



European Metal Recycling Ltd

Fire Prevention Plan

Liverpool Gladstone S1 – Version 01

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Introduction

In line with Environment Agency (EA) Fire Prevention Plan (FPP) Guidance, this document has been generated to focus on aspects of fire prevention and appropriate fire response, and aims to facilitate the prevention of fires and for a fast and effective response in any waste fire emergency.

Fire Prevention Plan - Objectives

This document forms part of the site’s Environmental Management System (EMS) held on site and intended to satisfy EA requirements as a ‘standalone’ and specific FPP with regards to waste activities undertaken by EMR at their Gladstone S1 Facility. This FPP aims to meet the following objectives:

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

Where EMR are unable to meet strict FPP criteria in meeting the objectives laid out above, suitable ‘alternative measures’ will be demonstrated with the aim of meeting these objectives (see section 1.5 below).

Key supporting internal fire policies & procedures

Separate to this fire prevention plan EMR have produced a ‘Fire policy’ (Appendix 14 – H10 Fire Procedure). The purpose of this procedure is to define the process by which EMR manages the risk of fire, to reduce the likelihood of fire, and to prevent injury to persons and harm to the environment should a fire occur.

An Office and Workshop Fire Plan and Extinguishers is provided in Appendix 17.

This policy takes into account Environment Agency Fire Prevention Plan Guidance and requirements (updated 9th January 2020).

Section 1 – The Site

1.1 Location of site/Community/Sensitivity

The site is located at Gladstone Dock within the Port of Liverpool and managed by Peel Ports. Its location is approximately 200 meters from a Special Protected Area (Liverpool Bay SPA – Marine), within a Wild Bird General Licence Exclusion Zone

Within 1km of the site there are three listed buildings – St James Church, Old Fire Station and Castree Bros Warehouse. Other listed buildings are noted within the wider area. Immediately surrounding the site are other heavy port related industry (Royal Seaforth and Alexander Docks), and to the eastern side of the site are residential areas, including two schools and Bootle New Strand Station.

To the North West and West of the site (beyond 1km) are multiple designated zones – Ribble and Alt Estuaries, Mersey Narrows and North Wirral Foreshore and Sefton Coast. Further heavy residential areas are noted to the North East and South East in this wider area.

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Major transport infrastructure in the area includes Ferry/Ship Terminals approx. 0.5km North of the site, important road infrastructure is located approx 2.5km North East of the site (M58), and the closest major Airport approx. 17km to the South East (Liverpool John Lennon Airport).

Potential environmental impacts from any fire related incident on the site may include:

- **Black or white smoke** (dependent on type of material burning) – smoke is harmful and potentially highly polluting to local air quality (especially black smoke which may contain harmful and toxic substances such as carbon monoxide, dioxins, cyanides, hydrocarbons, PAHs etc.)
- **Steam** (as water is applied) – steam potentially may obscure vision.
- **Ash/airborne debris** – risk of harm to amenity (potentially be deposited on cars / in homes).
- **Hot embers** – risk of fire spread
- **Pops/explosions** – disturbance of nearby sensitive receptors
- **Fire water** – potentially highly polluting to local water courses.

Knowledge of weather conditions and wind direction will be crucial in managing and mitigating air borne emissions such as smoke. Therefore, office weather reports for the area will be downloaded and printed out daily, to enable general weather, wind direction and strength to be recorded on the site diary/log.

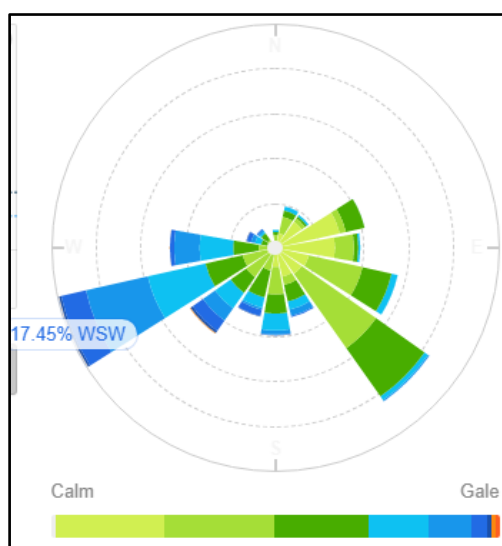
The daily weather reports will thus be able to assist EMR staff and the Emergency Services to manage and control harmful airborne emissions

A sensitive receptor map is located in Appendix 4 for reference.

1.1.1 Wind Rose – Local Weather Station Crosby / Liverpool

Data on prevailing wind at this location will be suitable for use when assessing wind conditions at EMR Gladstone S1. The weather station is in close proximity to the site (within approx. 5 miles) and there are no major topographical differences or barriers between the two site (e.g. there are no mountainous / areas of high elevation that could affect the local wind direction or flows).

Prevailing wind: WSW Annual (5 Year Average)



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1.2 Site Activities

The site accepts waste ferrous metals from a variety of industry types. The main site activity is the storage and treatment of processed scrap prior to export.

In general scrap metal material is accepted onto the site 'furnace ready' and in compliance with strict criteria in quality of material required in customer specification. Through stockpiling activity, and movements involved with ship loading etc., it is inevitable that fragments of 'residual waste' (dusts/metal fragments etc.) will be produced. Treatment processes on site are then designed to retrieve any residual metals within the 'cargo bottoms' material – any residual non-metal waste will be classified and disposed of accordingly. Further details around customer specification and associated treatment (where required) can be found in section 1.5.1.

Scrap is sometimes accepted onto the site and categorised as Over Sized Burning (OSB). Large metal panels are cut and reduced in size using a burner and then transferred to the furnace ready piles for shipment.

The following grades of scrap metal will be accepted into Liverpool Gladstone S1 (approx. 1m tonnes throughput per annum):

- HMS 1 & 2
- Plate & Girder
- Fragmentised Metal
- Further grades will also be accepted in lesser quantities such as 8A /4A /4C

Waste acceptance procedures aim to eliminate contamination where possible – the site does not openly accept non-conforming wastes, and where 'cargo bottoms' (residual waste) are only produced as part of the sorting process on Liverpool Gladstone S1.

'General Waste' (mixed municipal type wastes) are only produced on site as part of normal day-to-day office/work activity. No general waste is accepted on site as a single waste stream, or mixed in with waste metal grades.

1.3 Layout/Infrastructure

Within a heavy ship traffic area, the dock itself is capable of hosting 2 cargo ships. The site is currently under development in design phases. During initial phases the site will benefit from a fully concreted and impermeable surface (200-300mm reinforced concrete), and a sealed drainage system. For the purposes of demonstration, the site plan (Appendix 3) shows an area of mixed tarmac/hardstanding that requires some reinstatement and where storage/treatment activities should be restricted purposes in the short term.

Treatment related activity (where required) will be restricted to the southern areas of the site (avoiding the tarmac/hardstanding area where needed in the short term), while the northern edge of the site (dock side) will be for the storage of furnace ready scrap ready for overseas export (meeting End of Waste requirements – see section 1.5.1 for further detail). Location of treatment activities and storage areas detailed in site map Appendix 1a.

1.4 Types of Combustible/Flammable Materials/Waste

The site accepts scrap metal with limited combustibility risk (see additional comments on quality and customer specification detailed in section 1.5). Potentially combustible/flammable wastes can be found detailed in section 1.4.1, and associated storage locations detailed within Appendix 1a.

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Other types of combustible/flammable materials on site (product) are detailed within section 1.4.2. and where applicable also detailed in the site emergency plan. The storage locations of potentially combustible/flammable materials are detailed within Appendix 1a.

1.4.1 Combustible/Flammable Waste

Furnace Ready Scrap/OSB & Shearing

The site only accepts processed scrap metal grades, all of which is furnace ready and processed before arriving at site (with the exception of OSB and further shearing requirement.). Owing to strict compliance with customer specification, all incoming waste metal has limited contamination and presents a limited combustibility risk (see section 1.5.1 for further detail). In the unlikely event that material does not meet furnace ready status, strict acceptance procedures ensure that scrap metal is either rejected or quarantined. Any quarantined waste material would undergo required treatment and/or further removal from site before being accepted into mainstream furnace ready piles.

OSB/Shearing grade material will be processed on-site in order to reduce its size and make it furnace ready for export. See Appendix 15 for details of each ferrous grade accepted and associated combustibility classification.

'Cargo Bottoms' Fines

Although considered minimal, 'cargo bottoms' material will be produced on site through handling and treatment processes which will then require further treatment to retain residual metal material. This is a build-up of residual soil / concrete / dirt from the furnace ready and OSB scrap material received inwards. Any resulting non-metallic wastes are sent for disposal off-site to an appropriate licenced facility.

Oily Rags

Produced on site due to ongoing plant and other maintenance activity

Oily rags are stored in secured containers awaiting removal off site to an authorised facility.

Tyre Waste

In the unlikely event that tyres are discovered during the waste acceptance and inspection process.

Waste tyres will be produced during mobile plant maintenance.

All tyres will be stored in their whole form, in a designated skip/container and away from other flammable substances and combustible wastes. Tyre storage containers will be accessible at all times.

Office Waste (General Waste)

General waste is not accepted inwards as a waste stream. Minimal quantities of office waste will be stored in the designated bins outside of the office block away from other flammable substances and combustible wastes. These bins will be accessible at all times.

Wood Waste

Wood may be discovered during the waste acceptance and inspection process. The site may also from time to time receive goods (such as machinery parts on pallets).

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All wood waste is stored in a designated skip/container and away from other flammable substances and combustible wastes. Wood storage containers will be accessible at all times.

Batteries

Batteries are not accepted inwards as a waste stream however mobile plant will need to replacements, resulting in the generation of small quantities of battery waste.

All batteries would be stored in a segregated sealed battery bin with lid and accessible at all times.

Waste batteries will be lead acid in composition. In the unlikely event that any other batteries (i.e. lithium) are discovered within accepted waste scrap metal, they will be segregated in the quarantine area in order to prevent any potential reaction with other wastes.

Oil Waste (Plant Maintenance Activity).

Oil waste is produced as part of any plant maintenance activity and is not accepted inwards as waste imported waste stream. All oil wastes are stored appropriately and conform to applicable legislative requirement

1.4.2 Other Combustible/Flammable Materials

Oil Storage (Various - Vehicle Maintenance)

Oil product (in various forms) is kept on site for all plant maintenance activities. Oil is stored as required in applicable Oil Storage Regulations.

Bulk fuel for plant/equipment

Fuel is stored (Diesel Oil) on site for the refuelling of EMR lorries and all plant related activities on site. Fuel is stored as required in applicable Oil Storage Regulations.

Gas Bottles/Cylinders

All gas bottles/cylinders used on site for hot cutting (burning) processes. Bottles/Cylinders that are not in use will be stored appropriately in designated cages.

Empty/Waste gas bottles/cylinders are not accepted inwards into the site. Rigorous waste acceptance procedures are in place in ensuring 'rogue' cylinders are identified and quarantined awaiting appropriate disposal as required.

1.5 Alternative Measures Employed

In taking account of Environment Agency Fire Prevention Plan Guidance and requirements (updated 9th January 2020), EMR have recognised they are unable to meet the strict requirements in the following areas:

- Storage/Heat Monitoring (see section 1.5.1); and
- Required Water Supply (see section 1.5.2).

As required and also in line with current Fire Prevention Plan Guidance, EMR propose suitable 'alternative measures' in meeting the outlining objectives of this guidance (see introductory note) as demonstrated below.

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1.5.1 Alternative Measure (Storage/Heat Monitoring)

Due to operation requirements, while recognising that proposals fail to meet strict FPP guidance criteria in terms of storage requirements (pile sizing etc.), EMR proposes current End of Waste (EoW) procedures undertaken as an 'alternative measure' to meet the objectives of FPP guidance.

With further recognising that EoW status of any scrap metal is not achieved until full transfer to the end user, the procedure to meet EoW status is regarded as 'above and beyond' normal operational activity, and requirements lend themselves in meeting FPP objectives:

COUNCIL REGULATION (EU) No 333/2011 - establishing criteria determining when certain types of scrap metal cease to be waste under Directive 2008/98/EC of the European Parliament and of the Council

Elements of conditions used as reference and relevance in meeting FPP objectives:

ANNEX I

Criteria for iron and steel scrap

- 1.1 *The scrap shall be graded according to a customer specification, an industry specification or a standard for direct use in the production of metal substances or objects by steel works or foundries.*

Ensures that only correctly graded waste metal is received on site (or where OSB requires further treatment) and where contamination is significantly reduced.

- 1.2. ***The total amount of foreign materials (steriles) shall be ≤ 2 % by weight.***

The regulation further defines foreign material as elements of non-metallic waste. Compliance requires minimum periodic 6 monthly testing to ensure that scrap meets future EoW criteria. This ensures that contamination by foreign material within waste piles is minimised and regulated to less than 2% by volume further reducing combustion risk and minimising spread if fire where to take hold.

EMR further proposes that documented and periodic checks will take place **every 3 months** thus giving further reassurances that foreign material within waste piles is minimised.

- 1.3. ***The scrap shall not contain excessive ferrous oxide in any form, except for typical amounts arising from outside storage of prepared scrap under normal atmospheric conditions.***

While ferrous oxide is only considered combustible as a fine powder, it is however in large amounts considered flammable and reactive and may ignite spontaneously in air. Ensuring compliance with this condition reduces risk associated with flammability.

- 1.4. ***Scrap shall be free of visible oil, oily emulsions, lubricants or grease except negligible amounts that will not lead to any dripping.***

Compliance with this condition further reduces risks associated with flammability, and gives reassurance around contamination levels and burning (cutting) of OSB (where required).

- 1.7. ***The scrap shall not contain any pressurised, closed or insufficiently open containers that could cause an explosion in a metalwork furnace.***

Compliance with this condition ensures that risks are minimised through potential fires caused through explosion of pressurised containers. Robust waste acceptance procedures (documented in section.....) ensure that pressurised containers are eliminated from stock piles.

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2.3. The following waste shall not be used as an input:

- (a) filings and turnings that contain fluids such as oil or oily emulsions; and**
- (b) barrels and containers, except equipment from end-of-life vehicles, which contain or have contained oil or paints.**

Robust waste acceptance procedures (documented in section 3.7) that no oily filings or turnings are accepted on this site, together with barrels, containers that have previously contained oils and paints. Thus reducing and minimising concerns and risks associated with combustibility and flammability.

3.3. For waste containing hazardous components, the following specific requirements shall apply:

- (c) cables shall have been stripped or chopped. If a cable contains organic coatings (plastics), the organic coatings shall have been removed in accordance with the best available techniques**
- (d) barrels and containers shall have been emptied and cleaned, and**
- (e) hazardous substances in waste that is not mentioned in point (a) shall have been efficiently removed in a process which is approved by the competent authority**

Compliance with this condition further ensures that contamination from foreign materials (such as plastics, oils etc.) have been minimised thus vastly reducing associated fire risk from both self-combustion, and flammability risk.

1.5.2 Alternative Measure (Water Supply)

It is recognised that amount of water available via tanks and hydrant fall short of that recommended in FPP guidance.

Should extra water be required (as stipulated within FPP guidance), there are currently no restrictions in place for the fire brigade to utilise water from the dock. The FRS will make any decision to extract water from the dock in an emergency situation and supply any equipment necessary.

In agreement/approval with the FRS – EMR will actively seek to recycle any fire water on site. This would both aid the reduction of water required on site in the first instance, while also reducing any capacity requirements in the need to retain fire water run-off for later off-site treatment/disposal.

EMR have also proposed alternative firefighting methods, using on-site plant and equipment to actively disseminate stockpiles and segregate burning material (see section 3.5) while water is deployed.

Based on strict acceptance procedures (noted within this document), and the limited combustibility value of the material on site(demonstrated in the section above), it is unlikely that the strict base water requirements stipulated within EA FPP guidance will be realised (see also section 3 for further information).

Section 2 – Preventing Fire

2.1 Pile Sizes/Volumes

Also refer to section 2.3 for further specific detail (visual representation supplied in Appendix 1b).

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2.1.1 Preventing Fire - Table 1

Waste stream	Location	How it is stored	Max. length / m	Max. width / m	Max. height / m	Volume / m ³	Max. time it will be stored
Furnace Ready Scrap (4x Individual piles)	Pile 1-4 (quayside) Refer to Appendix 1a	Loose Piles Particle size in excess of 150mm	73 (Each Pile)	40 (Each Pile)	35 (Each Pile)	56,225 (Each Pile - based on OA)	6 Months (maximum)
OA Oversize Shearing	Refer to Appendix 1a	Loose Pile	15	30	10	2971	3 Months
OA Sheared Furnace Ready	Refer to Appendix 1a	Loose Pile	10	20	10	1026	Transferred to main piles
OSB Oversize Burning	Refer to Appendix 1a	Loose Pile	15	15	10	1276	3 Months
Cargo Bottoms In-Feed	Refer to Appendix 1a	Loose Pile	15	15	10	1276	3 Months
Cargo Bottoms (Processed - Furnace Ready Scrap)	Refer to Appendix 1a	Loose Pile	15	10	10	711	Transferred to main piles
Cargo Bottoms Mid-Cut Waste	Refer to Appendix 1a	Loose Pile	15	10	10	711	3 Months
Cargo Bottoms Fines Waste	Refer to Appendix 1a	Loose Pile	10	10	8.6	215	3 Months
Oily Rags (Maintenance Activity)	Maintenance Area Refer to Appendix 2a	240L Container	N/A	N/A	N/A	N/A	1 Month
Waste Tyres (Maintenance Activity)	Maintenance Area	RORO Skip	N/A	N/A	N/A	N/A	1 Month
General Office Waste	Maintenance Area Refer to Appendix 2a	1100L Container	N/A	N/A	N/A	N/A	2 Weeks
Wood (packaging)	Maintenance Area Refer to Appendix 3	Skip	N/A	N/A	N/A	N/A	1 Month
Batteries (Maintenance Activity)	Maintenance Area	Designated 'battery bin'	N/A	N/A	N/A	N/A	1 Month
Oil Waste (Maintenance Activity)	Maintenance Area Refer to Appendix 2a	Double Skinned Container	N/A	N/A	N/A	N/A	1 Month

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2.2 Waste Management Methodology

2.2.1 First In/First Out (FIFO)

The 'first in first out' procedure will be followed for any material that is going to be processed on-site; ensuring stockpiles of historic material do not build up – When material arrives, the Weighbridge Operative directs vehicles to the appropriate tipping area at the back of the relevant stockpile to be offloaded, checked and then swept into the stockpile. Material is then processed from the front of the stockpile which ensures material is processed in line with the 'first in first out' principle.

The main purpose of the activity generated at Liverpool S1, is to bulk furnace ready scrap for export. For the majority of the time, quality scrap is slowly built up to a point where the yard is completely emptied after loading export vessels.

2.2.2 Acceptance

Acceptance procedure at the Liverpool S1 facility is subject to strict acceptance procedures in operating a Quality Management System in accordance with EoW Regulations (see also section 1.5.1 for reference). For loads that are being accepted as material that will be classified as End of Waste, operatives will adhere to EMR Guidance *EOW-G01 – End of Waste Processes and Requirements* (see Appendix 12) and inspect loads against specific criteria.

All waste material accepted into Liverpool Gladstone S1 will also be in accordance with relevant Environmental Protection Procedures (EPP):

- EPP-1.1 *Waste Acceptance – The Duty of Care Acceptance of Incoming Material* (see Appendix 5)
- EPP-1.2 *Waste Acceptance – Inspection of Incoming Material* (see Appendix 6)
- EPP-1.3 *Waste Acceptance – Identifying Hazardous Waste* (see Appendix 7)
- EPP-1.6 *Waste Acceptance – Identification of Radioactive Items* (see Appendix 9)
- EPP-1.7 *Waste Acceptance – Identification of Explosive Materials* (see Appendix 10)

2.2.3 Rejection of Waste Material

Where possible, non-conforming waste will be rejected at the weighbridge/initial inspection stage so this can be loaded back onto the supplier's vehicle. This avoids any unnecessary storage of combustible and/or non-permitted material on-site.

Should non-conforming wastes be discovered when the supplier has left site it will be isolated and stored in the relevant quarantine bin/area. Efforts will be made to trace back to their source supplier. If the source cannot be determined, then the wastes will be suitably quarantined under the direction of the Site Manager and/or Supervisor until it can be removed and processed at an appropriately permitted facility. Quarantined waste will be removed as soon as possible by approved external waste contractors available for various waste streams in order to allow for quick removal from site.

Records of non-conforming wastes and associated disposal paperwork shall be kept on site.

All waste material rejection procedures will be in accordance with relevant Environmental Protection Procedures (EPP):

- EPP-1.8 *Waste Acceptance – Rejection of Waste Material* (see Appendix 11)

2.2.4 Treatment

In general scrap metal material is accepted onto the site 'furnace ready' and in compliance with strict criteria in quality of material required within customer specification. Through stockpiling activity, and movements involved with ship loading etc., it is inevitable that fragments of 'residual waste' (dusts/metal

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fragments etc.) will be produced. Treatment processes on site are then designed to retrieve any residual metals within the 'cargo bottoms' material – any residual non-metal waste will be classified and disposed of accordingly. Note – 'cargo bottoms' material (residual waste) is produced as part of the treatment processes on Liverpool Gladstone S1 only and are not accepted from any other site.

Scrap is sometimes accepted onto the site and categorised as Over Sized Burning (OSB), or Oversize Plate and Girder (OA). Large metal panels are cut and reduced in size using a burner (hot cutting) or alternative shearing activity. Once treatment is completed, quality scrap is then transferred to the furnace ready piles (quayside) for shipment – any residual material is transferred to the 'cargo bottoms' treatment procedure where required.

Treatments on site are designed to ensure that resulting materials are in compliance with strict criteria in quality of material required in customer specification, whereby regular quality checks are undertaken to ensure that the total amount of any foreign material (such as organic material) within a pile will be less than 2% by weight. Treatment procedures will vastly reduce any associated risk connected with the potential of self-heating/combustion.

Further details around customer specification and associated treatment (where required) can be found in section 1.5.1.

2.2.5 Recording Waste Movement

The site accepts quality waste ferrous metals from other EMR facilities (in some cases where treatment has already taken place), and directly from variety of suitable industry types. The main site activity is the storage of processed scrap prior to export.

As per acceptance procedure (detailed in section 2.2.2) – waste movements are recorded in strict compliance with applicable waste legislation and associated Duty of Care (DoC) requirements. Internally, waste movement is recorded onto the Liverpool Gladstone S1 facility in accordance with EPP-1.1 *Waste Acceptance – The Duty of Care Acceptance of Incoming Material* (see Appendix 5).

Materials due for export will be made in accordance with Council Regulation (EU) No 333/2011 of 31 March 2011, in establishing criteria determining when certain types of scrap metal cease to be waste under Directive 2008/98/EC of the European Parliament and of the Council. As required – each consignment of material exported under this directive will be supported where required by the appropriate documentation validating EoW status.

'Cargo Bottoms' fines that are produced as part of the associated treatment process on site and are not appropriate for export. These fines and will be subject to classification (testing) and lab analysis) before removal from site to undergo further recovery/disposal options via an authorised facility.

'Cargo Bottoms' fines are more than likely classified as a hazardous waste (owing to heavy metal content etc.). Movement of hazardous waste is subject to separate specific legislation and will be documented on appropriate Hazardous Waste Consignment Notes (HWCN). Internal guidance will be followed as detailed below:

- EPP-1.3 *Waste Acceptance – Identifying Hazardous Waste* (see Appendix 7)
- EPP-1.4 *Completing of Hazardous Waste Consignment Notes* (see Appendix 8)

Other 'Cargo Bottoms' Mid-cut waste will be appropriately classified and send to other EMR facilities for further recovery treatment processes as required. These movements will be supported with relevant DoC paperwork as required.

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Other hazardous wastes (such as oily rags/used oil wastes etc.) will undergo the same process as outlined above with the use of HWCN documentation as required.

2.3 Materials/Waste Storage Management

2.3.1 Duration

Also refer to Section 2.1.1 – Table 1

Furnace Ready Scrap/OSB & Shearing/4A/4C

Furnace ready scrap will be 'built-up' on site over a period to generate enough material for export meeting EoW status (see also section 1.5.1) and specific customer requirement. When at full capacity, the quayside will hold approx. 142,000 tonnes of furnace scrap metal (divided into 4 separate piles – see table 1). Grades within each stockpile will depend on customer need and specification and shipped accordingly. Any worst case scenario (fire risk) demonstrated in table 2.1.1 is based on the storage of OA grade (higher volume requirements) – where alternative furnace ready grades are stockpiled, potential fire risk is further reduced.

Varying amounts of this material (during 'build-up and up to maximum pile sizes) will be held on site for a period for no longer than six months (dependant on shipping movement). It is important to note, that maximum quantities that are demonstrated within Table 1 (Section 2.1.1) are not realised for a period of time leading up to final export (approx. 1-2 months).

Owing to strict compliance with customer specification, all incoming waste metal has limited contamination and presents a limited combustibility risk (see section 1.5.1 for further detail). In the unlikely event that material does not meet furnace ready status, strict acceptance procedures ensure that scrap metal is either rejected or quarantined. Any quarantined waste material would undergo required treatment and/or further removal from site before being accepted into mainstream furnace ready piles.

All furnace ready scrap on-site and within the furnace ready piles (and OSB/OA material awaiting treatment for inclusion in these piles) will be loose and more than 150mm in size. As a result of this and owing to strict customer specification (and EoW requirements) there will not be a significant proportion of 'fines' within this waste (<2%) which vastly limits the risk of self-combustion (see section 1.5.1).

'Cargo Bottoms' Materials (Various Grades)

'Cargo Bottom's' materials produced on site will only be stored for a maximum of three months. Maximum quantities of 'Cargo Bottoms' combined will be approx. 1000 tonnes at any one time.

Feed material will be stored for a minimal amount of time before treatment through a screening process. Recovered processed materials will be stored temporarily and added to the furnace ready stock piles as appropriate (see section above). Mid-cut material will be stored until transfer to a suitable facility to under further recovery activity, and resulting 'fines' will be stored awaiting appropriate classification before transfer to an authorised facility to undergo further recovery/disposal opportunities (see also section 2.2.4 and appendix 1a).

Oily Rags

Oily rags are stored in secured 240L container awaiting removal off site to an authorised facility. This waste will be stored on site for no longer than 1 month (see also appendix 2a).

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Tyre Waste

All tyre waste produced on site will be stored in their whole form, in a designated RORO skip and away from other flammable substances and combustible wastes. Tyre storage containers will be accessible at all times (for emergency purposes) and stored no longer than 3 months.

Office Waste (General Waste)

Minimal quantities of office waste will be stored in designated 1100L bins outside of the office block away from other flammable substances and combustible wastes. These bins will be accessible at all times (for emergency purposes) and stored for no longer than 2 weeks (see also appendix 2a).

Wood Waste

All packaging wood waste is stored in a designated skip and away from other flammable substances and combustible wastes. Wood storage containers will be accessible at all times (for emergency purposes) and stored for no longer than 1 month (see also appendix 2a).

Batteries

Any waste batteries (maintenance etc.) will be stored in a segregated sealed battery bin with lid and accessible at all times. This bin will be stored for no longer than 1 month.

Oil Waste (Plant Maintenance Activity).

All oil wastes are stored appropriately in suitable containers (double skinned). This waste stream is stored no longer than 1 month.

2.3.2 Stock Rotation

Furnace Ready Scrap/OSB & Shearing

Due to operational requirements and space availability, it is considered impractical in attempting any waste rotation of the main scrap metal piles. Rotation would also cause increased concern with regard to noise (environmental nuisance) which owing to the size of stacks involved and meeting the expectations of FPP guidance, maybe required on a continual basis.

It is also acknowledged that owing to the size of piles (quayside), that in normal circumstances FPP guidance requires the regular rotation of waste materials to prevent self-heating and potential combustion

As an 'alternative measure' (with reference to section 1.5.1) and in compliance with strict criteria in quality of material required in customer specification, regular quality checks are undertaken to ensure that the total amount of any foreign material (such as organic material) within a pile will be less than 2% by weight. Minimum requirements state that checks to be undertaken in not less than six monthly intervals. To further reduce remaining concern regarding potential combustibility of any foreign material within the scrap, EMR are implementing the requirement that monthly (external accreditation requirements) checks are undertaken and documented. Procedures will vastly reduce any associated risk connected with the potential of self-heating and later combustion. Conditions also limit ferrous oxide build-up on scrap ferrous metals further reducing flammability risk.

Further information and assessment of the combustibility of specific metal grades can be found in Appendix 15.

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Office Waste (General Waste)

Waste rotation of general office wastes are not planned as general office waste is stored no longer than 2 weeks (see also appendix 2a).

Tyres/Oily Rags/Waste Oils/Wood Waste/Batteries

The storage of tyres, wood, batteries, hazardous liquid waste (oils) and oily rags are stored in minimal quantities and for no longer than 1 month in duration. Any risk of self-combustion is limited – no waste rotation is planned in these circumstances.

2.3.3 Waste Bale Storage

4A/4C grade material is a very clean baled material and will be stored as a ‘furnace ready’ scrap (according to customer needs) in one of the appointed piles on the quayside (see also section 2.3.1). With minimal (or in most cases virtually zero) contamination this material has very limited (if any) self combustion value – no waste rotation is planned in these circumstances.

2.3.4 Storage where maximum pile limits don’t apply (ELV)

ELV’s are not accepted at this facility – no ELV waste is intended to be stored on this site.

2.3.5 Waste Stored in Containers (Types/Accessibility/Ability to move)

Oily Rags

Oily rags are stored in secured 240L container. This container will be accessible from all sides and easily relocated (wheeled) in the event of any fire emergency.

Tyre Waste

All tyre waste produced on site will be stored in their whole form, in a designated RORO skip. The tyre storage container will be accessible from at least 2 sides and will have the ability to be moved in the event of an emergency.

Office Waste (General Waste)

Minimal quantities of office waste will be stored in designated 1100L bins. These bins will be accessible from all sides and easily relocated (wheeled) in the event of any fire emergency.

Wood Waste

All packaging wood waste is stored in a designated skip. Wood storage containers will be accessible from at least 2 sides and will have the ability to be moved in the event of an emergency.

Batteries

Any waste batteries (maintenance etc.) will be stored in a segregated sealed battery bin. This bin will be accessible from all sides and easily relocated in the event of any fire emergency.

Oil Waste (Plant Maintenance Activity).

All oil wastes are stored appropriately in suitable containers (double skinned). The location and containers are fixed and isolated from general site activities (see appendix 1a).

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2.4 Managing Common Causes of Fire

2.4.1 Managing Common Causes of Fire – Table 2

Managing Common Causes of Fire	
Risk	Control Measure (if required)
Arson	EMR's full site is surrounded by some metal fencing and the within a secure port environment to prevent unauthorised access out of hours and all access gates are locked when not in use. The site also benefits from 24-hour CCTV with thermal imaging (with the ability to monitor body heat movement). Outside of operating hours the site's CCTV system is monitored by a remote security contractor. These security measures will ensure any potential for arson on-site is prevented.
Plant/Equipment	<p>All operational mobile and fixed plant is maintained and inspected by a competent person (completed in line with manufacturer guidance). All records are kept on site in the main offices. Mobile and fixed plant are fitted with fire protection systems which have service and maintenance schedules.</p> <p>All plant and equipment on site are assigned safe working procedures, pre use check sheets and maintenance schedules. All defects are recorded on the action log. These pre-use check sheets ensure that before work commences, processing equipment is inspected accordingly.</p> <p>In addition to the above, at the end of each day operators of plant and equipment are given time to clean down their machines. This includes use of an on-site jet wash to remove any potential build-up of combustible waste, dust or/ fluff.</p> <p>The loading shovel is fitted with a radar system to prevent accidental collisions and all 360 cranes have reversing cameras. All mobile plant is also equipped with fire extinguishers located in the cab.</p>
Electrical Fault/Maintenance	<p>It is recognised that electrical faults are a common cause of fires (normally providing ignition). Only trained and competent persons are to work on electrical systems. Fixed testing is carried out every 5 years by a competent electrician and PAT testing is carried out every year by a competent electrician.</p> <p>Full details of required electrical testing and maintenance are detailed within EMR's 'H09-G01 Electricity' policy (see Appendix 13). This document ensures that electrical equipment is properly constructed, installed, maintained and that the installations are suitable for the environment in which they will be operating.</p> <p>All electrical equipment is inspected prior to use to ensure that it is in safe working condition and all cables and plugs are checked to ensure that they are in good working order and that there is no obvious damage and that all covers and guards are in place.</p> <p>Electrical panels and DB board's on-site all have a metal cover which is kept closed, electrical components / switches are only exposed when this is opened. These covers prevent any build-up of combustible waste, dust or fluff on electrical panels.</p>
Smoking Policy	A smoking area has been designated. This is a safe distance (well in excess of 6 meters) away from any combustible wastes; refer to site plan for exact location (see Appendix 1a).

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<p>Hot Works</p>	<p>Bulk items unsuitable for shearing and baling will be reduced in size by hot cutting.</p> <p>OSB material is made up of larger lumps of iron and steel (common sources include demolition scrap). Due to the large volume to surface area ratio of this grade, this material is kinetically stable in oxygen in the air and therefore will not combust even at very high temperatures. Contamination levels are normally very low (< 0.3%) and any contamination which is present is likely to be non-combustible (normally comprising very small amounts of brick dust, concrete, stones etc.) or has low combustibility; additionally, much of it will normally fall out on to the floor ('cargo bottoms waste' - especially when being transferred by grab crane). For this reason, material will have a very low combustibility risk. If any of this material is significantly contaminated, it will be quarantined and rejected from site.</p> <p>In compliance with strict criteria in quality of material required in customer specification, regular quality checks are undertaken to ensure that the total amount of any foreign material (such as organic material) within a pile will be less than 2% by weight. Procedures will vastly reduce any associated risk connected with the potential of self-heating and later combustion. Conditions also limit ferrous oxide build-up on scrap ferrous metals further reducing flammability risk – Further details can be found in section 1.5.1</p> <p>Hot cutting will be carried out on site in one area as denoted by the site plan. No flammable substances or materials are permitted within the hot cutting area and only staff/contractors sufficiently trained will undertake hot cutting for the purpose of maintenance or production.</p> <p>Hot cutting operations are monitored with 2-hourly checks recorded within the 'Burning Operations Monitoring Record'. The Operatives also must ensure that pre-use and post burning checks are completed in order to reduce the risk of a fire from the operations.</p> <p>A Fire Watch will be maintained for at least 1 hour following the completion of any 'Hot works' (e.g. hot cutting), and additional fire watch (site walkover) will be undertaken at the end of each day throughout the whole site.</p>
<p>Industrial Heaters</p>	<p>Industrial heaters such as portable electric bar heaters, paraffin heaters etc. are banned from all EMR depots and sites across the UK.</p>
<p>Hot Exhausts</p>	<p>Risk assessments undertaken at all EMR Scrap Metal facilities demonstrate that ignition exhausts from mobile plant pose a low risk.</p> <p>When the site is closed, mobile plant will be parked at least 6m from combustible material (see Appendix 3).</p>
<p>Batteries & ELV</p>	<p>Batteries produced as part of normal vehicle/plant maintenance activity are stored in a designated battery box away from all combustible/flammable wastes.</p> <p>The site will not accept any ELV.</p>
<p>Leaks & Spillages</p>	<p>All spills will be cleaned up immediately using the spill kits available on site (see Appendix 1a). If discovered, any leaking vehicles will be repaired or removed/sent off-site.</p>

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Build-up of Loose Combustible Materials	<p>Regular housekeeping activity is undertaken on site to prevent the build-up of loose potentially combustible material on site (such as general waste). The dock area is naturally windy – all loss materials/waste are kept within closed containers where necessary.</p>
Reactions between Wastes	<p>All waste streams are separated on site in avoiding 'reactions' that may cause self-heating to occur and later possible combustion.</p>
Hot Loads	<p>EMR never accepts hot loads (e.g. from foundries) at any of its sites in the UK; if a hot load was to arrive at the site it would be identified through our waste acceptance procedures and rejected at the weighbridge. If this was not possible the load would be moved into the designated quarantine area immediately where emergency procedures would be followed (see also section 3.5).</p>
Heat & Spark Protection	<p>Any sources of ignition will be kept away from all flammable materials (e.g. fuels, oils, solvents) – This will be a minimum distance of 6 meters. For example, flammable materials will be kept away from the hot cutting area.</p> <p>Safe Working Procedures (SWPs) are in place for staff and contractors when undertaking hot cutting. The relevant SWPs contain procedures to prevent fires starting (e.g. water containers on standby etc.). No hot works will take place near flammable substances. All staff who use hot cutting equipment are trained in the use of it and the training is recorded on the TCM system A Fire Watch will be maintained for at least 30 minutes following the completion of any 'Hot works' (e.g. hot cutting), and additional fire watch (site walkover) will be undertaken at the end of each day throughout the whole site.</p> <p>Mobile shovel drivers are required to lift the bucket from the ground when moving and only lower and engage with the ground before scooping and lifting scrap or other waste materials, to minimise the risk of any sparking. Rubber strips cannot be used at scrap metal processing sites because of the cutting and abrasive properties of waste scrap and concrete surfaces (life span of such strips would be less than an hour for these types of site activities).</p> <p>Mobile plant (hot exhausts) do not operate near flammable sources (tanks / containers of flammable substances clearly signed and separated by barriers); mobile plant also possess radar to prevent collision (and also prevent proximity) with objects.</p>
Gas Bottles & Other Flammables	<p>Flammable liquids are stored on site; see storage location in Appendix 1a.</p> <p>All vehicles, tanks, drums are maintained and stored in a suitable manner.</p> <p>Gas cylinders for hot cutting are located near the hot cutting area; refer to site plan (Appendix 1a) for location.</p> <p>In the very unlikely event that rogue gas cylinders are identified within incoming scrap, they are segregated and stored in the designated cage on site; refer to site plan for location (Appendix 3).</p> <p>Mobile plant will not operate near flammable storage areas (except for associated refuelling activity).</p>

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Smoke/Heat/Flame Detectors	<p>As part of their general duties, operational staff are mindful of any sign of fire or potential or sources of ignition. Staff are trained to continually check for any signs of fire, and report any emergency immediately over issued site radios that connect with the main office.</p> <p>A Fire Watch will be maintained for at least 30 minutes following the completion of any 'Hot works' (e.g. hot cutting), and additional fire watch (site walkover) will be undertaken at the end of each day throughout the whole site.</p> <p>Site offices are fitted with smoke detectors to provide an early warning in the event of fire within the office facilities.</p> <p>The site benefits from CCTV cameras which will aid the visual and early detection of fires inside and outside of hours. In case of emergencies, this CCTV system will immediately work by sending a notification to the security contractor, who will then be able to review footage and raise the alarm, calling emergency services and site manager/key holders to instigate a quick response.</p> <p>The 24-hour Peel Port Security also have visibility of EMR's site and would be able to raise the alarm in an emergency situation.</p>
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2.5 Detection Systems

The site benefits from a range of both CCTV (security) and thermal imaging cameras.

2.5.1 Systems in Use

Specification of CCTV cameras in use (and locations) can be obtained from EMR separately where required.

Strict acceptance procedures and customer requirements (limiting contamination of material) will substantially limit self combustion risk within piles (see section 1.5.1, and appendices 6,9,10,11, 13, and 14 for further information) – thermal imaging devices are designed to initiate an immediate emergency response when flame or surface heat changes are detected.

2.5.2 Third Party Certification (UKAS Accreditation)

The systems employed are not automated and do not require associated 'third party accreditation (UKAS).

2.6 Demonstrating Quality of Stock

Also with reference to section 2.2.2 (waste acceptance Procedures)

All waste *accepted* on-site will be loose and more than 150mm in size. As a result of this there will not be a significant proportion of 'fines' within the waste at risk of self-combustion.

Refer also to section 1.5.1 – quality process in meeting future customer requirements.

Section 3 – Preventing Spread/Limiting Impact of Fire

This section demonstrates procedures that can limit the impact/spread of any fire (should it happen), and with the aim that any fire will be extinguished within 4 hours.

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3.1 Separation distances

There will be a minimum of 6m separation between different types of combustible materials (waste piles) and between combustible and flammable materials limiting any potential fire spread and affording access to emergency services and plant movements (moving materials etc.) where required.

The 6m separation distance will also be employed on the site boundary (where required) to eliminate risk to surrounding business/property in any emergency situation.

Also refer to section 2.4 – Managing Common Causes of Fire

3.2 Use of Fire Walls

Fire walls are not intended for use on this site (see various plan layouts).

3.3 Storage of Waste in Bays

Storage bays are not provided for the storage of wastes on this site.

3.4 Use of Suppression Systems

3.4.1 Building Suppression

No buildings on site will be used to store waste – building suppression is therefore not required.

3.4.2 Other Suppression Systems in Use.

Fire extinguishers are available throughout the site, notably in the offices, weighbridges, maintenance shed and on the on-site plant. A map of all locations and types is available in the Site Manager's office.

EMR have installed a 190,000l tank on the site which will provide an immediate response in any emergency situation. The tank is supplied with fire hoses and other relevant equipment – this will also facilitate the emergency services (equipment compatible) to a degree if required and demonstrate 'active firefighting' (see also section 3.5 and appendix 3 for location).

The system specification is detailed within Appendix 16

IBC's full of water will be made available within the hot cutting area which can be used in the event of a fire incident (alongside localised extinguishers).

At least 3 x 1000L IBC's will be filled with water and will be available to use in the hot cutting area. In the event of a fire the grab crane will be able to lift the IBC's over the fire and crush them to release the water. This will act as an immediate deluge to control / contain any potential fire incident.

The site is equipped with mobile bowsers and dust suppression unit which can be used to soak/damp down any hot/smouldering material or stockpiles.

EMR has also possession of a fully working Fire engine resource shared with EMR Alexandra Dock for immediate deployment if/where required.

3.4.3 Third Party Certification (UKAS Accreditation)

The systems employed are not automated and do not require associated 'third party accreditation (UKAS).

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3.5 Active Firefighting

EMR will facilitate and encourage active firefighting where safe to do so and where practicable. EMR has sufficient and suitable procedures in place (Environmental Protection Procedures and Safe Working Procedures) to facilitate firefighting. The site has the availability fire extinguishers, a large 190,000 litre water tank (with firefighting hoses) and a fully operational fire engine.

EMR staff are trained in firefighting to various degrees and are experienced in moving and isolating fires, including members of staff in the specific use of high pressure hoses and the site fire engine. In addition, there are staff members trained to use the grab material handler, and additional staff members trained to use the mobile shove and can be used for firefighting purposes if required. All EMR staff are to follow a firefighting procedure (see Appendix 14) and 4 members of staff are designated key holders in any out of hours' situation. Regular drills are held in order to ensure staff are ready to respond in any emergency.

All staff are available on site, or would be contacted to attend the site in any emergency.

In all fire emergency circumstances, the FRS will be contacted to provide assistance if and when required. Emergency Services/Fire Rescue Service will have easy access to the main site via 2 large gated main entrances. The location of the site also allows for any potential firefighting activity from the southern site perimeter, and the water tank is compatible with FRS equipment (see appendix 16).

The installation of robust firefighting equipment (fixed water tank, fire engine, hydrant connections in close proximity) ensures EMR have the ability to immediately attack and contain a fire in its early stages before the fire services attend site and take control of the situation. The equipment will then be used alongside the fire services appliances to assist with firefighting, ensuring the fire is extinguished within 4 hours.

3.5.1 Availability of Quarantine Area

The site has capacity to ensure that space will be made available in any emergency situation to accommodate 50% of the largest pile on site (quarantine area measures 34,548m³). The quarantine area is detailed within Appendix 1a).

The area used is within the site permitted boundary, and benefit from a sealed drainage system – allowing for flexibility in providing sufficient 'active firefighting' capability.

3.6 Water Supplies

Owing to the sizes of piles of material (quayside), EMR are unable to demonstrate the availability of water required as stated within FPP guidance and demonstrated within section 3.6.2 – Table 3.

EMR have demonstrated suitable 'alternative measures' – primarily within section 1.5.2 (ability to draw unlimited supply of water from the dock in an emergency situation), and also section 1.5.1 in demonstrating the low combustibility of the stored material, and the likelihood of a fire happening in the first instance.

3.6.1 Availability

There are 2 fire hydrants on the site (Southern side – see appendix 1a) and further single hydrant located just outside the site perimeter (North East of the site) – The hydrants meet relevant BS standards and as a result of this the fire services equipment would be compatible with it when attending site.

Under normal conditions the fire hydrants are expected to provide approx. 6600 litres per minute.

EMR have installed a 190,000l tank on the site which will provide an immediate response in an emergency situation. The tank is supplied with fire hoses and other relevant equipment – this will also

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facilitate the emergency services (equipment compatible) to a degree if required and demonstrate 'active firefighting' (see also section 3.4.2).

The FRS have the ability to draw water from the dock in any emergency situation (see section 3.6, and use of suitable 'alternative measures' section 1.5.2)

3.6.2 Water Calculations - Table 3

Maximum pile volume in cubic metres	Water supply needed in litres per minute	Overall water supply needed over 3 hours in litres	Total water available on site in litres
56,225m ³	Pile volume x 6.67 (375,021l per minute)	Water supply per minute x 180 (67,503,735l)	See alternative measure (section 1.5.2) and details supplied above (section 3)

3.6.3 Managing Firewater (Containment)

Based on strict acceptance procedures (noted within this document), and the limited combustibility value of the material on site(demonstrated in the section above), it is unlikely that the strict base water requirements stipulated within EA FPP guidance will be realised (see also section 1.5.2 for further information)

The site benefits from 1 x NS125 interceptor configured with silt trap, hydro-brake (positioned in front of interceptor) and flow meter plus penstock with sample point (beyond the interceptor).

The site has been designed in allowing that any fire water would be retained on site – the site having a overall capacity to retain approx. 8.5 million litres (see appendix 2b) which would take approximately 21 hours to fill.

EMR (where possible) arrange for fire water to be drawn from the site into mobile road tankers (during any emergency situation) and taken to an authorised facility for treatment etc.

With consultation with the FRS – it may also be possible to recirculate firewater produced on site through equipment provided in any emergency situation.

All firewater will be prevented from entering the dock and disposed of via an authorised facility.

3.7 Notifying Stakeholders

In the event of an emergency, the Port Authority has contacts for all other businesses operating within the port facility and they would be able to immediately advise them of the fire so that they may take appropriate action (if required).

EMR will also enact its 'crisis communication plan' – this includes a central liaison facility to make contact with all internal and external stakeholders and the local press. The emergency services communication structure will also be used in line with advice from disseminating relevant information from Public Health England (if required).

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3.8 Contingency Planning

An Emergency Response Plan has been implemented at the site and encompasses fire, major spillage, pollution incidents, receipt of highly dangerous waste (e.g. asbestos, munitions) etc.

The Site Manager and key staff will make themselves familiar with the document and this document will be placed in a prominent place (noticeboard etc.).

Emergency drills will be conducted at the site once per quarter.

In the event the site reaches capacity or needs to close for whatever reason (such as any emergency), there are other EMR dock facilities or processing yards that waste can be diverted to at short notice:

- Liverpool Alex (dock facility, processing yard and shredder site)
- Liverpool Bankhall (shear facility)
- Tilbury (dock facility)
- Tyne (dock facility).

3.8.1 Clearance & Decontamination

Disposal of Fire Water

Immediately following a fire incident on site, the use of large volumes of water will subsequently generate significant quantities of potentially polluting fire water. Fire water will initially enter the drainage system fitted with silt traps to remove any solids within the water prior to draining into the full retention interceptor – This is however prohibited from discharging until authorised, and would more than likely be drawn from the interceptors to disposed via road tanker to an appropriate and authorised facility.

Once the fire has been extinguished plans are immediately made to dispose of the fire water to a permitted waste facility where necessary. Only approved contractors are authorised to treat and dispose of waste leaving the site.

Disposal of Burnt Materials

The disposal of burnt material will largely depend on the waste / scrap itself and the levels of combustion that occurred; for example, partially combusted light iron or steel can waste (in feed) once fully extinguished and cooled could be processed through a shredder / fragmentiser. Other waste materials e.g. combusted frag waste would need to be assessed/classified and then transferred to an authorised facility for further treatment/disposal.

3.8.2 Becoming Operational Reporting/Lessons Learnt

Following any environmental incident including fires, details of the event are recorded and reported on an Event log on EMR's electronic TCM management system. This Event log or electronic reporting system enables all the details of the fire to be recorded including sequence of events, size and extent of fire, damage sustained (internally and externally), recording of the investigation and actions taken (recorded on Action log). Data from the TCM system (including data from recorded hazards interventions) can be accessed to obtain trends and identify common factors and obtain other useful information.

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Resuming Activities

Normal activities would not resume until the site has been fully decontaminated and assessed as fit for purpose, both operationally and in achieving full FPP compliance.

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Appendices

- Appendix 1a - Gladstone S1 FPP Layout (081020)
- Appendix 1b - Gladstone S1 VS first phase calc scrap heaps height35m
- Appendix 2a Gladstone S1 Drainage Layout (081020)
- Appendix 2b Gladstone S1 Ponding Drainage Layout (081020)
- Appendix 3 Gladstone S1 Proposed Layout (081020)
- Appendix 4 – Sensitive Receptors - S1 (Site Plan 4)
- Appendix 5 – EPP-1.1 Waste Acceptance – The Duty of Care Acceptance of Incoming Material
- Appendix 6 – EPP-1.2 Waste Acceptance – Inspection of Incoming Material
- Appendix 7 – EPP-1.3 Waste Acceptance – Identifying Hazardous Waste
- Appendix 8 – EPP-1.4 Completing of Hazardous Waste Consignment Notes
- Appendix 9 – EPP-1.6 Waste Acceptance – Identification of Radioactive Items
- Appendix 10 – EPP-1.7 Waste Acceptance – Identification of Explosive Materials
- Appendix 11 – EPP-1.8 Waste Acceptance – Rejection of Waste Material
- Appendix 12 – EOW-G01 End of Waste Processes
- Appendix 13 – H09-G01 Electricity Guidance
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- Appendix 15 – Combustibility of Metal Grades
- Appendix 16 – EMR 190,000Ltr Galvanised Steel Water Tank
- Appendix 17 - Gladstone S1 Welfare Office Layout

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