



DUST AND EMISSIONS MANAGEMENT PLAN

EXCEL WASTE MANAGEMENT LIMITED

**Plot 22 Ferry Lane, Rainham,
ESSEX, RM13 9BU.**



Issue and Revision Record

| Revision | Date | Originator | Company Approver | Description of Changes |
|----------|-----------|------------|------------------|--|
| 1 | Sept 2021 | E Campbell | | Application for Variation to Bespoke Permit. |
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1. Introduction

The purpose of this document is to identify the operations at the site which may have the potential to have an impact on air quality as a result of emissions of particulate matter, to present the details of the operational controls which are implemented to minimise emissions and to describe the monitoring which is carried out to confirm the effectiveness of the management controls.

The Dust Emission Management Plan (DEMP) forms part of the environmental management system (EMS) under which the site is operated.

The DEMP has been prepared based on the guidance presented in the relevant sections of the Environment Agency (EA) - Control and monitor emissions for your environmental permit¹.

The activities with the potential to generate and/or release dust and particulate matter are identified within this document. The locations of potential receptors are identified in Table 1.1 and are shown on Figure 1.1.

An action plan (in section 4) which will be implemented in the unlikely event that there is the potential for a significant emission of dust or particulate matter from the site. If a complaint regarding dust or particulate matter is received a Complaints Form is completed see Appendix A.

The DEMP comprises a living document and will be reviewed on an annual basis as required by the action plan or any major changes to site process or as a part of a permit variation. The review will include consideration of the results of dust and particulate matter monitoring and progress with any improvements identified as necessary. A review of the effectiveness of dust and particulate matter monitoring techniques will be undertaken and changes made to monitoring techniques as necessary.

Site Details

¹ Available at <https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit>

The specified site is a waste transfer station located at Plot 22 Ferry Lane, Rainham, Essex, RM13 9BU which is situated in an industrial estate, as outlined in green in the picture below.



The site accepts Household, Commercial and Industrial (HCI) waste for processing and storage pending disposal to other appropriately permitted sites for either recycling or disposal.

It is situated within the Borough of Havering which is an Air Quality Management Area (AQMA) with both Nitrogen dioxide NO₂ and Particulate Matter PM₁₀ declared.

AQMA's were introduced via European and UK legislation and aims to improve air quality by lowering atmospheric pollutants.

Without any abatement controls the site has the potential for dust and other emissions to be generated. The main causes are vehicles movement, tipping, processing and loading of waste. However as all waste processing is carried out within a building with dust extraction and dust suppression with most storage within a container these issues are alleviated.

The purpose of this document is to explain all the controls in place that will stop dust firstly being generated and secondly escaping from site.

This DEMP will form part of the management system of the site, and will be available to all Staff, a copy will be kept in the Site Office along with the Environmental Management System (EMS ref EXEMS01), Fire Prevention Plan (FPP ref EXFPP01) and Odour Management Plan (OMP ref EXOMP01).

The activities with the potential to generate and/or release dust and particulate matter include the following:

- Vehicles entering and/or leaving the site with mud or debris on their wheels.
- The release of dust, particulate matter and debris from waste loads as they are delivered to the site.
- The resuspension of dust and particulate matter on roads and site surfacing by vehicles.
- The release of particulate matter when waste loads are deposited or set down in stockpiles on the site.
- Loading of stockpiled material on to lorries for transfer off site.
- Particulate emissions from the exhausts of vehicles and plant on site.
- Processing of waste.

Dust and particulate matter has the potential to be dispersed from the source to potential receptors by the wind. A wind rose for London City Airport for the period 2010 to 2014 is presented on Figure 1.2.

The site is located approximately 8km east of London City Airport. Based on the wind rose the prevailing wind direction is from the south west this would indicate that sensitive receptors located towards the northeast and east are potentially at greatest risk of windblown fugitive emissions.

Particle size is the key parameter when considering the transportation of particulate matter in air. Coarse particles have much faster settling rates than finer particles and will therefore settle out as deposited dust generally close to the source, whereas fine particulate matter may remain airborne for longer periods and travel greater distances.

Based on information published by DETR² large particles (>30µm) mostly are deposited within 100m of the source, intermediate-sized particles (10µm to 30µm) are likely to travel up to 200m to 500m and smaller particles (<10µm) can travel up to 1km from the source, although very small particles can travel much further. TGN M17³ states that:

'PM10 emissions from industrial combustion processes and road transport are considered to contain more fine material (i.e. PM2.5) than, for example, mechanically-generated particulates from quarries and construction sites'

'Waste management operations that involve mechanical generation of PM rather than combustion, are also likely to release predominantly coarse particles.'

² Department of the Environment, Transport and the Regions (DETR) (2000a) Controlling and mitigating the environmental effects of minerals extraction in England. Mineral Planning Guidance Note 11, consultation paper. DETR, London. Cited in Technical Guidance Document (Monitoring) M17 – Environment Agency March 2004.

Sensitive Receptors

The potential receptors in the vicinity of the site are shown on Figure 1.1.

The receptor type, distance and direction of the receptors closest to the site are listed in Table 1. 1.

As shown in Figure 1.1 the site is located in an industrial area surrounded by commercial industry to the north, south and west.

The receptors shown below are within 1 km of the site.

The prevailing wind direction in the area is South-Westerly³.

The site is in on a large industrial/commercial estate which is in a built-up area, surrounded by other commercial and industrial enterprises.

Key infrastructure includes the A13 running to the south of the site and the railway from Purfleet to Fenchurch St running north of the site.

Sensitive locations are those where the public may be exposed to dust from the site. Locations with a high sensitivity to dust include hospitals and clinics, hi-tech industries, painting and furnishing and food processing. Locations classed as being moderately sensitive include schools, offices, residential areas and food retailers.

Receptors within 1km of the Site

There are no hospitals.

There is one school Rainham Village Primary School 760m to the NE.

There is a SSSI situated the other side of Ferry Lane.

There is a shopping store 580m to the north of the site.

Residential housing 400m to the NE.

Rainham Station is situated 298m NE.

The A13 is situated 380m to the south and SE of the site.

Ingrebourne River is north of the site and it runs into Rainham Creek which is situated to the west of the site, it nearest point to the site is 255m to the west.

³ Technical Guidance Note (Monitoring) M17 Monitoring Particulate Matter in Ambient Air around Waste Facilities Environment Agency Version 2 July 2013

The prevailing wind does not blow in the direction of the nearest sensitive receptor, which is Rainham Marshes to the east of the site it is 60m away and is a medium risk receptor. See figure 1.2 below.

Figure 1.1



2 Department of the Environment, Transport and the Regions (DETR) (2000a) Controlling and mitigating the environmental effects of minerals extraction in England. Mineral Planning Guidance Note 11, consultation paper. DETR, London. Cited in Technical Guidance Document (Monitoring) M17 – Environment Agency March 2004.

3 Technical Guidance Note (Monitoring) M17 Monitoring Particulate Matter in Ambient Air around Waste Facilities Environment Agency Version 2 July 2013

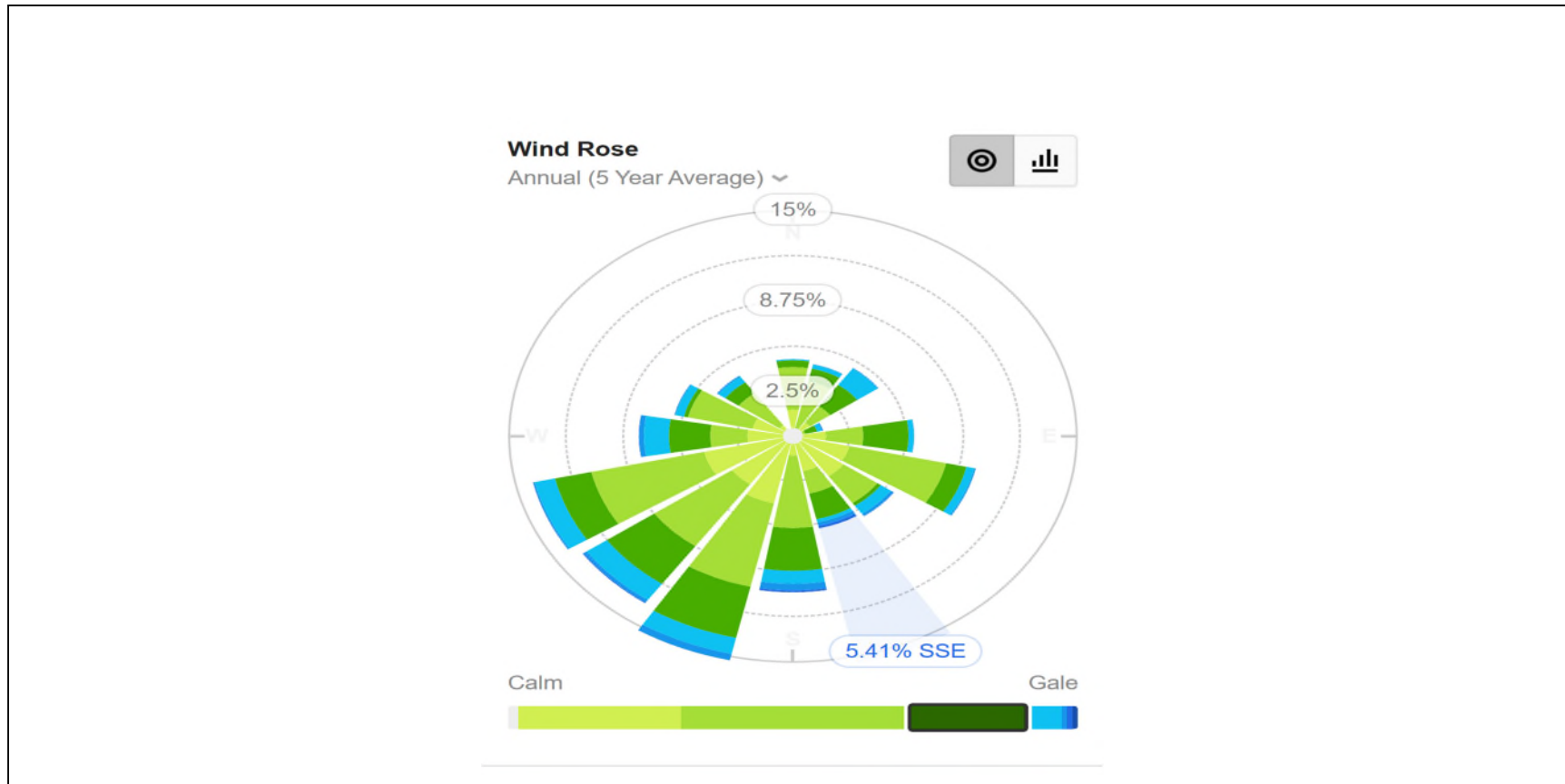


Figure 1.2: <https://wind.willyweather.co.uk/se/greater-london/dagenham.html> This data is collated from the Met Office, United Kingdom Hydrographic Office (UKHO) EUMETSAT and National Oceanic and Atmospheric Administration (NOAA) Wind Rose shows the average wind direction and strength in Dagenham, Essex where the site is located. The data is taken from the weather station at London City Airport which is 8.5km to the west of Excels Site.

Table 1.1 Distances to Selected, Representative Locations

| | Receptor | Type | Sensitivity | Distance/ Direction from site |
|----|------------------------|----------------------|--------------------|--|
| 1 | A13 | Road | Low | 380m South West |
| 2 | A1306 | Road | Low | 800m North |
| 3 | Train Line | Railway line | Low | 255m North East |
| 4 | Rainham Creek | Watercourse | Low | 375m North West |
| 5 | Ingrebourne Valley | Local Nature Reserve | Moderate | 900m North |
| 6 | Rainham Marshes | Local Nature Reserve | Moderate | 60m East |
| 7 | Anglesey Drive | Residential | Moderate | 400m North East |
| 8 | Havering College | College | Moderate | 640m North |
| 9 | Tesco Supermarket | Food Retail | Moderate | 580m North |
| 10 | Rainham Health Centre | Health Centre | Moderate | 820m North East |
| 11 | Rainham Village School | School | Moderate | 760m North East |
| 12 | Rainham Village | Residential | Moderate | 330m North East |
| 13 | Rainham Station | Railway Station | Low | 298m North East |
| 14 | Ingrebourne River | Watercourse | Low | 725m North |

The pictures below show the site in conjunction with nearby receptors



Designated ecological sites surrounding the site, there is one area of Special Scientific Interest (SSSI) within 1km, Inner Thames Marsh (Rainham Marshes) SSSI. This area is not downwind of the site.

The map below shows the watercourse, Ingrebourne River which runs from north to west of the site into the Rainham Creek. It also shows that A13 that runs to the south/south-west of the site, these are considered to be low risk receptors.



Table 1.2 Sources of Dust and/or other Emissions

| Company | Address | Type of Business | Distance and direction from Excels site boundary (m) |
|-------------------|---------------------|--------------------|--|
| Sharp Skips | Albright Ind Estate | Waste Transfer Stn | 160m NW |
| Piers Metal | Albright Ind Estate | Scrap Yard | 270m NW |
| Mix N Lay | Lamson Road | Ready Mix Concrete | 135 North |
| Adler & Allan | Salamons Way | Waste Transfer Stn | 780m SW |
| RMS Ltd | Salamons Way | Ready Mix Concrete | 740m SW |
| Discount Builders | Salamons Way | Builders Merchants | 590m SW |
| Riverside STW | Lamson Road | Sewage Treatment | 340m NW |

2. Operations

2.1 Waste deliveries and processing

Waste is delivered to the site by road. The waste arrives in netted skips and or containerised lorries and is removed from site in netted roll on roll off lorries.

The lorries are either enclosed or covered with sheeting. The sheeting is high quality 270gsm close mesh sheet which is breathable and weatherproof. Mixed HCl waste is delivered in lorries and skips and the recyclables and residue are taken away from site in the roll on roll off containers. Waste Transfer Notes are kept of all waste movements.

Customers and vehicle drivers are advised that dusty/powder wastes are not accepted at the site. They are also advised of the sites 5mph speed limit and no idling policy. All loads are damped down during tipping and loading inside the building and operations are covered by a negative pressure dust extraction system.

During each waste delivery, the plant driver will, so far as is practicable, inspect the load for a detailed visual inspection to ensure compliance with the permitted waste streams in accordance with the sites permit. The driver of the plant will have been trained on waste handling and minimising dust production.

The waste for processing will be tipped in Bay1, reception bay and gently spread out to allow the waste to be inspected for any non-permitted wastes. A dust suppression system is installed along the top of the bay walls to cover the tipping area.

Large items (including metal, cardboard, wood, UPVC window frames) are picked out by hand and by the grab machine and placed in their respective containers or storage bays for onward recycling. This operation will be covered by the sites sprinkler system.

The waste processing carried out within the building is described below and the entire operation is covered by a dust extraction system, catching any rising dust and preventing it from becoming airborne.

- a) All mixed loads will be deposited in the mixed waste reception area (Bay 1).
Loads which are delivered to the site and known to contain predominantly inert waste are directed to the inert storage for storage.
- b) The mixed waste material is then transferred and loaded into the hopper /primary shredder using the material handler.

- c) The waste travels along the conveyor belt and transfers directly into a trommel where fines are separated by size (0-50mm) the fines fall to the fines storage bay beneath the trommel.
- d) The remaining material travels along a flip flow vibrating screen deck which helps to separate the waste material.
- e) The +50mm heavy material travels along through a 3-way density separator, the hardcore drops into the storage bay below and the remainder drops into the oversize lights storage bay.
- f) The lighter 0-50mm material travels along the conveyor belt to an eddy current separator and two magnets, the metal, ferrous and non-ferrous are separated and drop to their relevant storage areas.
- g) The material then travels through a 2-way density separator which removes the light waste (10-50mm) into the relevant storage bay.
- h) The remaining material travels through an enclosed picking line and the recyclables are picked out by hand and put into the storage bays below.

The paperwork for training is kept in the office and refresher courses are given as and when necessary (new starters, breaches of permit, change to processes on site etc) and as a minimum every six months. The staff supervising the waste bay area will also have been trained in-house on waste handling, dust minimisation and suppression. See Appendix F Training

2.2 Site infrastructure and waste storage

The site surface within the building is constructed of an impermeable concrete surface with sealed 10 inch curbing surrounding it. The building is constructed of industrial steel and the only openings are at the front of the building in the form of an entrance and exit both 6 metres wide.

The bays are all constructed of concrete elite concrete blocks and waste is stored as shown below in Table 2.2

All storage bays and bins/containers allow for a freeboard space of 0.5m.

Recyclables (wood, metal, upvc, cardboard) are stored in roll on bins or 8 yard slips.

No wastes consisting solely or mainly of dusts, powders or loose fibres will be accepted at the site.

The site is designed to limit double handling as much as possible and minimise disturbance of the wastes. The operational areas of the site are covered by localised dust extraction and/or dust suppression. Handheld hoses are also available should they be needed.

The external part of the site also has an impermeable concrete surface and is kept clear of dust and debris by using a road sweeper owned by Excel.

Table 2.2 Waste Storage

| | DIMENSIONS | ALLOWANCE | BLOCK DIMENSION | ACTUAL STORAGE | |
|-------------------------------|---------------------------|-------------------|------------------------|-----------------------|----------|
| Bay 1 Incoming waste | 30m(w)x 8m(d) x 2m(h) | 450m ³ | 480m ³ | 320m ³ | 48 hours |
| Bay 2 Fines under trommel | 5m(w) x 5m(d) x 2m(h) | 450m ³ | 50m ³ | 34m ³ | 48 hours |
| Bay 3 Ferrous Skip | 8 yard | 750m ³ | n/a | 6.12 m ³ | 48 hours |
| Bay 4 Non-ferrous skip | Roll on | 750m ³ | n/a | 15.3 m ³ | 48 hours |
| Bay 5 Picking Line waste | 3.5m(w) x 2m(h) x 2.5m(d) | 750m ³ | 18 m ³ | 12 m ³ | 48 hours |
| Bay 6 Picking Line Wood | 3.5m(w) x 2m(h) x 2.5m(d) | 750m ³ | 18 m ³ | 12 m ³ | 48 hours |
| Bay 7 Picking Line Plastic | 3.5m(w) x 2m(h) x 2.5m(d) | 750m ³ | 18 m ³ | 12 m ³ | 48 hours |
| Bay 8 Hardcore | Roll On, Roll Off | n/a | n/a | 15.3m ³ | 48 hours |
| Bay 9 Lights 10-50mm | Roll on, Roll Off | 450m ³ | n/a | 15.3m ³ | 48 hours |
| Bay 10 Oversized lights +50mm | 10m(d) x 8m(w) x 2m(h) | 450m ³ | 160m ³ | 110m ³ | 48 hours |
| Bay 11 Inert | 10m(d) x 9.5m(w) x 2m(h) | n/a | n/a | 190m ³ | 48 hours |
| Bay 12 Cardboard Skip | Roll On | 750m ³ | n/a | 15.3m ³ | 48 hours |
| Bay 13 Metal Skip | Roll On | 750m ³ | n/a | 15.3m ³ | 48 hours |
| Bay 14 Plastic Skip | Roll On | 750m ³ | n/a | 15.3m ³ | 48 hours |
| Bay 15 Clay | Roll On | n/a | n/a | 15.3m ³ | 48 hours |
| Bay 16 Wood | Roll On | 750m ³ | n/a | 15.3m ³ | 48 hours |
| | | | | | |

2.3 Mobile Plant and Equipment.

The following table lists the type, number and function of plant and equipment used on site:

| Item | Number | Function |
|------------------|--------|--|
| Weighbridge | 1 | Determine load weights in/out |
| Loading shovels | 1 | Loading/unloading/movement |
| Telehandler | 1 | Loading/unloading/movement/sorting |
| Trommel | 2 | Only one in use at present |
| Shredder | 1 | Pre treatment |
| Material Handler | 1 | Loading/unloading/movement/sorting |
| Road Sweeper | 1 | To keep site surface clear of dust and debris. |

The site has a Planned Preventative Maintenance Programme to ensure all machinery and components continue to remain effective. There is a programme of routine planned maintenance for each item of plant and machinery to manufacturers specifications, as well as the processing equipment in order to prevent breakdown and faults which may pose a fire risk or give rise to emission issues.

To reduce emissions there is an anti-Idling policy, all Drivers and visitors to site are informed of this.

3. Dust and Particulate (PM₁₀) Management

3.1 Responsibility for Implementation of the DEMP

Dave Tuffen and Luke Goddard are site managers and as such will be responsible for the DEMP. It will be reviewed yearly or more frequent if the need arises such as a process being changed and/or alterations are made that may affect the risk of dust. Also if an issue or complaint arises at the site regarding dust the DEMP will be reviewed.

Any reviews or updates made will also be checked by the sites Environmental Consultant/TCP.

The training will be delivered by either Dave Tuffen or Luke Goddard and refresher training will be given every six months, or if a new member of staff starts, if a process has been changed and/or alterations are made that may affect the risk of dust. Also if a complaint is received regarding dust or a breach occurs in monitoring refresher training will be given. Regular Toolbox Talks will be given to staff.

3.2 Sources/Control of Fugitive Dust/Particulate Emissions

Sources

Operations at the site that have the potential to produce dust and particulates are listed below:

- Vehicles entering and/or leaving the site with mud on wheels and tracking dust on to or off the site.
- Vehicles and plant moving around the site kicking up dust
- Road vehicles tipping waste
- Excavators/360s sorting waste
- Plant sorting waste – trommel screeners
- Waste dropping from conveyors into bays
- Waste stored in bays
- Site surfaces
- Loading waste materials back on to vehicles.
- Particulate emissions from the exhaust of vehicles/plant/machinery on site.
- Generators, plant and other non-road going mobile machinery.
- Processing of waste
- Storage of waste (dry trommel fines)

Vehicles will be jet washed if found to be dirty, muddy or dusty to remove mud, litter or dust from the tyres or under carriage. The jet wash is situated in the external yard and runs off the mains water supply. After cleaning the vehicles are inspected thoroughly both underneath the vehicle and the tyres.

Table 3.1: Source-Pathway-Receptor Routes Risk Assessment

| Source | Pathway | Receptor | Type of impact | Where relationship can be interrupted |
|--|--|----------------------------------|---|---|
| Mud | tracking dust on wheels and vehicles, then mud dropping off wheels/vehicles when dry | Local highway and local business | Visual soiling, also consequent resuspension as airborne particulates | Mud will be removed from vehicles before leaving site with the use of jet wash. Handheld hoses are used on site to keep the site surface damped down to avoid resuspension of any dust. A road sweeper is used to sweep the site and keep it clear of mud, dust and litter. |
| Debris | falling off lorries | Local highway and local business | Visual soiling, also consequent resuspension as airborne particulates | Lorries are covered with netting before leaving site. The site is regularly swept using the road sweeper to keep the site surface clear of mud, dust and litter. Litter picking will be carried out when necessary. |
| Tipping, storage and sorting of wastes in the open | Atmospheric dispersion | Local highway and local business | Visual soiling and airborne particulates | All unprocessed waste is tipped in a bay covered by the dust suppression. The waste processing system is covered by a negative pressures dust extraction system. Source strength is minimised by means of low drop heights. |
| Vehicle exhaust emissions | Atmospheric dispersion | Local business | Airborne particulates | Regulatory controls, meaning that the vehicles meet the required emissions limits and best-practice measures meaning vehicles are not left idling this will help minimise emissions and fuel consumption monitored to help detect any issues early on. |
| Non road going machinery exhaust emissions | Atmospheric dispersion | Local business | Airborne particulates | Regulatory controls meaning that the vehicles meet the required emissions limits and best-practice measures meaning vehicles are not left idling this will help minimise emissions and fuel consumption monitored to help detect any issues early on. |

Table 3.2: Measures that will be used on site to control dust/particulates (PM₁₀) and other emissions

| Abatement Measure | Description / Effect | Overall consideration and implementation | Trigger for implementation |
|--|---|--|--|
| Preventative Measures | | | |
| Site / process layout in relation to receptors | Locating particulate emitting activities at a greater distance and downwind from receptors may reduce receptor exposure, provided that emissions from the source are not dispersed over significant distances. | All particulate emitting operations are carried out within the building and covered either by dust suppression or dust extraction systems. Non-sensitive Receptors are adjacent to the site on all sides except the East where there is a SSSI'. | Best Available Technique BAT waste operations are within a building with dust suppression and dust extraction. |
| Site speed limit, 'no idling' policy and minimisation of vehicle movements on site | Reducing vehicle movements and idling should reduce emissions from vehicles. Procurement policy to only purchase clean burn road vehicles and non-road going mobile machinery. Enforcement of a speed limit may reduce re-suspension of particulates by vehicle wheels. | Easy to implement as part of good practice. Should be identified clearly in the site management system and implemented as appropriate measures. | Vehicle movements, speed and idling will be reduced as far as possible. The speed limit on site is 5mph and there is a no idling policy for vehicles on site. This is written in the Management System and all Drivers and visitors to site are informed of this. |
| Good house-keeping | Having a consistent, regular housekeeping regime that is supported by management, will ensure site is regularly checked and issues remedied to prevent and remove dust and particulate build up. | The site is regularly cleared of debris and dust by Staff members on a daily basis. | Cleaning, clearing and checking are constantly carried out by site operatives throughout the day. A thorough check is made at the end of every working day by the Foreman to ensure there is no particulate build up. Staff will be instructed to clear any particulate build up found by either manual sweeping, hosing down or using plant depending on the size of the build-up and the area in question. |

| Abatement Measure | Description / Effect | Overall consideration and implementation | Trigger for implementation |
|--|---|--|---|
| Sheeting of vehicles | Prevents the escape of debris, dust and particulates from vehicles as they travel. | Relatively easy to implement at many sites. Should be identified clearly in the site management system and implemented as appropriate measures. | Vehicles are sheeted (with 270GSM netting) entering and exiting the site all the time the site is operational. |
| Hosing of vehicles on exit | May remove some dirt, dust and particulates from the lower parts of vehicles although likely to be less effective than a more powerful wheel wash. | May be worthwhile where wheel wash installation is not feasible, or where the wheel wash does not achieve the desired outcome. This should be in the site procedures and training. | Vehicles are hosed down by the drivers with the jet wash when they are dirty, muddy or dusty prior to leaving the site. A site banksman checks all vehicles leaving the site and will instruct the driver to use the jet wash if mud or dust is present. |
| Ceasing operation during high winds and/or prevailing wind direction | Mobilisation of dust and particulates is likely to be greater during periods of strong winds and hence ceasing operation at these times may reduce peak pollution events. | Likely to reduce dust and particulate emissions, however, not a long-term solution. Procedures should be in place to identify when operations will cease. | As the waste processing operation is within a building with dust suppression and dust extraction it is unlikely that any dust emissions will escape the building especially to a point where complaints are received. The site will follow an Action Plan for windy weather conditions. Please see Action Plan 3.5. |
| Easy to clean concrete impermeable surfaces | Creating an easy to clean impermeable surface, using materials such as concrete as opposed to unmade (rocky or muddy) ground within the site and on site haul roads. This should reduce the amount of dust and particulate generated at ground level by vehicles and site activities. | Considered good overall based on dust and particulate reduction but potentially costly and disruptive to retrofit. For sites that have concrete surfaces ensure there are maintenance and cleaning procedures in the management system and they are implemented. | The site surface is made entirely of impermeable concrete which are maintained and cleaned on a regular daily basis. |

| Abatement Measure | Description / Effect | Overall consideration and implementation | Trigger for implementation |
|---|--|--|--|
| Minimisation of waste storage heights and volumes on site | Minimising the height at which waste is handled should reduce the distance over which debris, dust and particulates could be blown and dispersed by winds. Reducing storage volumes should reduce the surface area over which particulates can be mobilised. | The amount of waste that can be managed on site without causing dust and particulate pollution should be identified in the management system and may have to be reduced if it is considered an appropriate measure. | The waste is stored below 2 metres in all bays, there is a minimum of 1m freeboard in all bays and containers, once bays are full the material is loaded onto a lorry and taken off site, as are full containers of material. |
| Reduction in operations (waste throughput, vehicle size, operational hours) | Reducing the amount of activity on site, including no tipping, shredding, chipping or screening of high risk loads during windy weather as well as associated traffic movements should result in reduced emissions and re-suspension of dust and particulates from a site. | Effective in terms of dust and particulate reduction but unlikely to be popular/implemented by operators. It may be the only option when other steps fail. Ensure the site has procedures to reduce activity on site if required through complaints or known issues, or adverse weather conditions. This may include installing a weather station to alert the site to windy weather and when they need to reduce agreed activities. | <p>As the waste processing operation is within a building with dust suppression and localised negative pressure dust extraction it is unlikely that any dust emissions will escape the building especially to a point where complaints are received.</p> <p>If adverse weather conditions dictate traffic movements will be kept to a minimum to prevent resuspension of dust from the site surface. Skips collections can be delayed if necessary and third party lorries turned away. Weather alerts will be received at site and the monitoring equipment will aid with wind direction so steps can be taken (See Action Plan 3.5).</p> |

| Abatement Measure | Description / Effect | Overall consideration and implementation | Trigger for implementation |
|---|--|--|---|
| Remedial Measures | | | |
| On-site sweeping | Sweeping could be effective in managing larger debris, dust and particulates but may also cause the mobilisation of smaller particles. Road sweepers damp down dust/particulates whilst collecting dust/particulates from the road surface, particularly at the kerbside. | Easy to apply but less effective than other measures. Should be covered in the management system and procedures and implemented thoroughly. | A road sweeper has been purchased to keep the site clean and clear of dust and debris as part of general housekeeping. This is done throughout the day. |
| Water suppression with hoses & water jets | Damping down of site areas using hoses can reduce dust and particulate re-suspension and may assist in the cleaning of the site if combined with sweeping. | Quite water intensive. Can reduce the calorific value of the material which should be considered if sent for energy recovery/biomass type operations. Maintenance should be covered in the management system and procedures. | Water suppression with hoses/jet wash may be used occasionally in the external yard i.e. in dry or windy weather to help prevent resuspension of dust, however this will generally be kept clean by the road sweeper. |
| Application of CMA / chemical suppressant | Diluted Calcium Magnesium Acetate (CMA) or other chemical based dust suppressant is regularly applied by spraying using a back-pack applicator for small areas or by road sweeper to cover larger areas. CMA acts as a suppressant with the aim of reducing dust and particulate re-suspension and hence ambient concentrations. | Trials indicate this can be an effective process. It shouldn't be applied during rain and once applied it needs to be re-applied regularly. Works best when applied to clean surfaces and can also be applied to stockpiles to form a 'crust' and reduce wind-whipping. Price and efficacy vary depending on the brand selected. Maintenance should be covered in the management system and procedures. | Use of CMA will be considered during a drought if necessary. It could be sprayed on processed stored stockpiles of waste and recyclables to form a 'crust' which may otherwise give rise to dust. It may also be used on the site surface to help stop dust being re-dispersed by vehicle movement, however this is generally kept clean by the road sweeper. This DEMP will be reviewed within 12 months of operating under the proposed changes (or sooner if required). The outcome of this review will identify any new measures required. |

3.3 Other considerations

Water usage/ availability:

The dust suppression system on site works off the mains water supply which is the standard industrial 1,200 litres per minute, the dust suppression system only required approximately 20 litres per minute. There are a further two domestic mains water supplies and four 25,000 litre tanks in the external yard.

There are several hand-held hoses and a jet wash which are fed by the four 25,000 litre water tanks which automatically refill via a ball-cock filling system so there is a continuous and sufficient supply of water from the tanks.

In the event of a drought:

In the event of an upcoming drought, the use of Calcium Magnesium Acetate (CMA) dust binding agent will be considered for use on the site, which has been proven in test to be as effective as water in suppressing dust.

It could be sprayed on processed stored stockpiles of waste and recyclables to form a 'crust' which may otherwise give rise to dust. Further research is needed into whether it would help with dust from waste still to be processed. If this is the case then it will also be sprayed on pre-processed waste. It may also be used on the site surface to help stop dust being re-dispersed by vehicle movement.

3.4 Enclosure of Waste Processing & Storage Areas

The waste processing system within the building consists of a hopper, pre-shredder, conveyor belt, trommel, flip flow vibrating screen deck, a 2 and 3 way density separator, an eddy current separator, magnets and a small enclosed picking line with storage bays underneath. The high risk processing areas such as the trommel and density separators are covered by a negative pressure dust extraction system.

Technical specification of the 2 and 3 way Drum Air separators.

The system is based on the principle that materials with a different density and shape are fed into a high speed air stream and light fraction gets airborne and are blown over a rotating drum and dragged into an air expansion chamber where the light fraction falls and is collected onto a discharge conveyor.

The air from the expansion chamber(s) returns to the main fan(s) after which the air is partly diverted to a dust filter and to the separator blow mouth.

Due to the diversion of part of the air to a dust filter there is a negative pressure which stops any dust escaping from the system.

<https://www.walairrecycling.com/products/3-way-drum-separator-en-2/>

Dust Extraction System

The Walair HR dust filter is an under pressure filter, whereby no material will be transported through the fans.

The under pressure fans are high efficiency fans, making significant energy savings. The dust filter is very low in sound, because the fans are built into the dust filter.

The Walair HR dust filter meets the Atex standards and meets the most stringent dust emission. See website link below.

<https://www.walairrecycling.com/products/dustfilters/>

The fines are deposited beneath the trommel into a three sided storage bay constructed of elite concrete blocks. This drop is kept to a minimum. All storage bays where waste is deposited, pushed up and loaded are covered by the dust suppression system to minimise the dust produced by movement of the waste.

No waste will be stored over 2m high and a minimum freeboard space of 0.5m will be available at the top of every storage bay.

All other recyclables (cardboard, upvc frames, metal, wood) are stored in either 8 yard skips or roll on / off containers with a minimum freeboard space of 0.5m.

The overriding management principle of the site with respect to dust control is to operate the site in a manner which prevents or minimises the release of dust. If it is considered that the waste stored on the site or the site surfacing itself is in a condition that has the potential to release a significant quantity of particulate matter such that there is a potential for off site dust emissions, dust suppression will be employed in a manner proportionate to the risk.

3.5 Visual Dust Monitoring

Routine dust monitoring will be carried out twice a day more if necessary (for instance on a windy day or particularly dry day).

There are set locations around the perimeter of the site for dust monitoring see Appendix C for onsite and Appendix D for offsite monitoring locations (up wind and down wind).

At the end of every working day the site is tidied and dust and particulate are swept up using the sites own road sweeper.

The site does not carry out any crushing or chipping but does carry out pre-shredding of the mixed waste within the building.

Visual monitoring is constantly carried out on site by the Site Manager, Luke Goddard, and all staff have been trained with regards to dust generation, monitoring and suppression.

Site management will make visual inspections of dust emissions around the entire site and perimeter throughout the day. See Appendix B Checklist.

Additional monitoring may be carried out during times of severe weather conditions or should operatives observe significant levels of dust. The monitoring will be carried out at intervals while the site is operational, should it be observed that dust is being emitted from the site a Checklist (Appendix B) will be completed and notes will made as to; the amount, direction and source of the dust. In the event of dust being visible off site steps will be taken to suppress the dust, reduce operations or cease operations depending on the source of the dust. Additional dust monitoring will be carried out if necessary.

The site has a subscription with the Met Office in order to obtain the weather forecast, wind speed and direction to see whether the dust suppression techniques need to be enhanced to reduce the likelihood of complaints

The results of monitoring exercises and any remedial action taken will be entered into the site's diary which is available for the EA to inspect upon request. The name of the person carrying out the monitoring will be stated in the site's diary / inspection form for each day of operation.

Should the monitoring conclude that a certain activity is giving rise to dust which is migrating offsite, steps will be made to reduce the impact of this activity, which may include, but is not limited to; increase in height of bay walls/enclosure, reduction of stockpile size, increased dust suppression.

3.5 Table Wind Action Plan

| Beaufort Description | Wind Speed (Mph) | | Dust Suppression required |
|----------------------|------------------|--|---|
| 0 Calm | Less than 1 | | Dust suppression /dust extraction operational inside building for waste movements Consider sweeping & damping down site surface |
| 1 Light Air | 1-3 | | Dust suppression /dust extraction operational inside building for waste movements Consider sweeping & damping down site surface |
| 2 Light Breeze | 4-7 | Felt on face | Dust suppression /dust extraction operational inside building for waste movements Consider sweeping & damping down site surface |
| 3 Gentle Breeze | 8-12 | Leaves, twigs in motion | Dust suppression /dust extraction operational inside building for waste movements Consider sweeping & damping down site surface |
| 4 Moderate Breeze | 13-18 | Dust & loose material blown about | Dust suppression /dust extraction operational inside building for waste movements Consider sweeping & damping down site surface |
| 5 Fresh Breeze | 19-24 | Small trees begin to sway | Dust suppression /dust extraction operational inside building for waste movements Consider sweeping & damping down site surface |
| 6 Strong Breeze | 25-31 | Large branches begin to sway | Dust suppression /dust extraction operational inside building for waste movements Consider sweeping & damping down site surface/ external yard if safe to do so. |
| 7 Moderate Gale | 32-38 | Resistance felt in walking | Dust suppression /dust extraction operational inside building for waste movements Consider sweeping & damping down site surface/ external yard if safe to do so. |
| 8 Fresh Gale | 39-46 | Small branches broken off trees, very difficult to walk in | Cease some activities if the wind is having a detrimental effect (i.e landfill closed or recycling destination may not be accepting materials) |
| 9 Strong Gale | 47-54 | Slight structural damage | Cease activities |
| 10 Whole Gale | 55-63 | Rare on land | Cease activities |

4. Actions for dust issues.

If it is established that the emissions are attributable to activities being undertaken at Excel Waste site action will be taken to control the emissions including where relevant:

- If emissions are attributable to stockpiled material, employing dust suppression immediately using the sprinklers and/or handheld hoses to dampen the stockpiles.
- If emissions are attributable to unloading or loading of waste further dust suppression will be applied to control the particulate matter emission from the activity being undertaken.
- Carry out additional road sweeping or cleaning of the site surface if necessary.
- Checks to confirm that vehicles are obeying the site speed limits.

If the origin of the dust is not obvious then off-site monitoring will be carried out to check for any off-site activity that could be potentially attributable to the dust source other than Excel Waste.

If the origin for the dust is still not obvious after checking on-site and off-site, the London Air Quality Network website for monitoring stations in the area will be checked for any unusual regional weather events occurring.

In all cases, any new “lessons learnt” from the Site Managers investigations are considered by Management and implemented into dust & particulate emission management plan (if not already included), to prevent a re-occurrence of the issue.

5. Reporting and Complaints Response

Should a dust complaint be received a Complaints Form will be completed see Appendix A, these will be kept for inspection on request by the EA. Details of information to be completed are dates, nature of complaint, weather conditions at the time of the complaint, investigation details, action taken and a signature (as a minimum).

Any unavoidable events such as plant/equipment malfunctions will be recorded in the site diary, this will ensure that if complaints are received retrospectively from either the Council/EA or directly, any circumstances which led to that complaint as a result of elements outside of the operator's control would be able to be attributed to the cause of the complaint.

If the source cannot be ascertained with 100% confidence, the site manager or TCP will either suspend or reduce the likely dust/particulate generating activities, i.e. waste processing. If the complaint is considered valid, an investigation into the complaint will take place immediately by site management to ensure the problem can be rectified as soon as possible. The operator would then contact the complainant to advise on the issue and how this has been rectified.

If the source is within the site's control, the site manager or TCP will take appropriate action in terms of dust/particulate abatement.

Complaints of dust and particulate will be dealt with by the Management. Details will be taken from the complainant and logged on a Complaint Form. Investigations will be made into the complaint to verify the issue. If the complaint is verified then the activity giving rise to the dust will cease until such time as the it can be carried out with causing a dust nuisance. The complainant will be informed of the findings and of the actions taken to rectify the issue. A record will be made in the Site Diary and the Complaint Form kept in the Site Office. This will generally be completed within two working days or less of the initial complaint.

5.1 Engagement with the Community

If the site is causing an impact on local businesses steps will be taken to reassure them that issue is being dealt with and they will be informed of progress and outcome. The management will be responsible for engagement with the community, this will be carried out either by phone or in person, contact details will be left with the individual businesses so an open line of direct communication is available to them.

5.2 Reporting of Complaints

A complaints form will be used to log complaints, feed back will be given either in person to the complainant or over the phone. Complaints will be reviewed to ensure that the cause of the problem does not occur again.

Any complaints received in relation to dust will be recorded on the form shown in Appendix A by the person in receipt of the complaint. Complaints will be handled by the Site management or TCP.

The following details will be completed on the form.

- a) The name, address and telephone number of the caller will be requested (however the complainant will have the option to remain anonymous).
- b) Each complaint will be given a reference number.
- c) The caller will be asked to give details of
 - the nature of the complaint;
 - the time
 - how long it lasted
 - how often it occurs
 - See form below for more details

The person completing the form will then, if possible, make a note of the weather conditions at the time of the problem (rain snow fog etc.), strength and direction of the wind and the activity on site at the time the dust was detected.

- d) The reason for the complaint will be investigated and a note of the findings added to the report.
- e) The caller will then be contacted with an explanation of the source of the complaint if identified and the action taken to prevent a recurrence of the problem in future.
- f) If the caller is unhappy about the outcome or unwilling to identify themselves the caller will be referred to the appropriate department of the EA or Local Council.
- g) Following any complaint the complaints procedure will be reviewed to see if any changes are required or if new procedures need to be put in place.

Appendix A - Dust Complaint Form

| Excel Waste Management Ltd | |
|--|--|
| Name (if given) Can remain anonymous- | |
| Address – (If given) Postcode - | |
| Contact Details - (If given)Tel - | |
| Email - | |
| Date - | |
| Complaint Ref Number - | |
| Complaint Details - | |
| Investigation Details | |
| Investigation carried out by - | |
| Position - | |
| Date & time investigation carried out - | |
| Weather conditions - | |
| Wind direction and speed - | |
| Investigation findings - | |
| Feedback given to Environment Agency and/or local authority - | |
| Date feedback given - | |
| Feedback given to public - | |
| Date feedback given - | |
| Review and Improve | |
| Improvements needed to prevent a reoccurrence - | |
| Proposed date for completion of the improvements - | |
| Actual date for completion - | |
| If different insert reason for delay - | |
| Does the dust management plan need to be updated - | |
| Date that the dust management plan was updated - | |
| Closure | |
| Site manager review date | |
| Site manager signature to confirm no further action required | |

Appendix B Checklist

| DATE | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|--------|---------|-----------|----------|--------|----------|
| CHECKED BY (INITIALS) | | | | | | |
| ARE DUST DISCHARGES FROM STOCKPILES CONTROLLED? | | | | | | |
| ARE DUST DISCHARGES FROM SITE SURFACE CONTROLLED? | | | | | | |
| IS ANY VISIBLE DUST OBSERVED AT THE SITE DOWNWIND BOUNDARY? | | | | | | |
| ARE THE SPRINKLERS ON REGULARLY ENOUGH? | | | | | | |
| ARE THE SPRINKLER ON WHEN WASTE IS BEING TIPPED/LOADED/PUSHED UP? | | | | | | |
| IS PLANT DRIVER BEING MINDFUL OF DUST WHEN MOVING THE WASTE? | | | | | | |
| ARE DRIVERS KEEPING TO THE 5MPH / NO IDLING RULE? | | | | | | |
| IS VISIBLE DUST BEING PRODUCED THAT IS NOT BEING SUPRESSED? | | | | | | |
| IS VISIBLE DUST LEAVING SITE BOUNDARY? | | | | | | |

| | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|--|--------|---------|-----------|----------|--------|----------|
| CAN YOU IDENTIFY THE ACTIVITY GIVING RISE TO THE DUST? | | | | | | |
| WHAT ACTION CAN BE TAKEN TO PREVENT DUST PRODUCTION | | | | | | |
| REPORT ANY ISSUES TO TCP WRITE IN THE SITE DIARY WRITE ANY COMMENTS HERE | | | | | | |

Appendix C Dust Monitoring Points On site



Appendix D Dust Monitoring Points Off site



Appendix E Dust Survey Form

| Dust Survey Recording Form | | Reason for Dust Survey | <i>Dust detected at boundary? Y/N</i> <i>Complaint Y/N</i> <i>Other</i> |
|----------------------------|-----------------|--|---|
| Name of Surveyor | | Job Title | |
| Date | | Time of Survey Start/Finish | |
| Air Temp. °C | | Wind Direction | |
| Location | Is dust evident | Is origin of dust evident? Run through checklist. | Actions Taken |
| A On site | | | |
| B On site | | | |
| C On site | | | |
| | | | |
| A Off site | | | |
| B Off site | | | |
| C Off site | | | |
| D Off site | | | |
| E Off site | | | |
| F Off site | | | |

Notes:

Appendix F Training Form

EXCEL WASTE MANAGEMENT LTD EMPLOYEE TRAINING NEEDS ASSESSMENT / REVIEW

| EMPLOYEE NAME | | | | DATE COMPLETED | | | |
|-------------------------------------|-----|--------------------|-------------------|---------------------------------|---------------------------|--------------------|-------------------|
| POSITION | | | | REVIEW DUE | | | |
| TRAINER | | | | OUTCOME | PASSED | | |
| POSITION | | | | | FURTHER TRAINING REQUIRED | | |
| CARRIED OUT /SIGN OFF > | Y/N | SIGNED BY EMPLOYEE | SIGNED BY TRAINER | | Y/N | SIGNED BY EMPLOYEE | SIGNED BY TRAINER |
| ENVIRONMENTAL PERMIT | | | | FIRE PREVENTION PLAN | | | |
| MANAGEMENT SYSTEM | | | | FIRE SAFETY | | | |
| SITE RULES | | | | EMERGENCY PROCEDURES | | | |
| RECORD KEEPING / TRANSFER NOTES | | | | STORAGE /PILE SIZE LIMITS | | | |
| RECOGNITION OF WASTE TYPES | | | | STORAGE DURATION | | | |
| SECURITY | | | | FIRE DETECTION | | | |
| VEHICLE CHECKS | | | | FIRE ALARMS | | | |
| PLANT OPERATION | | | | FIRE FIGHTING EQUIPMENT | | | |
| PLANT CHECKS | | | | FIRE WATER CONTAINMENT MEASURES | | | |
| AMENITY - LITTER, ODOUR, PESTS etc. | | | | SPILL CLEARANCE | | | |
| ODOUR MANAGEMENT PLAN | | | | DUST EMISSIONS MANAGEMENT PLAN | | | |
| | | | | | | | |
| | | | | | | | |
| NOTES AND ACTIONS: | | | | | | | |
| | | | | | | | |