

Dust and Emissions Management Plan

Amendment Log

Version No:	Comments / Amendments	Author	Date	Approved By	Job Title	Date
1	Developed by Beyond Waste as part of EMS for Roath Dock - Cardiff Permit	Beyond Waste	July 2015			
2	Reviewed and revised in line with the updated EMS for Roath Dock Permit to store Woodchip / RDF	T Butler	03/06/2020	C Christoforato	Operations Manager	03/06/2020
3	Amended Mitigation Table to include reference to 'high density of Celsa materials'	T Butler	27/06/22	R Gray	Port Manager	27/06/2022
4	Whole document review and revised in line with information request from NRW for Roath Dock Permit Variation – Document PAN 019448	T Butler	17/02/2023	R Gray	Port Manager	17/02/2023
5	Reviewed as a result of schedule 5 notification for permit variation Further amendment undertaken as requested by NRW 25/07/23	T Butler	31/07/2023	J Cooksley	Operations Manager	31/07/2023

Dust and Emissions Management Plan

1.0 Introduction

Purpose

- 1.1 The Dust and Emissions Management Plan is intended to demonstrate appropriate measures to prevent or minimise the release of dust from the Permit Site at Roath Dock, Port of Cardiff so that they do not cause pollution or give rise to nuisance.

Scope

- 1.2 The waste transfer facility is in proximity to surrounding activities within the port of Cardiff. Therefore, this Dust and Emissions Management Plan has been produced to address any potential dust issues arising from ABP's activities.

Reasons for Dust Management

The Bespoke Permit will impose the following condition:

Emissions of substances not controlled by emission limits

Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this rule if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

- 1.3 The Dust and Emissions Management Plan seeks to control fugitive emissions, which include dust generation, from site activities to prevent pollution, nuisance and annoyance that may be cause beyond the site boundary. In order to carry this out the sources of dust, the pathway and what receptors might be affected by it have to be examined.
- 1.4 The Dust and Emissions Management Plan identifies the following criteria as important in the achievement of the objectives set out above: -
- Potential dust sources
 - Release points and impacts
 - Controls in place to manage the generation of dust and prevent its release
 - A dust monitoring plan to assess the effectiveness of the controls
 - A process to follow up / investigate any complaints and where necessary implement suitable control measures

2.0 Site Operations

- 2.1 ABP receives waste materials namely, waste woodchip (in bulk) or RDF (baled) and mill scale (in bulk) and stores on the quayside (permit site) for a period of time until it is exported via vessel. **Please note** only one combustible waste material held at any time i.e. either woodchip or RDF.
- 2.2 All waste is accepted onto site in line with the Waste Acceptance Procedures and is delivered to the site by road using customers / producers approved waste carriers in the following ways
- **Woodchip** - Articulated Trailers with Walking Floors
 - **Mill scale** – Tipper Trailers
 - **Refuse Derived Fuel (RDF Baled)** – Curtain Sided Trailers.

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Sources, Release Points, and Impacts

Dust Sources

2.3 The Environmental Management System (EMS) ensures site conditions are monitored to assure on-going compliance with health, safety, and Environmental Legislation. The EMS is underpinned by a Risk Assessment, and this has identified the following operations as having the potential to give rise to dust emissions: -

- Delivery of Waste Material
- Loading / Tipping of Waste Material
- 'Pushing up / Working' of Waste Material
- Storage of Waste Material
- Loading / discharge of Waste Material
- Transport of Dusty Material

Dust Generating Operations - Other Sources

2.4 The nature of the port itself is a dusty environment however, there are also a number of operations within the immediate vicinity and surrounding the permit site that have the potential for significant dust generation such as: -

- Bulk aggregate operations (discharging vessels, stockpiling, and loading trailers)
- Other permitted waste operations (receiving / tipping trailers, loading wagons)
- Scrap operations (receiving / tipping trailers, loading vessels)
- Hazardous waste treatment plant

Table 1 – Potential for Dust Emissions from Waste Handled

Waste Type	Risk Rating	Description / Characteristics	Approx. Daily amount, Annual throughput & storage capacity	How is it stored
Refuse Derived Fuel (19 12 10)	Low	Bales individually wrapped. Any damaged are not accepted on site	Approx. up to 300mt daily Annual through put 45,000mt Storage capacity = 4920mt	Stored in line with FPMP
Woodchip (19 12 07)	Medium	Low density material produced by mechanical shredding but pre-screened to remove fines fraction prior to delivery	Approx. up to 300mt daily Annual through put 45,000mt Storage capacity = 3100mt	Stored in line with FPMP
Mill Scale (10 02 10)	Low	High density coarse material	Approx. up to 300mt daily Annual through put = 30,000mt Storage capacity = 6,000mt	One stockpile

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Potential Dust Sources from Activities and Mitigation Measures

Mitigation Measures are dealt with in Table 2 below:

Source / Activity	Assessment Characteristics	Embedded Mitigation
Import (discharge) vessel	Discharge 'grabbing' of processed woodchip with materials handler, quayside crane or mobile harbour crane to land quayside	Use of suitable equipment to discharge vessel and push to stockpile Grab lowered into vessel to grab woodchip. Grab not over filled to avoid spillages is lowered to quayside and opened steadily to reduce dust cloud
Export (Loading) Vessel	Loading vessel with materials handler quayside crane or mobile harbour crane lowering waste cargo into vessel hold	Use of appropriate equipment to load vessel. Grab not over filled to avoid spillages is lowered in to hold of vessel and opened steadily to avoid dust cloud Site cleaned and swept at the end of each vessel loading campaign
Storage Inc. Pushing Up / Working Stockpiles	Dry chips, dust from waste stream/s can be prone to wind blow Mill scale is a high-density course material with low dust content	Minimum particle size specification to suppliers (woodchip). Mill scale is a high-density course material Use of dust suppression techniques where required e.g. dust boss within the limits of moisture specification (woodchip) Working stockpiles kept to a minimum to reduce dust emissions
Loading trailers for deliveries	Disturbing woodchip when loading and dropping from height	Minimum particle size specification to suppliers (woodchip only) Vehicle trailers are sheeted when receiving and prior to leaving site
Accepting deliveries of waste	Tipping trailers	The use of appropriate equipment to load i.e. high bucket loading shovels, materials handler etc.
Track Out	Carriage of dust on vehicle body and wheels	Site surface and access road surfaces are either tarmac or concrete Plant vehicles cleaned / swept within the permitted area Surface cleaned and swept regularly i.e. mechanical road sweepers
Weather event – as documented in 5.3 and 5.5	Dust emissions / release generated from wind disturbing stockpiles or when handling waste	Use of dust suppression techniques where required e.g. dust boss within the limits of moisture specification (woodchip) Monitor weather events as documented in 5.3 and 5.5 and where necessary increase suppression and / or suspend operations

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Please NOTE: The above operations are also carried out in line with ABP's Waste Acceptance, Waste Monitoring & Inspection and, Waste Storage Procedures

3.0 Pathways and Receptors

Dust Pathways

3.1 Dust (should it arise or be generated) could be transmitted from source to receptor via the atmosphere. The significance of the pathway i.e. level of dispersal / dilution is dependent on atmospheric conditions, wind speed and direction. Potentially air currents can disperse dust over a wide area and emissions can impact sensitive equipment, machinery, nearby land uses, soils, water systems, fauna and flora and give rise to the potential to cause complaints. Receptor locations and distances from site plus Windrose are illustrated in drawing 1 (larger drawing 05-01.D07 - 1km Receptor Plan available separately)

Impacts and Receptors

3.2 Dust may have a number of effects on sensitive receptors including:

- Environmental impacts (as mentioned above)
- General Annoyance;
- Increased levels of stress;
- Loss of amenity (e.g. forcing someone out of their garden)
- Sensitisation to perceived health effects;
- Concern regarding a drop in property values;

3.3 The realised severity of dust emissions for external receptors, without site management / mitigation practices, is dependent on prevailing meteorological conditions as determined by location, macroclimate, and site-specific micro-climate. Wind speed and direction are of particular significance for dispersing dust. The wind rose for Cardiff Dock indicates the prevailing wind is from the South West i.e. blowing towards the North East.

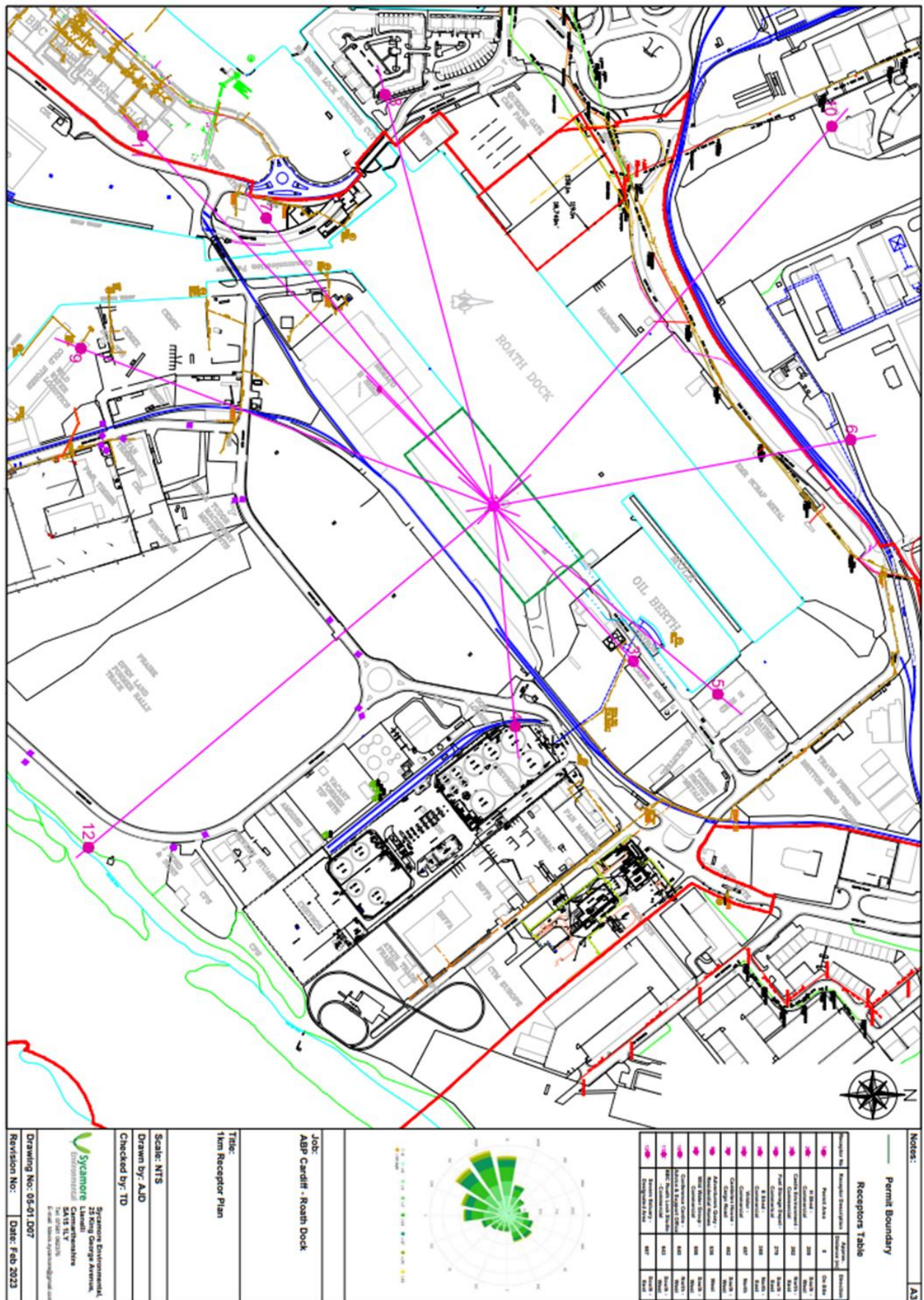
The permit site is situated within an industrial setting alongside other port related activities undertaken by ABP and tenants that present the risk of similar impacts as outlined in section 2 '**Dust Generating Operations - Other Sources**'. Receptors in the immediate vicinity of the site are primarily of an industrial / commercial nature however, the Severn Estuary, which is a Ramsar site, Special Area of Conservation (SAC), a Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI) is approx. 670m away.

Site Setting

3.4 The permit area is situated on the South Side of Roath Dock in the Port of Cardiff and is surrounded by various commercial / industrial premises on the Port Estate. There are also commercial, industrial & residential premises situated outside the perimeter of port estate. Refer to the drawing below for receptor locations, distances, and wind direction.

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Drawing 1 – Receptor Locations, Distances and Windrose



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4.0 Dust Management and Control

Dust Control – General

4.1 All appropriate measures are taken to prevent dust emissions from the waste transfer facility which is primarily controlled at source by good operational practice, including physical and management control measures.

4.2 Operators and TCM visually monitor material movements of waste materials as well as weather conditions (both visually and via weather app) to ensure there is minimal dust emission. As waste is exposed to the elements, personnel are able to coordinate operational activities so as to minimise any potential fugitive dust release. General control measures which are applied during a normal working day include: -

- Permit site surrounded by **2.5m high steel shipping containers** acting as a physical barrier. All activities undertaken within this barriered area
- Deployment of dust boss or other suppression equipment
- Minimising material movements and 'drop heights'
- The use of a weather app for daily monitoring of weather conditions and where conditions such as high winds (Beaufort Force 4 19-24mph) are identified, operations are suspended.
- **Good housekeeping will be adopted at the relevant frequency to ensure ground and relevant mechanical surfaces will be kept free of accumulated dust / fibres in line with the 'Inspection, Maintenance and Cleaning Schedule'**
- Waste stockpiles will not exceed stated capacity in order to ensure effective dust management
- 'Toolbox Talks' in relation controlling potential dust releases
- Waste Transfer Facility only – no processing on site
- Dusty loads or loads with high amounts of fines are not accepted (waste acceptance procedure)
- Any failure of plant, machinery and / or equipment which may give rise to dust generation / emissions will result in operations being suspended until appropriate repairs or alternative suitable measures are undertaken to ensure effective control of dust emissions

4.3 All relevant personnel have received awareness (toolbox talks) in dust management & control including identifying when dust is an issue, deployment of the relevant appropriate measures in the course of their site duties. In addition the operations manager / operations supervisor will regularly monitor dust management during the course of the day.

As identified in Table 2, the potential dust sources could occur in relation to following activities:

4.4 Delivery / Loading of vehicles and Machinery Movements

- Waste Acceptance Procedures followed to reject dusty loads or loads with high amounts of fines
- Waste material is delivered to the permitted area in covered vehicles for export
- Vehicle's discharge (tip) waste product/s to stockpile area.

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- Where waste is imported and sorted - Vehicle trailers are loaded from stockpiles and covered prior to leaving site
- Deliveries / collections are expected to occur daily during operating hours 07:00 – 17:00 Hours
- Upon any visible dust emissions the site supervisor will instruct port operators use the dust suppression equipment available.
- Any spillages are cleaned immediately
- Site roads are kept maintained and swept on a weekly basis as a minimum.

4.5 Storage Inc. Push Up / Working Stockpiles

- Waste material stored on site will be inspected / monitored in line with the ABP Waste Monitoring and Inspection Procedure.
- Stockpiles are created / maintained by loading shovels. This operation has the potential to create dust however, dust suppression equipment is available to reduce emissions where required.
- Waste material is stored in bulk on the permitted area with an impermeable surface pending export via vessel or, if the waste material was imported pending export via road transport.
- Storage capacity will not exceed permit conditions and waste materials will not be stored for prolonged periods of time in line with FPMP, and commercial agreements.

4.6 Loading / Discharge

- **Loading** – Waste material stockpiles are pushed towards the quayside in order for mobile harbour crane / material handler to ‘grab’ material to load to vessel. This operation has the potential to create dust. Refer to 4.4
- **Loading** – Waste material is loaded to vessel by mobile harbour crane / material handler. To reduce the potential of dust emissions, the grab is never overloaded and is lowered into the vessel before it is opened to discharge material (e.g. material is not dropped into the vessel from height)
- **Discharge** – Waste material is discharge from vessel by mobile harbour crane / material handler. To reduce the potential of dust emissions, the grab is never overloaded and is lowered into the quayside before it is opened to discharge material (e.g. material is not dropped onto the quayside from height)
- **Discharge** – When waste material is discharged using mobile harbour crane / materials handler it is pushed away from the quayside using loading shovels to form stockpiles handler This operation has the potential to create dust however, dust suppression equipment is available to reduce emissions where required.

4.7 Track Out

Waste material that has been deposited on site may be prone to being tracked out of the permitted area via delivering or collecting vehicles and /or on-site plant vehicles. This has the potential to cause dust emissions however;

- Site surface and access road surfaces are either tarmac or concrete
- Site is inspected daily / weekly
- Plant vehicles cleaned / swept within the permitted area on a daily basis
- Surface cleaned and swept weekly as a minimum

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If all dust control measures have been deployed but dust is still deemed problematic, i.e. dust is readily evident escaping beyond the site boundaries, then the relevant site operations causing the dust will cease until climatic conditions have improved.

4.8 Dust Suppression System

Mobile dust suppression system is available and is deployed and operated by trained / competent personnel. The dust suppression system is deployed and operated

- When dust emissions are visible
- When preparing to accept deliveries that could potentially be dusty,
- Moving / loading dusty materials
- If unexpected dust emissions arise from an operation

Dust emission incidents are recorded on a Dust Assessment Report Form – **EMS – DARF1** (Annex 1). Incidents are reported to the site manager for further investigation.

5.0 Monitoring Dust Releases

General

5.1 A thorough monitoring schedule is implemented to assess the following criteria

- Process controls;
- Dust releases and impacts
- Transport through the atmosphere;
- Complaints (including multiple complaints highlighting the same issue) management and response;
- Site, pathways, and community monitoring undertaken by regulatory authorities;
- Detailed reporting and record keeping.

Responsibilities

5.2 Monitoring of potential dust releases is the responsibility of the Technically Competent Manager (TCM) and / or any relevant operational personnel who have received awareness in this procedure.

Visual Monitoring

5.3 The TCM or relevant operational personnel will undertake visual monitoring inspections of the site boundaries to ensure no dust emissions / release beyond site boundaries. Visual monitoring inspections will take place daily as a minimum or more frequently if conditions indicate this may be necessary (instances where weather conditions are windy / high winds – Beaufort Force 4 19-24 mph, or prolonged periods of dry weather). All observations and any subsequent actions will be recorded in a TCM report

Routine Monitoring

5.4 Routine assessments are undertaken and can be used to build up a picture of the impact dust releases that may arise from site activities could have on the surrounding environment over time. During these assessments weather conditions are monitored using a weather app which highlights wind direction speed, gust, temperature, precipitation, and pressure.

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- 5.5 Monitoring of the weather app can identify changes in weather patterns that may have a detrimental impact on operations and allows operational personnel to review and adjust any dust control measures accordingly. For example where high winds (**Beaufort Force 4 19-24 mph**) are forecast, the TCM and / or operational personnel can implement dust suppression and suspension of operations for the period in question. Refer to **Fig 1** example of the information contained in the weather app
- 5.6 In instances of complaints more formal assessments are undertaken and recorded on Dust Assessment Report Form – **EMS-DARF1** in order to: -
- Check compliance with permit conditions and sensitive receptors
 - Try to establish dust sources
 - Try to establish the impact of dust emissions from adverse weather conditions
- 5.7 Visual ‘dust’ assessments are incorporated in the daily inspections and are undertaken at various location across the site. The use of information from the weather app is also used to inform any actions to be taken
- 5.8 The TCM or relevant operational personnel will go to each of the monitoring locations at each corner of the permit area as highlighted in drawing 2, observing locations and inspecting surfaces for the presence of dust. (Scale drawing ‘05-01.D05 Monitoring Locations’ available separately).

If the assessment indicates that dust present has arisen from the site and / or activities, an assessment of the handling processes will be undertaken to trace any observed dust to the source so that appropriate corrective action will be implemented (whilst considering any adverse weather conditions). This may include the deployment and operation of dust suppression systems.

Findings of dust assessments are recorded on the Dust Assessment Report Form – **EMS-DARF1** along with prevailing weather conditions at the time of the assessment and any abnormal events that may be affecting site operations. The information recorded is to ensure that appropriate corrective and preventative measures are put in place in the event of similar conditions arising in the future.

As well as completing the Dust Assessment Report Form – **EMS-DARF1** the TCM / relevant operational personnel will also consider: -

- Any unusual characteristics evident in the waste stored on on-site (origin of waste, composition, age, condition, etc.)
 - Plant and equipment including dust suppression working as normal
 - Any unusual activities being undertaken on neighbouring sites that may have impacted on permit operations
- 5.9 Senior management will be informed of the results of assessments undertaken internally or, by NRW / Cardiff City Council Environmental Health Department and any subsequent corrective / preventative measures taken as a result of the assessment.

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Fig 1 - example of the information contained in the weather app

CF10 4LX
Postal Code, Cardiff, Cardiff County, Wales, United Kingdom

Today Tue 7 Feb GMT 3 hr 1 hr

Hour	Wind	Avg.	Gust	Temp.	Rain 1h	Cloud	Press.
12:00	ESE	1 mph	to 1 mph	7 °C	0 mm	4 %	1039 mb
13:00	ESE	1 mph	to 1 mph	7 °C	0 mm	6 %	1038 mb
14:00	ESE	1 mph	to 1 mph	8 °C	0 mm	6 %	1038 mb
15:00	SSE	3 mph	to 3 mph	8 °C	0 mm	30 %	1038 mb
16:00	SSE	2 mph	to 2 mph	6 °C	0 mm	9 %	1037 mb
17:00	SE	1 mph	to 1 mph	4 °C	0 mm	2 %	1038 mb
18:00	NE	2 mph	to 2 mph	3 °C	0 mm	4 %	1038 mb
19:00	NE	2 mph	to 2 mph	3 °C	0 mm	4 %	1038 mb
20:00	ENE	2 mph	to 2 mph	3 °C	0 mm	0 %	1038 mb
21:00	ENE	1 mph	to 2 mph	3 °C	0 mm	0 %	1038 mb
22:00	ESE	2 mph	to 2 mph	2 °C	0 mm	0 %	1038 mb
23:00	SE	3 mph	to 3 mph	2 °C	0 mm	0 %	1038 mb

▲ 07:41 ▼ 17:12

Drawing 2 – Monitoring Locations



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6.0 Complaints

- 6.1 ABP take all complaints seriously and complainants are encouraged to contact the site office or NRW in the event of any off-site dust being detected that may be attributable to site operations. In order that the veracity of any dust complaints can be substantiated it is imperative that the site is immediately informed, either by the complainants themselves, by Natural Resources Wales (NRW), or by Cardiff City Council.
- 6.2 All incidents and complaints will be fully investigated by the TCM and findings including details of any remedial actions taken to avoid future incidents recorded on a Dust Complaint Report Form - **EMS-DCRF1** (annex 2). Also where necessary relevant EMS procedures will be reviewed and revised in line with the findings.
- 6.3 Upon receipt of any complaint (single or multiple), the responsible person will visit the location of the reported event to determine dust presence, characteristics, and intensity. The details will be recorded on the Dust Complaint Report Form - **EMS-DCRF1**. The report form provides a checklist to ensure the most relevant and useful information is obtained during the investigation.
- 6.4 In the case of multiple complaints received during the same working day or, in relation to the same location, operation / activity, the TCM and / or Operations Manager will immediately investigate and assess the need to cease operations or increase measures to control issues.
- 6.5 The Dust Complaint Report Form will also detail information gained from the investigation and in particular: -
- Information obtained from the complaint source
 - Location
 - Date & Time (in order to establish if it coincides with certain / specific site operations)
 - Weather Conditions Inc. Temperature, Wind Direction and Strength
 - Operating conditions and operations being undertaken at the time at the time of the alleged dust release.
 - Any other complaints relating same complaint.
 - Any other complaints received previously relating to the site, location, similar operations etc.
 - Actions taken to correct / prevent re-occurrence
- 6.6 Senior management will be informed of all complaints and, where they are validated, any necessary corrective / preventative actions taken in response to the complaint.
- 6.7 All records of complaints will be retained until the surrender of the permit and will be available for inspection by NRW representatives at any time.

7.0 Contingency Plan

- 7.1 Due to the nature of the waste handled and the dust control measures in place, it is considered unlikely the operation will present any significant environmental issues in relation to dust however, the contingency plan outlines the short and long term measures that will be implemented in the event of dust releases (single events or ongoing) as identified in the monitoring programme.

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7.2 In the event of a complaint in relation to dust being substantiated, the responsible person will conduct an assessment as documented in the '*Monitoring Dust Releases*' Section as soon as is practicable.

7.3 Senior management will be informed of the results of on-site assessments undertaken internally or, by NRW / Cardiff City Council Environmental Health Department and any subsequent corrective / preventative measures taken as a result of the assessment.

7.4 Short Term Measures

- Suspension of receiving / Storage / Loading activities
- 'Damping' down stockpiles including the deployment of mobile suppression system.
- Increase in inspection activities of stored materials including the operations
- Increase in inspection frequency of on-site / off-site monitoring points (particularly in weather likely to give rise to higher dust emissions)
- Identify supplier of material with high dust content generating and keep record of their deliveries to see if they correspond with any dust release identified during monitoring or any complaints received.

7.5 Long Term Measures

All of the above short term measures plus: -

- Exclusion of certain suppliers if deliveries correspond to persistent dust emission and / or complaints received.
- Increase the rate of material turn over and / or reduction in material being stored on site
- Review the operational practices including activities, plant and equipment that may give rise to dust emissions / release and if feasible, change or modify the operation to reduce the amount of dust generated.

8.0 Dust and Emissions Management Plan Review

8.1 The Dust and Emissions Management Plan will be reviewed on an annual basis or as and when required due to

- Changes in permit conditions
- Changes to legislation
- Changes to company policy and procedures
- Changes to operation that could affect the amount of dust generated
- Changes to personnel
- Recommendation from regulatory authorities
- The number of complaints received

The review will also take into account the findings of TCM inspections, internal audits, external inspections, the number, type and nature of complaints received, and the success of remedial action implemented as a result of the complaints.

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Annex 1 – Dust Assessment Report Form

Person Carrying Out Assessment				Site Address	
Start Time		Finish Time		Location of Dust (<i>Area on the site or location if not on site</i>)	
Weather Conditions (dry, rain, fog, snow etc.)				Temperature (very warm, warm, mild, cold – degrees if known)	
Wind Strength (none, light, steady, strong, gusting etc.)				Wind Direction (e.g. N, NE, S, SW etc.)	
Intensity – See Below 1-5					
Was dust release constant or intermittent during the period					
Is source evident / what do you believe the source / cause to be?					
How far was it travelling from the source?					
Other comments / information					
Actions to be taken		By Who		By When	Completed Date

Intensity
0. No dust present
1. Intermittent particles
2. Faint layer
3. Distinct Layer
4. Thick Layer

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Annex 2 – Dust Complaint Report Form

Site:		Operator:		Complaint Ref:	
Complainant Name & Address			Date of Complaint:		
			Time of Complaint:		
Complainant Telephone Number			Location of reported dust release- if not the same as the above address		
Date, Time and Duration of Offending Dust			Weather Conditions (i.e. dry, rain, fog, snow etc.)		
			Temperature (very warm, warm, mild, cold – degrees if known)		
Wind Strength (none, light, steady, string, gusting etc.)			Wind Direction (N, NE, S, SW etc.)		
Complainants description of dust?					
Intensity See Below		Constant or intermittent during period			
Are there any other complaints relating to the site, or location, installation (either previously or relating to the same exposure)					
Any other relevant information?					
On-site activities at time the dust occurred? (e.g. stockpile movement)					
Operation conditions at time dust occurred? (e.g. normal, abnormal, maintenance etc.)					
Actions to be taken		By Who	By When	Completed Date	
Form completed by:		Signature:		Date	
Intensity 0. No dust present 1. Intermittent particles 2. Faint layer 3. Distinct Layer 4. Thick Layer					