4 Staff Training

Training of on-site personnel in firefighting techniques, fire prevention, response, and the fire protection aspects of the site will be provided, by established professionals, on an annual basis. Personnel will be familiar with the use and limitations of firefighting equipment available onsite. Records of this training will be included in the operating record for the facility.



FIRE PREVENTION AND MITIGATION PLAN

6.5 Notification of Fires to NRW

After any fire related to waste management activities that cannot be extinguished within 10 minutes of discovery occurs, NRW will be notified. The notification will include:

Contacting by telephone as soon as possible, but no later than 4 hours following fire discovery, and
Providing a written description of the cause and extent of the fire and the resulting fire response within 14 days of fire detection.

The facility will provide NRW with as much information as possible regarding the fire and fire-fighting efforts, as soon as possible after the fire occurs.

The fire prevention and fire control procedures for the facility will be revisited following the occurrence of a significant fire to determine if modifications are warranted.

7 ACCESS AND TRAFFIC MANAGEMENT PLAN FOR EMERGENCY SERVICES

As part of the emergency fire response all vehicles will be removed off site. Similarly all site vehicles/plant and equipment will clear site access routes for unimpeded use by the emergency services.

The site has a dedicated traffic management plan which shows the emergency routes available to the emergency services in case of fire or smoke. This plan will be communicated to the emergency services upon arrival at site.

As part of the overall Environmental Management System for the facility the access and traffic management plan includes the following;

Dedicated Site Plan showing emergency traffic routes.

Dedicated Site Plan showing access and egress points.

Site procedure giving detail instruction of on-site traffic management and the responsible management structure.

8 FIRE WATER RUN OFF

The objective of the fire water run-off management plan is to ensure that in the event of a fire all reasonable steps are taken to ensure that fire water run-off is contained on-site.

Due to limited space on-site, options for the construction of lagoons or areas for soakaway/infiltration of fire water are limited. Large areas of un-developed land are currently available adjacent to the site (South side) that could be used in the case of an emergency with the agreement of the Port Authority. The fire water run-off management strategy is to provide capacity for containing fire water run-off such that it can be captured and tankered off-site for treatment at a suitably licensed waste facility, or sampled and treated by an on-site treatment plant prior to discharge. If fire water is discharged to the dock a sample of the discharge will be taken to demonstrate to NRW that the discharged water met the required discharge limits.



FIRE PREVENTION AND MITIGATION PLAN

9 REMOVAL OF FIRE WASTE

As with all waste fires there is a residual amount of fire waste which will be required to be removed off site for recovery or disposal.

The considerations relating to these wastes are listed below;

Possible contamination which would make the waste hazardous. As the possibility of contamination is very real all wastes must be test once it is safe to do so for its hazardous content and an assessment against Waste classification technical guidance will be made to determine if the material is hazardous or non-hazardous. On the outcome of this assessment the waste will be sent to an appropriately permitted site for that type of waste.

As the waste has been subject to fire it must be assessed to ensure to no longer pose a fire risk and that no heat sources remain within the waste mass. This should be achieved by turning the waste material when it is safe to do so to check for sources of heat and smoke.

The site management and Fire Marshall should sign-off the disposal of all fire waste before it leaves site to confirm they have inspected the waste and that no heat sources remain.

Where possible all fire waste should be kept separate and quarantined to ensure it can be monitored and if needed it can also be managed with additional fire prevention measures such as water or soil.

All fire waste should be removed from site when it is safe to do so but no later than 7 days after it has been extinguished or 7 days from its last reported sign of heat or smoke.

FIRE PREVENTION AND MITIGATION PLAN

FIRE RISK ASSESSMENT

Area assessed: EPS Materials Recovery Ltd Graigola Wharf Kings Dock, Swansea, SA1 8QT	Assessors: Andy Evans Adrian Steward
Assessment date: 19/03/2018	
Persons at risk: Employees: Yes Contractors : Yes	Visitors: Yes Public: Yes

Risk Assessment Scale

Potential Severity of

Hazard

Likelihood Risk Action Levels

5 = Fatal 5 = Very Likely 20-25 = High 20-25 unacceptable, immediate action required

4 = Major incident 4 = Likely 5-19 = Medium 10-19 short term reduction necessary

3 = Localised incident 3 = Possible 1-4 = Low 5-9 medium term reduction if practicable

2 = Unlikely 0 = Negligible 0-4 no further action required- maintain

1 = Very Unlikely

0 = Negligible

RISK RATING = POTENTIAL SEVERITY X LIKELIHOOD



EPS

MATERIALS RECOVERY LTD

FIRE PREVENTION AND MITIGATION PLAN

Fire Hazard (Harm)	Potential Severity	Likelihood	Risk Rating	Reasoning	Control Measures (Action Required)	Residual Risk
Arson or Vandalism	4	3	12	Severity: Arson or Vandalism typically carried out at night when premises are unoccupied. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Major fire incident possible. Likelihood: Access to Docks controlled by 24hr Security. Likely to be effective in controlling access in the majority of cases. Partial CCTV coverage of Docks by ABP. 24/7 monitored CCTV on site.	General Measures: Ensure all combustible wastes are kept in accordance with NRW Guidance. Fire Marshall to carry out end of shift inspections to ensure no heat or smoke is present within the storage areas. Provision of own fire pump to manage fire outbreaks before emergency services arrive. Staff trained and emergency procedures in place.	4x1=4
Self-Ignition	4	3	12	Severity: Self-combustion could occur at any time. Staff potentially present on-site. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Major fire incident possible. Likelihood: Possible if incoming waste contaminated with Non-conforming material.	Hazard Specific Measures: Robust waste acceptance procedures. Daily check of stockpiles for signs of fire/heat/smoke. General Measures: As Arson or Vandalism	4x1=4



EPS

MATERIALS RECOVERY LTD

FIRE PREVENTION AND MITIGATION PLAN

Discarded Smoking Materials	4	3	12	Severity: Risk generally restricted to times when staff or visitors are on-site. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Major fire incident possible as fire can start sometime after smoking materials discarded. Likelihood: Possible if staff or visitors are smoking on-site.	Hazard Specific Measures: Site to operate a strict no smoking policy. Smoking to only be permitted outside of the main entrance gates of the site. Cigarette disposal bins to be provided in smoking area to ensure all discarded smoking materials are kept off site. General Measures: As Arson or Vandalism	4x1=4
Plant or Equipment Failure	4	2	8	Severity: Risk generally restricted to times when staff are on-site. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Major fire incident possible. Likelihood: Plant and equipment largely moving and handling equipment (telehandlers, cranes, etc.), Main plant and equipment risks related to other factors (exhausts, sparks from buckets, collisions, etc. – addressed separately). Temporary plant is infrequently brought to site	Hazard Specific Measures: Plant and equipment to be serviced and maintained as per the manufactures requirements to ensure reliability and to reduce the possibility of failure. Daily inspections to be carried out by trained plant operatives with any and all defects being reported by no later than the end of the working day. Implement separation zones to maintain distances between installed/parked plant and waste. Provisions for back-up plant and equipment to ensure failed plant	4x1=4



EPS

MATERIALS RECOVERY LTD

FIRE PREVENTION AND MITIGATION PLAN

						or equipment can be replaced within a reasonable timescale. General Measures: As Arson or Vandalism	
Hot Exhausts	4	2	8		Severity: Plant and equipment with exhausts largely moving and handling equipment (telehandlers, cranes, etc.). Staff potentially present on-site. Site not enclosed to the extent that escape from fire would be impeded. Risk of fatality confined to fire-fighters. Major fire incident possible as fire can start sometime after initiating incident. Likelihood: Possible if waste comes into contact with hot exhausts/exhaust gases.	Hazard Specific Measures: Where possible all loading of plant or equipment will take place away from the exhaust system. All exhaust systems must be cleaned down at the end of each shift. Implement 6m separation distances between parked plant and waste. Exhaust systems checked daily as part of maintenance routine. General Measures: As Arson or Vandalism	4x1=4
Electrical Faults	3	2	6		Severity: Risk generally restricted to times when staff are on-site. Site not enclosed to the extent that escape would normally be impeded. Fire likely to initiate in the vicinity of manual activity, therefore localised and controllable using fire-fighting equipment. Likelihood: Equipment designed to reduce electrical faults	Hazard Specific Measures: Electrical cables to be tested and isolated prior to the start of work. Use of mobile power tools and power supplies to be limited to essential maintenance only. All electrical equipment to be PAT tested where required. General Measures: As Arson or Vandalism	3x2=6

**EPS**

MATERIALS RECOVERY LTD

FIRE PREVENTION AND MITIGATION PLAN

						Firefighting equipment suitable for electrical fires to be available on site. General Measures: As Arson or Vandalism	
Incompatible Wastes	4	1	4	Severity: Fire could start at any time. Staff potentially on-site. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Major fire incident possible. Likelihood: Waste types exclude hazardous materials. Only non-conforming loads would pose a risk.	Hazard Specific Measures: Robust waste acceptance and inspection procedures. Quarantine any wastes with potential to react.	4x0=0	
Hot Loads Leaving Site	3	1	3	Severity: No ash or thermal by-products present on-site. Some risk due to self-combustion (see relevant entry) which could occur at any time. Staff potentially present on-site. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Fire incident likely to be restricted to vehicle.	Hazard Specific Measures: Robust waste acceptance and dispatch procedures. Quarantine load if excessively hot. Manage/quench load to reduce heat. Call emergency services if load cannot be managed by site staff.	3x0=0	
Hot Works	3	1	3	Severity: Risk generally restricted to times when staff are on-site. Site not enclosed to the extent that escape would normally be impeded. Fire likely	Hazard Specific Measures: No hot works including welding to be permitted within 6 metres	3x0=0	



EPS

MATERIALS RECOVERY LTD

FIRE PREVENTION AND MITIGATION PLAN

					to initiated in the vicinity of hot works, therefore localised and controllable using fire-fighting equipment.	of any combustible or flammable materials. Specific procedures for dealing with Hot Works. Suitable firefighting equipment to be available on site. General Measures: As Arson or Vandalism	3x0=0
Open Burning	3	0	0	Severity: Risk generally restricted to times when staff are on-site. Site not enclosed to the extent that escape would normally be impeded. Fire likely to initiated in the vicinity of naked flame, therefore localised and controllable using fire-fighting equipment. Likelihood: With the exception of certain hot works (covered separately) no naked flames present on-site.	Hazard Specific Measures: No fires permitted on-site. Site rules and induction programme for staff. Disciplinary procedure to make specific reference to burning of waste – gross misconduct. General Measures: As Arson or Vandalism	3x0=0	
Sparks from Loading Buckets Grab Attachments	3	1	3	Severity: Loading shovels solely used for loading wastes into containers following site cleansing. Staff potentially present on-site. Site not enclosed to the extent that escape from fire would be impeded. Fire likely to be initiated within waste container, therefore localised and controllable using fire-fighting equipment.	Hazard Specific Measures: Dragging/pushing of buckets grabs along concrete surfaces should be kept to a minimum. Site yard brush to be used to maintain site cleanliness rather than scraping with a loading bucket.	3x0=0	



E.P.S.

MATERIALS RECOVERY LTD

FIRE PREVENTION AND MITIGATION PLAN

					Likelihood: Use of loading buckets grabs, with likelihood of sparks causing fire unlikely during use.	Loading buckets grabs to be inspected daily. Investigation and implementation of methods for spark reduction should sparking become a noted problem during the operation of the equipment. General Measures: As Arson or Vandalism	
Damaged or Exposed Electrical Cables	3	0	0	0	Severity: Risk generally restricted to times when staff are on-site. Site not enclosed to the extent that escape would normally be impeded. Fire likely to initiated in the vicinity of manual activity, therefore localised and controllable using fire-fighting equipment.	Hazard Specific Measures: Not required General Measures: As Arson or Vandalism	3x0=0
Neighbouring Site Activities	3	0	0	0	Severity: Risk generally restricted to times when staff are on-site. Site not enclosed to the extent that escape would normally be impeded. Fire likely to initiated in the vicinity of manual activity, therefore localised and controllable using fire-fighting equipment. Likelihood: Adjacent Activities are unlikely to cause fire risk – wastes non-combustible, plant located some distance from waste storage areas.	Hazard Specific Measures: Not required General Measures: As Arson or Vandalism	3x0=0
Industrial Heaters	3	0	0	0	Severity:	Hazard Specific Measures:	3x0=0



EPS

MATERIALS RECOVERY LTD

FIRE PREVENTION AND MITIGATION PLAN

				Risk generally restricted to times when staff are on-site. Site not enclosed to the extent that escape would normally be impeded. Fire likely to initiated in the vicinity of the heater, therefore localised and controllable using fire-fighting equipment. Likelihood: No industrial heaters used on-site.	Not required General Measures: As Arson or Vandalism	
--	--	--	--	--	---	--

NOTES

1. This is a risk assessment based on the anticipated hazards and risks associated with the identified activities.
2. All site operatives and drivers shall be made aware of the contents of this assessment the contents of the Fire Prevention and Mitigation Plan that accompanies this risk assessment.
3. Safe working practices as a means of risk reduction shall be stated in the method statement for any work.
4. In assessing the residual risk, the risk assessor has assumed that: -
 - a) Existing control measures are effectively implemented and reduce risks to their intended level
 - b) Any additional measures are effectively implemented and have the desired effect on risk reduction
 - c) The residual risk is at an acceptable level when it is assessed as low or negligible.
5. The risk assessment shall be reviewed and amended as necessary: -
 - a) Following any significant change in the nature of the works e.g. site layout as work progresses
 - b) Following any accident or near miss incident

FIRE PREVENTION AND MITIGATION PLAN

6. Should any of the hazards, associated risks, or control measures change as a result of the review then site staff must be formally advised of the changes. Procedures, work instructions and other company documentation (site rules, induction information, etc.) should be updated as required.