EMS

Appendix 5

Fire Prevention and Mitigation Plan

Jay Metals

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Wern Glyd
Cilrhedyn
Llanfyrnach
Pembrokeshire
SA35 0AG

Document Prepared by	January 2018 Revision: 0
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	Signed:
	Date:

Contents

1 Introduction, Summary and On-site Combustible Wastes

1.1 Introduction and Summary

1.1.1 Introduction

- This **Fire Prevention and Mitigation Plan** (**FPMP**) has been compiled using the latest **Fire Prevention and Mitigation Guidance – Waste Management (Guidance Note 16, Version 2, August 2017)** provided and compiled by ***Natural Resources Wales*** (***NRW***) in collaboration with the ***Fire & Rescue Service*** (***FRS***) in Wales. ***This FPMP forms part of*** the ***Operators Management System*** (***EMS***) in accordance with ***Condition 1 – "General Management" and 3.4 – ''Fire''*** of the ***Environmental Permit***, previous additional and supporting information is also provided within the Operators ***EMS, Accident Management Plan, Spillage Procedure*** etc. including the **FPMP – Site Safety Procedures and FPMP – Contact Details** that form part of and are appended to this plan and which contain ***additional information and reporting procedures*** that should also be followed.

  This ***FPMP*** aims to provide measures and ***procedures to minimise the likelihood of fire*** occurring at the site and ***limit and control the impacts of emissions from the site*** to adjacent receptors and the local environment. The information contained within this ***FPMP*** also helps to identify resources required by ***NRW*** and other emergency responders during an incident and any post incident remedial actions. ***A copy of this FPMP should be kept on-site***, be made known to and be ***readily available to site employees and the FRS*** by placing a copy in the **EMERGENCY SERVICES BOX** ***which is located at the site entrance***.

  Any changes to this plan or site operations which may affect changes to this ***FPMP***, should first be consulted with the NRW for agreement beforehand, agreed changes should then be detailed within the revised ***FPMP*** and any other relevant ***supporting plan(s)*** or ***EMS*** documents before implementation. This ***FPMP should also be reviewed*** annually and immediately afterwards where there has been a fire incident, the review should address concerns raised from the incident and to assess whether the procedures and controls can be improved.

1.1.2 Summary of Site and Environs

Figure 1.1.2a

The [Site] occupies an area of 0.3 hectares and is situated in a rural setting on the Pembrokeshire and Carmarthenshire county border and is surrounded by fields used for raising livestock, it is located approximately 3 miles East of the village of Llanfrynach and 1 mile North West of the village of Trelech.

Access to the site is immediately adjacent to the road, entrance to the Scrap Yard is via signed lockable steel gates, the site construction consists of a concreted surface which drains to a series of sealed tanks and interceptors at the rear of the site.

Storage of end of life vehicles and their depollution is carried out within a ***covered ELV Building*** located at the northern portion of the site, storage of depolluted engines is within the adjoining ***Workshop Building*** located within the centre of the site.

The owners and operators' ***residential property*** is located immediately to the North West of the Site and adjacent to the country road. An ***agricultural yard and building*** is located adjacent to the Eastern perimeter of the Scrap Yard. ***Other nearby residential properties*** are located approximately 0.5km (Maesgwyn, Clungwyn, Fron-glyd etc.) and beyond to the East towards Llanyfrynach and North towards Cilrhedyn of the site.

Figure 1.1.2b

Located approximately 25 metres to the South and West of the [Site] is a spring and a drainage ditch which begins the start southern upper reaches of the Afon Pedarn which flows to the West and North of the Site as shown in Figure 1.1.2b above.

1.2 On-site Combustible Wastes

1.2.1 Qualifying combustible wastes which are accepted and stored at the site are limited to the following wastes listed within the FPMP Guidance:

- rubber (natural or synthetic, including whole tyres)
- scrap metals including ELV's
- waste fuels – including oils from depollution of ELVs only
- batteries within ELV's

1.2.2 The types quantities and locations of listed combustible wastes are provided within Table 1.2.2 below:

Table 1.2.2 On-site Combustible Wastes

Waste Type	Quantity / Volume	Location	Comments
Whole Tyres	Less than 5 tonne / 50m^3 (8m x 2.5m x 2.5m)	Shipping Container North-East Corner (road side) of the Site (Area A6)	Lockable steel fireproof container.

Table 1.2.2 On-site Combustible Wastes			
Waste Type	**Quantity / Volume**	**Location**	**Comments**
End of Life Vehicles	Less than 20 tonnes (10 vehicles) / 200m^3 (10m x 10m x 2m)	ELV Depollution Building (Area A2 & A3)	Sealed drainage within the ELV Building, open fronted building allowing unrestricted access from the north (road side) of the site
Waste Fuels and Oils	Oil –10 x 205lt Brake Fluid – 1 x 205lt ***Depollution Equipment***: Petrol – 200lt Diesel – 200lt Oil – 200lt Coolants, etc. – 200lt	ELV Depollution Building (Area A2 & A3)	***All fluids must be stored in fire resistant & sealed metal drums***. ***Plastic drums & IBCs must not be used*** for storing any flammable or polluting liquids in this area!

Maximum storage times for all combustible and flammable wastes ***shall not exceed 6 months***.

Locations are shown in ***Figure 1.2 – FPMP Site Layout Plan*** overleaf.

1.3 On-site other Potentially Flammable Wastes, Fuels and Gas Cylinders

1.3.1 Other notable combustible and flammable substances and materials which are stored at the site are also included within Table 1.3.1 Below:

- Depolluted ELVs
- Lead / Acid Batteries removed from ELV's
- Diesel fuel – for use in on-site plant & machinery
- LPG Cylinders
- Scrap Aluminium & Aluminium Alloys
- Quarantined Items & Wastes

1.3.2 The types quantities and locations of listed combustible wastes are provided within Table 1.3.2 below:

Table 1.3.2 Other Combustible Wastes, Materials and Substances			
Waste Type	**Quantity / Volume**	**Location**	**Comments**
Lead / Acid Batteries	25 x 1tonne battery boxes	ELV Depollution Building (Area A2 & A3)	Sealed drainage within the ELV Building, open fronted building allowing unrestricted access from the north (road side) of the site
Diesel fuel	2,300lt	Western edge of the site between the site offices	GRP tank within bunded area
Gas Cylinders	2 x 19kg Propane Cylinders	Kept within cage near the site entrance at the North-West corner of the site	For on-site domestic use only. Discarded Gas Cylinders are not accepted on-site

Table 1.3.2 Other Combustible Wastes, Materials and Substances			
Waste Type	**Quantity / Volume**	**Location**	**Comments**
Scrap Aluminium & Aluminium Alloys	Aluminium Scrap - 20 tonnes	Central section of the site (Area B5)	Can become combustible only if subjected to prolonged and intense heat.
	Alloy Wheels - 20 tonnes	Eastern section of the site (Area B2)	
	Baled Aluminium - 10 tonnes	Within Workshop Building, (Area B4)	
Quarantined Items & Waste (unspecified)	1m^3 contained within a battery box within the steel shipping container	Shipping Container North-East Corner (road side) of the Site (Area A5)	Lockable steel fireproof container.

Figure 1.2 – FPMP Site Layout Plan

2 Site Details and Controls for Fire Prevention and Mitigation

2.1 Storage and Management of Combustible and Flammable Wastes

2.1.1 ***End of Life Vehicles*** (ELVs) received at the site are stored within the ***ELV Depollution Building*** in ***Area A2*** awaiting depollution, and / or are placed directly onto the Depollution Unit in ***Area A3*** and then undergo depollution procedures which are further described separately in the ***EMS*** – ***Process Description Management and Controls*** document.

The ELV Depollution Building is a steel clad roofed building which is closed on 3 sides, the north side of the building (facing the road) is open and provides access all along its length.

This building covers an area of approximately 25m x 12m, the floor comprises of an impermeable concrete base with drainage to a sealed sump located in the North-West corner of the building.

All combustible, flammable and polluting fluids are removed from vehicles and are ***also stored within the building*** as ***detailed previously*** in ***sections 1.2 & 1.3*** - ***On-site Combustible Wastes*** etc.

Tyres removed from vehicles are stored within a steel lockable shipping container (area which is located opposite the North-Eastern (***Area A3***) section of the ELV Depollution Building.

Non-ferrous metals (typically copper piping and brass fittings) are sorted, cut to size and stored with the North-Western section of the building in ***Area A1***. This area is partitioned from the ELV Depollution operations and Storage areas (A2 & A3). ***Metal powders, pyrophoric metals or other reactive metals*** or substances ***are not accepted at the site or stored*** within the building.

Due to the quantity and nature of the combustible and flammable wastes stored and produced from ***ELV Depollution Operations***, the ***ELV Depollution Building is considered as the Main Fire Risk*** area on the site.

2.2 Access and Separation Distances

2.2.1 Access ⊙ to the site is via 2 lockable sturdy ***steel panelled gates which adjoin the country lane***.

The ***width of the access to the site*** when the gates are fully open is ***approximately 6 metres***.

Access for FRS Vehicles to all areas around the internal site perimeter and central buildings allows for an ***access distance of more than 4 metres***, the management and control of scrap metal storage areas, and location of plant and equipment will need to ensure that minimum access distances within the site are maintained and that stockpiles are not exceeded or creep into and obstruct these access areas.

2.3 Fire Prevention Techniques, Risks and Control of Spreading

2.3.1 There is a no smoking policy and naked flames or fires are not allowed on site, there are no welding or use of oxyacetylene cutting operations carried out on-site either.

Possible low risk ignition sources on-site have been identified as:

- ***Disk cutting operations for non-ferrous metals*** (which are non or very low spark producing metals) are carried out within the partitioned ***Area A1*** of the ***ELV Depollution Building***.

  There are no flammable or combustible materials stored within the immediate vicinity of this area. Depollution operations are carried out separately and not at the same time or during the cutting of non-ferrous metals.

- ***Moving and baling of ferrous metals*** at the southern portion of the site in open yard ***areas B3, B5, B6, B7 & A4***.

  There are no flammable or combustible materials stored within the immediate vicinity of this area.

2.3.2  ***Smoke detection fire alarms*** are fitted to the Eastern (***Area A3***) and Western (***Area A1***) sections of the ***ELV Depollution Building***.

2.3.3  ***Fire extinguishers*** are positioned in easy visual, signed and readily available locations within the on-site Machine Grab, ELV Depollution and Workshop Buildings and open yard areas of the site as shown in ***Figure 1.2 – FPMP Site Layout Plan.***

Fire Extinguishing media consists of **CO_2** (Class A, B & E), **Powder** (Class D) and **Foam** (Class A & B) hand operated cylinders which are suitable for dealing with:

- ***Class A fires*** involving ***organic solids*** e.g. ***paper and wood***.
- ***Class B fires*** involving ***flammable or combustible liquids***, including ***petrol, grease, and oil***.
- ***Class D fires*** involving combustible ***metals***.
- ***Class E fires*** involving ***electrical equipment***.

Fire smoke detection alarms and ***readily available and appropriate fire extinguishers*** provide early warning and controlling the fire to prevent the possibility of escalation and spread of fire on the site.

2.3.4 ***In the event of preventing a small fire escalating on site***, or containing and isolating a hot spot fire risk, and only ***if it is safe to do so***, it may be possible to use the ***on-site machine grab to isolate or remove the hot spot or item*** to an open area of the site, the areas to be used to remove and ***quarantine the hot spot or item are areas B5, B6 & B7 which are located within the South-West portion of the site***.

Isolated hot spots or small items on fire should be kept away from any combustible or flammable sources where it can be dealt with separately by extinguishing or covering / smothering the hot spot or item with non-combustible material.

2.3.5 ***In the event of a fire where it has escalated and cannot be safely and easily contained or controlled using on-site firefighting methods,*** then the Fire Rescue Service FRS must be contacted immediately by dialling **999** on the telephone to deal with the fire. The site manager or supervisor will arrange to cancel all scheduled deliveries to and collections from the site and ensure that site staff are also safely stationed outside the site to prevent and divert any vehicles entering the site. Local nearby residents should be contacted (using the **FPMP Contact Details**) and informed of the fire situation.

The site ***Drainage Isolation Valve*** which is located on the external wall of the Southern Perimeter of the site should be ***switched to the OFF position***, easy ***access to the Isolation Valve*** is along a path which runs from behind the site office and adjacent residence, along the outside Eastern perimeter of the site to the ***Southern perimeter of the site and located on the side of the raised site wall***.

Additional local FRS contact details and information is provided below:

Mid and West Wales Fire and Rescue Service

Nearest Station is in Crymych, located on the A478 only 7 miles to the North of the site.

Phone: 0370 6060699

Fax: 01267 220562

Fire Safety visit: please call us on 0800 169 1234

Email: mail@mawwfire.gov.uk

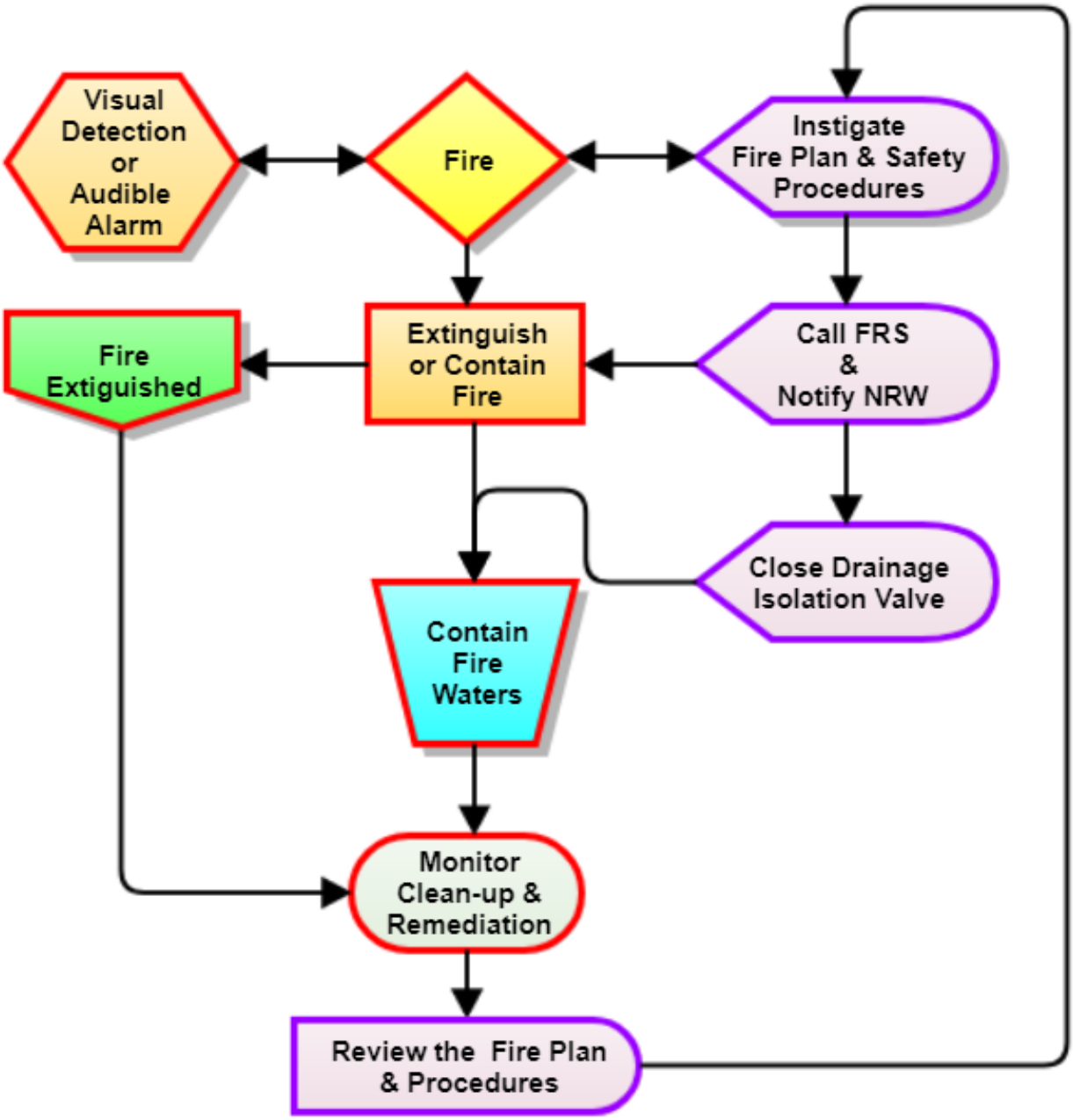
Web Site: http://www.mawwfire.gov.uk/Pages/Welcome.aspx

2.3.6 ***There are no readily available Fire Hydrants within the locality,*** the nearest fire hydrant is located in the village of Trelech approximately 2 Km away to the south of the site. ***Additional Emergency Fire Water is provided on-site***.

An ***Emergency Fire Water Tank*** is located near the site access, on entering the site, it is sited immediately on the right-hand side in between the site gate and site offices, the tank holds approximately 3,500 litres of water for the FRS to use if additional water is needed for firefighting.

2.3.7 In the event of a small containable or large fire occurring on-site, the ***Fire Plan Procedures summarised and provided in Figure 2.3.4*** below are to be followed which is provided below:

Figure 2.3.7 - Fire Plan Procedures



2.4 Sensitive Receptors

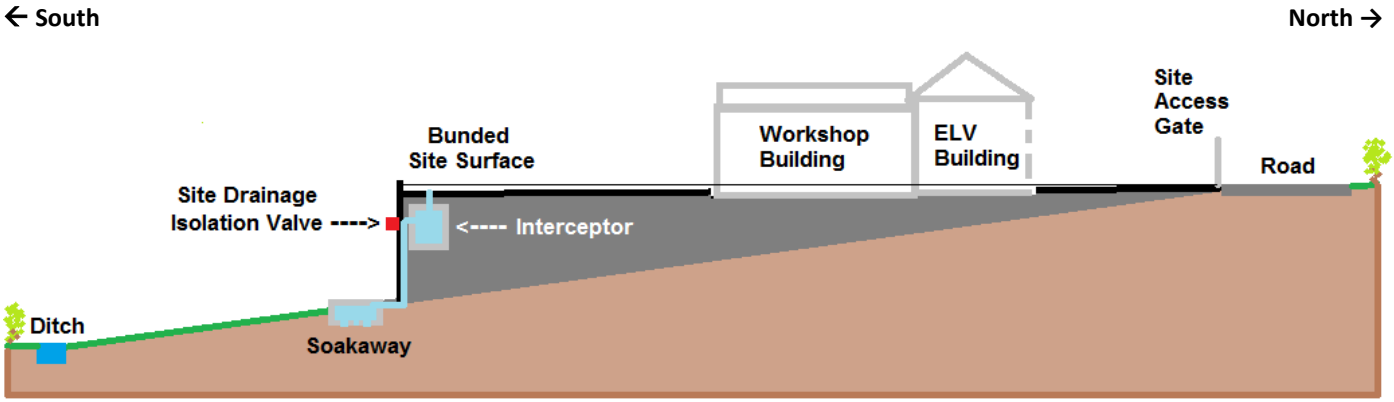
2.4.1 The Scrap Yard (The Site) is located in an area of natural and rural countryside, the site is constructed of a bunded concreted surface laid on top of made ground consisting of granular fill to raise levels of the site where the underlying natural unmade ***ground slopes*** from the adjacent Road located at the Northern perimeter of the site ***towards a drainage ditch located approximately 40 metres away to the Southern perimeter of the site***.

➢ ***Environmental receptors*** which may be impacted from site infrastructure ***failure to contain polluting firewater water escaping from the site*** are:

- ***Groundwater*** flowing in a South Westerly direction underneath the site and adjacent field, and;
- ***Surface water drainage ditch*** located approximately 25 meters to the South and West of the site.

A ***simplified conceptual site model is provided in figure 2.4.1*** below which also details the site drainage infrastructure and containment system for ***isolating and preventing fire water escaping the site***.

Figure 2.4.1 - Simple Conceptual Site Model



Not to scale

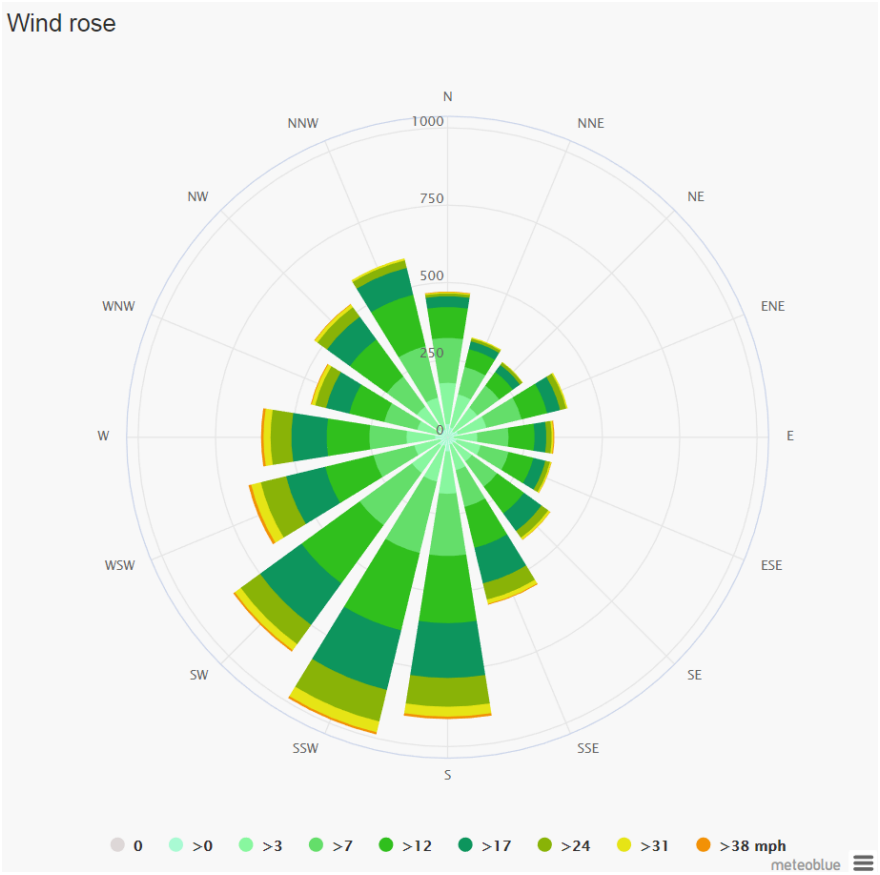
2.4.2 The likely hazards and harm in the event of a fire occurring at the site ***are emissions of black smoke to air from the combustion of vehicles, fuel, oils and tyres. These emissions, if there is a large and or prolonged fire***, are likely to affect both the ***immediate and wider surrounding locality***, the severity of these impacts will also be influenced by weather conditions and wind direction.

Prolonged fire and heat generated within and from the ELV Depollution Building may also ***cause pressurisation and explosion of drums and containers*** containing combustible and flammable liquids which are also stored within the building.

Wind direction is predominantly from the South West, therefore, ***receptors which are most likely to be impacted by aerial emissions*** generated from a fire at the site ***are those which are situated to the North East of the site***.

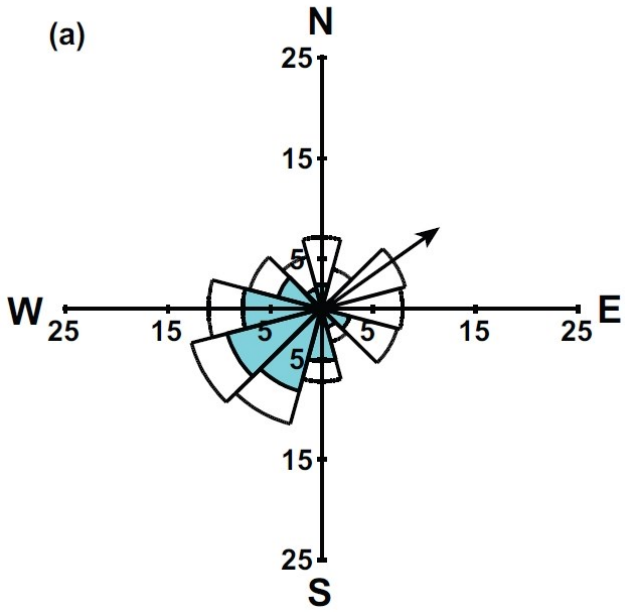
Wind Roses showing historical weather data for wind direction for Pembrokeshire Wales, United Kingdom, 51.83°N 5.08°W 77m) and Carmarthenshire (Wales,United Kingdom, 51.86°N 4.31°W 23m) is provided below in ***figures 2.4.2 i, ii, & iii*** below:

Figure 2.4.2 i



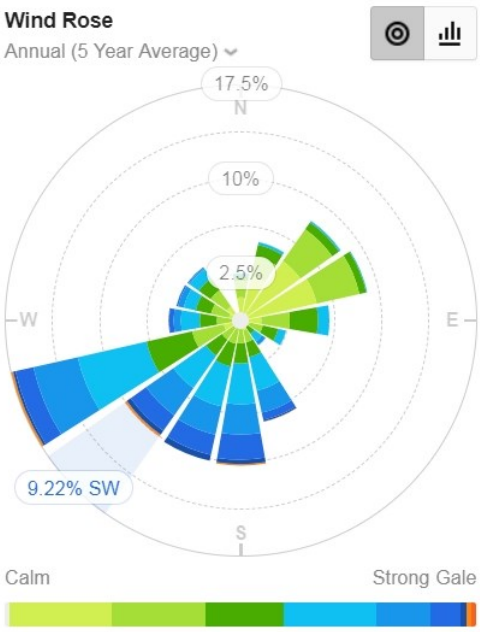
Pembrokeshire

Figure 2.4.2 ii



Carmarthenshire 1994 - 2000

Figure 2.4.2 iii



Carmarthenshire 2012 – 2017

➢ ***Human receptors*** which may be impacted by emissions from the site are:

- ***Employees, customers and visitors*** on-site,
- ***Site owner, occupier and residents*** in adjacent property, Wern Glyd,
- ***Pedestrians and commuters*** using the adjacent road,
- ***Farmers working and tending to livestock*** in adjacent and surrounding fields,
- ***Public using the bridleway & footpath*** approximately 200m South of the site,
- ***Local Nearby Residents,***

  Properties located at:

  Maes Gwyn (500m West of the site),
  Fron-glyd (550m North of the site),
  Clungwyn (650m North-West of the site), and;
  Henffald (700m North of the site)

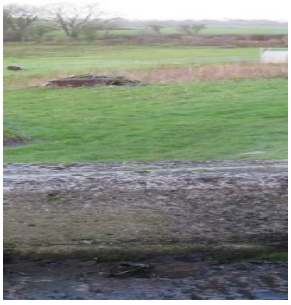
- ***Other Residents in the Locality,*** 4 x residential properties, each located approximately 1 Km to the North, East, West and South of the site.

The Distance to Human Receptors ***is provided in figure 2.4.2c*** below:

Figure 2.4.2c - Distance to Human Receptors

2.5 Prevention of Fire Water Run-off

2.5.1 The ***site drainage*** from roofed and open yard storage areas is ***contained on a concreted surface and within a 20cm high concreted bund*** which encircles the site perimeter.



Bunded Site Perimeter

There is a ***sealed drainage sump*** located near the rear South-West corner of the site to capture potentially polluting surface waters ***where bailing operations are carried*** out and a ***full retention oil by-bass interceptor*** is ***located in a more central location at the rear Southern perimeter of the site*** to control surface waters leaving the site to a ***soak-away to land at the rear (South) of the site***.

Drainage Isolation Valve

To prevent contaminated fire water run-off (including any other polluting spillages entering the system or leaving the site) the full retention by-pass ***interceptor is fitted*** with an ***isolation valve which should be switched to the OFF position*** to isolate the waters within the confines of the site.

Whilst the isolation valve is closed, the site becomes a sealed drainage system where ***fire waters can be retained on site.***

2.5.2 ***Retention of fire waters on-site*** is achieved using the existing head space capacities within the interceptor, sealed sumps and bunded site surface.

On-site capacities for fire water retention is estimated as follows:

- Minimum head space of Sealed Sump: approximately 1,500 litres
- Minimum head space of Isolated Interceptor: approximately 1,500 litres
- Bunded perimeter of site surface: approximately ≥ 25,000 litres

Total estimated combined volume of fire water retention on-site = 28,500 litres.

Typical Fire and Rescue Appliance Capacities can hold the following approximate maximum volumes of water for use in firefighting:

- Large Appliances: approximately 4,000 litres
- Smaller, Incident Response Units: approximately 1,000 litres

Additional fire water is provided on-site for the FRS:

- Emergency fire water tank: approximately 3,500 litres

Total estimated combined (single use) volume of fire water = 8,500 litres.

2.6 Monitoring, Control and Remediation

2.6.1 After a fire has been extinguished, the affected areas and site infrastructure should be visually ***inspected by a fire officer or qualified/competent person*** for possible risks of re-ignition and damage resulting in dangerous and unstable structures

Any identified remaining fire risk sources or hot spots should be assessed and monitored, where monitoring suggests that the fire risk is not decreasing, the source or hot spot should be quenched or smothered and where appropriate and safe to do so, removed to the open yard quarantine area using the on-site machine grab or other suitable available plant or equipment.

Before the site can resume operations, the following main priority issues should be assessed, documented and rectified as listed (*but not limited*) below:

- Removal of fire water from interceptors, bunds and site surfaces.
- Remediation of damage or pollution which may have affected areas beyond the site boundary.
- Clearance and removal of fire damaged wastes and items.
- Damage to pollution control systems e.g. drainage, containment, bunding & surfacing etc.
- Damage to site safety systems i.e. fire smoke detection alarms and depletion of firefighting extinguishing media and emergency fire water.
- Damage to buildings, plant and equipment

A list of available local waste disposal and site investigation & remediation contractors are contained within the ***FPMP – Contact Details***.

Following the site clean-up, repairs and reinstatement, the ***Fire Prevention and Mitigation Plan*** (***FPMP***) ***should be reviewed*** and discussed with ***NRW*** and the ***FRS*** for comment and agreement.