DUST MANAGEMENT PLAN

Wrexham Recycling Facility, Redwither Road, Wrexham LL13 9RD

ASH_WREXHAM

VERSION:	1.0	DATE:	20/11/2014		
DOC. REF:	2520-426-H	AUTHOR:	JE	CHECKED:	
CLIENT NO:	426	JOB NO:	2520		

Oaktree Environmental Ltd

Waste, Planning & Environmental Consultants

Oaktree Environmental Ltd, Unit 5, Oasis Park, 19 Road One, Winsford, Cheshire, CW7 3RY
Tel: 01606 558833 | Fax: 01606 861183 | E-Mail: sales@oaktree environmental.co.uk | Web: www.oaktree-environmental.co.uk
REGISTERED IN THE UK | COMPANY NO. 4850754

Document History:

Version	*Issue date*	*Author*	*Checked*	*Description*
1.0	20/11/2014	JE		For submission to NRW

CONTENTS

1 Introduction

1.1 Site Location

1.1.1 The site which is the subject of this Dust Management Plan (DMP) is located at Wrexham Recycling Facility, Redwither Road, Wrexham LL13 9RD and will be operated by ASH_WREXHAM.

1.1.2 ASH_WREXHAM have applied for a variation to bespoke Environmental Permit EPR/TP399VA to increase the annual throughput and to include the storage and processing of waste wood within the permit. Currently the waste wood is accepted under a registered T6 EXEMPTION.

1.1.3 The permit boundary of the site to which this DMP relates to is shown on Drawing No. 2520/426/02 in Appendix I of the site's EMS and all subsequent references in this document shall mean this area.

1.1.4 The site address and contact details for ASH_WREXHAM:

ASH_WREXHAM	**Contact:**	Neil Hassall
Redwither Road	**Position:**	Director
Wrexham Industrial Estate	**Manager**:	Keith Morris
Wrexham	Tel:	01978 663510
LL13 9RD		

1.1.5 The site will be operated in accordance with a detailed Environmental Management System (EMS) along with other documents targeted to specific environmental considerations including this DMP.

1.2 Reason for Implementation

1.2.1 Oaktree Environmental Ltd have been employed to produce this DMP in response to a Natural Resources Wales request as part of the permit variation application.

1.2.2 The objective of the Dust Management Plan is to:-

- prevent migration beyond the permit boundary

- control dust within site to reduce associated potential health risks and the likelihood of off-site migration

- ensure the necessary actions are implemented as required in any management system, dust management plan or action plan and undertaking ad hoc monitoring of air quality as and when required.

1.3 Site management

1.3.1 Mr Neil Hassall is the Technically Competent Manager and Keith Morris is the Site Manager and are responsible for the general management of the site including those which operations which have the potential to be dust-forming.

2 Site operations

2.1 Waste Types

2.1.1 The waste types handled on site will consist of solid, inert and non-hazardous household, commercial and industrial waste arising from activities within the surrounding area. The sorting, storage and treatment of waste on site will involve predominantly mixed waste being subjected to mechanical sorting (trommel and picking station) and storage and chipping of waste wood. Inert construction & demolition waste may also be accepted on site for screening and crushing using mobile plant.

2.2 Storage & Treatment Operations

2.2.1 The main operations on site involving the mechanical sorting of mixed waste takes place within the transfer building and the processing of grade A and Grade B waste wood taken place externally on the yard. Occasionally construction and demolition waste will be processed on site using a mobile screen or crusher.

2.2.2 The recycling and recovery operations will produce recyclable materials such as metals, plastics, paper/card and wood for further recovery elsewhere. Waste wood is processed to produce feedstock for the furniture manufacture sector (Grade A and B or as feedstock for biomass (Grade B) or used for cover or site roads at landfil. The site will not be open to the general public.

2.2.3 The location of the operational and storage areas are shown on Drawing No. 2520/426/03 in the site's EMS.

2.3 Plant & Equipment

2.3.1 The table below shows the plant and equipment in operation at the site.

Table 5: Plant & Equipment at site

PLANT/EQUIPMENT	*NO.*	*FUNCTION*
Loading shovel	*1(1)*	*Loading/unloading/movement/sorting*
360º excavator grab	*1*	*Loading/unloading/movement/sorting*
360º excavator bucket	*1*	*Loading/unloading/movement/sorting*
Vibrating screen	*1*	*Screening mixed wastes, soil, etc*
Overband magnet &eddy current	*1*	*Removal of ferrous metals*
Picking line/shed	*1*	*Manual separation of wastes by operatives*
Trommel	*1*	*Screening of waste*
Vacuum/road sweeper	*1*	*Sweeping site surface*
Crusher	*1*	*Crushing of inert waste*
Wood Shredder	*2*	*Shredding clean waste*
Shredder and baler	*2*	*Processing exempt wastes*

2.3.2 When in use, all plant and equipment will be operated by staff employed by ASH_WREXHAM.

2.3.3 Abatement measures considered include preventative measures which reduce the emission release at source and remedial or suppressive measures that are used to control emissions once released.

2.3.4 Abatement equipment available to the operator includes as a minimum:

i) Dust suppression: Fixed sprinkler system, mobile mist cannon
ii) Vehicle sheeting
iii) Road sweeper, brushes
iv) Dust netting
v) Hose reels
vi) Conveyor hoods (C&D plant)
vii) Good housekeeping

2.3.5 Personal Protective Equipment (PPE) will be issued to all plant operators to ensure their safety. Such items will include safety goggles, gloves, hi-visibility vests/jackets, ear defenders/plugs, hard hats and safety boots. All staff will be trained in the correct usage of their PPE and the plant and equipment they manage. Training records will be kept in the site office.

2.3.6 Essential spares for plant maintenance will be kept on site for all operators. If there is a risk that dust will be emitted following a malfunction or breakdown the plant will be shut down for repairs.

2.3.7 This plan has been written to encompass the controls required on site to ensure that fugitive emissions of dust from the normal operation of the site and any items of plant can be controlled effectively.

3 Risk Assessment

3.1 General

3.1.1 Risk assessment is the standard tool by which environmental hazards (source) are assessed for their potential impacts upon receptors through defined pathways. Risk assessment assists in providing a better understanding of the potential impacts from the site being studied and permits facilitation of remedial action if required through further investigation and action. This section assesses the environmental factors and the potential liabilities presented by the risks evaluated in a qualitative rather than quantitative format. A quantitative risk assessment is not possible as there is rarely sufficient data at waste transfer stations to make such an assessment.

3.2 Sources

3.2.1 Observation of activities similar to those on site reveals that the sources of dust arise from the following actions, in the absence of mitigation:

i) Vehicle movement on surfaced and unsurfaced ground
ii) Unsheeted vehicle loads (incoming or outgoing)
iii) Tipping vehicle loads (incoming)
iv) Loading vehicles using 360^0 excavator or loading shovel
v) Loading feed hoppers using 360^0 excavator or loading shovel
vi) Open conveyors and drop conveyors without dust suppression
vii) Stockpiling and stockpile management
viii) Open concreted areas

3.3 Pathway

3.3.1 The main pathway for dust is airborne transmission which can deposit material on the ground off site in breach of planning and permitting conditions as well as being a potential health and safety hazard to staff on site.

3.3.2 Dust can also be deposited into surface water causing a reduction in water quality. The main hazards are presented when dust settles on the ground and is carried off site by wind, vehicles or surface runoff (as mud/silt).

3.4 Receptors

3.4.1 The main receptors are staff on site, as they are in close proximity to the dust source. The site is located on Wrexham Industrial Estate and shares an access with a neighbouring business off Redwither Road. The site is bounded by Redwither Road and other industrial units to the north, an expanse of grass/scrubland to the east, and other industrial units to the south and west. The closest residential properties are to the east of the site along Oak Road at approximately 700 m distant. The target of this document is to ensure dust is managed entirely within the site boundary to comply the Environmental Permitting (England and Wales) Regulations 2010. The procedures set out in Section 4.0 are designed to ensure that dust is not emitted beyond the site boundary and is suitably controlled within the site.

4 Abatement Methods and Procedures

4.1 General

4.1.1 The operator has installed a number of dust control measures and recently have commissioned a PM_{10} Survey first of which was carried out on the 16th October 2014 and the second on 19th November 2014 with a further session possibly being carried out next year during spring or summer when the weather is dry. Two depositional dust gauges have also been deployed on the neighbouring sites as ASH are keen to investigate the scale of dust and fine particulate emissions from their various site processes.

4.1.2 A permanent water supply will be made available on site in all climatic conditions to ensure that the dust suppression systems can function effectively.

4.1.3 Water will be provided from the mains supply or from a mobile vacuum tanker depending on the target areas for dust mitigation.

4.1.4 All external water pipes will be lagged to prevent frost damage during winter months.

4.1.5 Site surfaces will be dampened-down as required to ensure that operation of vehicles, plant and equipment do not give rise to fugitive dust.

4.2 Vehicle movements

4.2.1 Water sprays and mobile mist cannon will be used to reduce dust levels on all site surfaces where necessary. This particularly applies to site roads, storage, loading and unloading areas. The dust suppression equipment will be deployed when wood is being processed or loaded and unloaded and when observations show visible dust escaping from the site boundary towards sensitive receptors. The mist cannon will be directed onto any potential sources of dust. In extreme conditions the mobile water cannon can be deployed for continuous dampening of the relevant areas of the site. The water cannon is fitted with variable nozzles and the spray pattern can be controlled and varied between jet and fog. Water

cannons can often used for fire protection and are also efficient for dust and particulate abatement. The mist cannon can produce large amounts of run-off is used for long period and or operated at a high density, therefore its usage will be managed to prevent pollution and this has been taken into consideration by the Drainage consultancy currently investigating and developing any upgrades to the drainage system on site at Wrexham.

4.2.2 Concreted areas which are not covered by plant or stockpiles may give rise to dust and will therefore be dampened periodically using a combination of the fixed sprinklers, vacuum sweeper and mist cannon to ensure that no significant dust emissions are observed.

4.2.3 Sweeping of the yard and haul road on at least a daily basis is also implemented to ensure that the potential for dust migration is minimized. The deposit of material on to the highway will be treated as an emergency and will be cleared before the end of the working day by a vacuum/road sweeper. Silt will not be washed into roadside drains or gullies. A sweeper will also be engaged as necessary to ensure that hard surfaced areas of the site are free from mud and debris.

4.2.4 During maintenance of the sprinkler system the mobile mist cannon, bowser or hose pipe will be used to spray the site surfaces to prevent the formation of excessive dusts etc- this particularly applies to site yard, storage, loading and unloading areas. Maintenance of the sprinkler system will however be scheduled to be undertaken when there is no urgent need to process or move the woodchip.

4.2.5 The sprinkler system currently in place on site ie the fixed sprinkler system and the mobile mist cannon when operational appear to be effective at reducing dust emissions from site activities. Any malfunction which reduces the effectiveness of the dust suppression will be reported to the site manager and will be repaired without delay. Alternative arrangements will be implemented until the repair/replace has been carried out (eg greater use and output flow from mist cannon).

4.2.6 There will be a maximum of three vehicles loading or unloading on site at any one time.

4.2.7 Vehicle speed on site is restricted to 5 miles per hour. Signs will be erected at the relevant areas of the site to advise drivers of the speed limit.

4.2.8 Exiting vehicles will leave the site and will avoid all areas where wastes are stored or stockpiled. All vehicles will be checked before they leave the site to ensure any mud/dust which could stretch beyond the site access will be kept to a minimum.

4.2.9 Any mud/dust deposited onto the public highway will be treated as an emergency and cleaned by operatives or by way of a road sweeper which would be hired-in as necessary.

4.3 Unsheeted vehicle loads (incoming or outgoing)

4.3.1 All incoming and outgoing loads must be sheeted unless the material they are carrying has been sufficiently conditioned to ensure that no fugitive dust can be emitted from the vehicle body.

4.3.2 Vehicles when loading the processed waste for export off site will be positioned as far away as possible from the sensitive receptors on the western boundary.

4.4 Tipping vehicle loads (incoming)

4.4.1 Vehicles will be directed by the plant operators to deposit loads at the relevant locations as detailed in the site's EMS to reduce the effects of wind i.e. storage bays, mixed waste inside waste transfer building.

4.4.2 Drivers will not be permitted to travel with raised vehicle bodies.

4.5 Loading vehicles using 360º excavator or loading shovel

4.5.1 The operator of the loading plant will direct vehicles to a position and location which reduces wind whipping of loaded material i.e. the lee side of the loading

plant or against the side of a bay wall but also complying with Section 4.3.2 above.

4.5.2 The operator will ensure stockpiles of processed wood chip will be dampened prior to loading.

4.6 Loading feed hoppers using 360º excavator or loading shovel

4.6.1 Water sprinklers have been installed along the western boundary of the site and must be in operation prior to and during the processing and movement of the processed wood.

4.6.2 The mist cannon will be available in addition to the fixed water suppression on site to allow the operator to spray areas on or around the machinery which are likely to give rise to dust emissions.

4.7 Open conveyors and discharge conveyors without dust suppression

4.7.1 Wind boards will be made available to enclose wind sensitive areas of conveyors on the mobile plant used to screen and crush soils and stone etc to reduce the risk of dust emissions as standard or if conditions deem necessary.

4.7.2 Where material <3 mm in size is present in the C&D material to be screened or crushed the last metre of the final size discharge conveyor and the first metre of the free fall of the materials will be fitted with a hood to reduce dust emissions.

4.7.3 Drop heights from all discharge points will be kept to a minimum to prevent dust emissions where adjustment of conveyors permits.

4.7.4 From the initial monitoring survey undertaken by Dustscan the conveyors associated with the wood processing operation generally did not seem to be causing any problems. The dust tended to be generated when the wood was being removed from the stockpile during the loading into the HGVs and when it dropping off the end of the belt and hitting the existing stockpile. If these areas are kept dampened (not soaked) the dust emissions appear to be minimised.

There seemed little benefit from covering all the conveyors at this stage. However it has been suggested that further monitoring should be undertaken early spring when conditions are likely to be drier, if the conveyors then seem to be an issue, this will be addressed and the dust management plan revised accordingly.

4.8 Stockpiling and stockpile management

4.8.1 Following the DustScan initial Report there are recommendations to locate specific wastes which have the potential to produce dust as far as possible from sensitive receptors. A revised plan Ref No. 2399/426/03 Rev E shows the latest site layout. The processed wood is now stored within storage bays which have been located further away from potential sensitive receptors than the previous stockpiles.

4.8.2 The PAL* waste storage and processing operation has also been relocated away from the sensitive receptors. The PAL waste screening area is now located behind the transfer building and this area will be protected by the boundary wall of the transfer building and by the erection of dust netting (Rhino Textile) located on the north east boundary to capture any released dust and particles prior to being dispersed off-site. The netting will be regularly inspected to ensure it is still fit for purpose and any repairs will be carried out within 7 working days. The storage and processing kit for the PAL waste is now located to the south east of the waste transfer building as shown on Drawing No. 2399/426/03 Rev E. The recommendation of keeping the plant and equipment as free as possible from excess fine dust settling out by regular brushing and keeping the yard surface brushed has been taken on board. If necessary the mobile mist cannon can temporarily be relocated to this area to help minimise any dust emissions.

(This is the name given to the material which has passes through the screening machine at the furniture manufacturing site. 'PAL' is the name of the manufacturer (IMAL PAL Group) which designed and supplied the piece of kit which produces the material sent to ASH site in Wrexham for refining)*.

4.8.3 Dust netting will be installed on site in the appropriate areas (to the rear of the area used to store and process the PAL waste and to the sensitive western

boundary of the site). The leylandi hedging has been upgraded with the dead trees now replaced with new saplings which have completed the screening barrier on the western perimeter of the site. It is proposed to plant additional leylandii on site as a screening barrier to the south of the site on the bank located behind the storage bays. It is also proposed to install Rhino dust netting on the relevant part of the western boundary where the leylandii have been replaced but not yet reached mature size, to capture any released dust and particles prior to being dispersed off-site. The netting reduces wind speed across the site which directly controls the potential for dust and particulate emissions. The netting will be regularly inspected to ensure it is still fit for purpose and any repairs will be carried out within 7 working days.

4.8.4 Two storage container units have been placed near the western boundary which should help shelter the site and provide a physical barrier in front of the palisade fencing.

4.8.5 The site layout plan will be revised to reflect any further changes in locations and copy submitted to NRW.

4.8.6 The general site layout aims to take into account the best locations for the processing equipment to be sited, the processed wood stockpiles and where the loading of the HGVs take place. These should be as far away from the sensitive receptors on the western boundary as possible. The staff will be constantly looking for any improvements to help reduce the risk of dust emissions from the site's operation and these will be incorporated into the Dust Management Plan as a revision.

4.8.7 Possible future developments on site may include moving the storage of specified wastes and or specific treatment activities eg shredding of wood, crushing/screening of inert waste towards the south east area of the site but before this can happen major changes to the current site infrastructure will be required which will take time and entail considerable costs as the is overhead cables across the far end of the site which will need to be re located or made higher and the yard surface will need to be prepared.

4.8.8 The stockpiles at the time of the Dustscan initial survey were visibly damp and very little dust was observed during waste wood handling and processed woodchip product handling. This demonstrates the effectiveness of water suppression in minimising dust propagation from the stockpiles and from loading activities. The mobile mist cannon will therefore be moved and directed so as to service the stockpiles during periods of dry weather. The fixed sprinkler system also appears effective in dampening any material in its range.

4.8.9 Stockpiles will therefore be sprayed with water during periods of dry/windy weather to prevent excessive drying and dust formation.

4.8.10 External stockpile heights will be limited to 3 metres unless otherwise agreed with the LPA.

4.8.11 Storage bay walls have been erected on site using lego blocks to contain the processed wood stockpiles. The heights of the bay walls containing the woodchip are being increased to ensure stockpiles (3m planning restriction) are lower than the walls for both dust and fire implications.

4.8.12 Material which is screened to produce an end product <3 mm in size will be processed such that the material is screened directly into a three-sided bay or a skip/container and sheeted if necessary to prevent fugitive dust emissions.

4.8.13 During particularly adverse windy conditions, stockpiles will be reduced in height and conditioned with crusting agents if necessary to prevent airborne transport of material or dampened down.

4.8.14 Stockpiles are located to ensure that vehicles leaving the site do not track through the screened material to prevent deposit of debris on the highway. The deposit of material on the highway will be treated as an emergency and cleaned immediately by operatives or by way of a road sweeper which would be hired-in as necessary.

4.8.15 As standard, the removal of material from stockpiles will be carried out from the most sheltered location adjacent to the containment wall.

4.9 Housekeeping arrangements

4.9.1 Plant and equipment is regularly cleaned and any visible dust deposits removed. Any deposits under the shredder are removed. These fines should not be re-introduced into the waste wood stock piles as re-circulating this fine material back into the processing cycle is likely to increase dust and PM_{10} emissions from the shredding plant. These deposits should be removed and disposed of separately.

4.9.2 In drier conditions vehicle movements and strong winds have the potential to re-suspend fine material from the site surfaces. It is important to therefore ensure the yard surfaces areas (particularly the tipping and loading areas) are wetted down to minimise dust re-suspension. Good housekeeping is essential to minimise the amount of dust laying on site yard, therefore the yard and parts of the equipment (where relevant and safe to do so) will be brushed/swept regularly. Staff will be trained to identify when this is required.

4.10 Monitoring and recording for all operators

4.10.1 Details of how and when shredding of wood and loading of wood has been undertaken are recorded in the site diary. Also information on weather conditions must be included. Any specific comments/actions such as change in weather conditions which have may have necessitated the operations to cease will also be noted, together with full details of any visual signs of dust escaping off site. These actions are already being recorded on site and have been witnessed and reported on the latest CAR forms. Details relating to the wood processing activities are recorded in the site's diary. There is a separate record sheet for the general daily inspections undertaken on site. There is also a separate complaints form which is included in Appendix II of the EMS.

4.10.2 In accordance with the site inspection procedures detailed in the site's EMS, the site supervisor will make a visual inspection of dust emissions at the site perimeter at least twice daily to ensure that no dust blows off the site. The results of monitoring exercises and any remedial action taken will be entered into the site diary or on the inspection forms which are available for regulatory officers to inspect during operating hours.

4.10.3 Site staff will continuously visually monitor dust emissions whilst the waste treatment plant is in operation and will control dust emissions using the procedures listed above, asking the site supervisor for advice as required.

4.10.4 If any dust complaints are received, the relevant operator will complete a 'complaints and events log' and detailed individually on the complaints form (in Appendix II of the site's EMS), both of which will be kept for inspection on request by the local authority and/or NRW. 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).

4.10.5 The operator would also be required to make a note of any unavoidable events such as bad weather in the site diary, rather than just actual complaints received. This will ensure that if complaints are received retrospectively from either the local authority/NRW 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.

4.10.6 To assist in finding the main sources of dust emissions on site ASH commissioned DustScan (which incorporates Alex Grant AirQ) to carry out a full investigation/monitoring exercise which involves undertaking a workplace TSP dust survey on site and the production of a summary report. The survey will include 20 minute spot readings and at different locations around the Wrexham site and on neighbouring premises. Both PM_{10} concentrations (to relate to National Air Quality Standard Air Quality Objectives NAQS AQO) and Total Suspended Particulate TSP readings (to relate to wood dust Workplace Exposure Limits WELs) during the survey.The survey was to commence on Tuesday 7th October 2014 on site in Wrexham but unfortunately due to rain predicted the survey needed to be re arranged as the real-time dust sampler for PM10/TSP site surveys cannot be operated in the rain as water droplets in the air give incorrect readings.

The first inspection and PM_{10} survey was carried out by Dustscan Ltd on 16th October 2014 at the following six locations using a Quest Technologies potable EVM-3 real time direct-reading particle monitor. This devise uses an internal air sampling pump to draw air through a 'dial-in' impactor, which selects the size of particles to monitor and a laser photometer that generates real-time indicative particle counts using light-scatter technology.

1. On ASH's yard by the bin storage area ie near to site boundary
2. On ASH's yard, adjacent to the wood stockpiles and shredder
3. On neighbour's car park (Bostock)
4. By neighbour's picnic area (Chesapeake)
5. Car park (Chesapeake)
6. ASH's car park

4.10.7 Unfortunately the time of the year is not the ideal to undertake such survey work. The winds on the day were slight and generally south-easterly, initially overcast and temperature 13°C raising to 17°C. There was no precipitation during the survey although damp conditions were observed on site as a result of previous rainfall. The site was operational during the survey: HGV movements were

observed both entering and leaving the site, wood processing and shredding plant was in use, front-loading shovels were both loading the shredder hopper with waste wood and the HGVs with wood chip. The mobile mist cannon and dust suppression measures were switched off to create a 'worst case scenario'. Despite this the stockpiles were visibly damp and the site road and haul route were saturated with water. A full report of the survey work and results are presented in Dustscan Report Oct 2014.

4.10.8 Recommendations and mitigation measures detailed in this initial report have been considered by the applicant and included in the emissions management plan for the site.

4.10.9 An automatic weather station could be installed on site to enable the staff to check the forecast and therefore able to plan activities accordingly based on weather forecasts and the immediate weather conditions on site at the time. ASH have been in touch with a supplier and are currently looking at the Davies Vantage Pro 2 Weather Station a wireless weather station which displays and records barometric pressure, temperature, humidity, rainfall and wind to assess its suitability.

4.10.10 It was beneficial to wait until after the initial site meeting and monitoring survey was carried out by DustScan to produce the Dust Management Plan. We now have details of the methology and locations etc for the monitoring they have undertaken for both PM10s concentrations and Total Suspended Particulate TSP readings. The recommendations suggested in the initial report have been included in the Dust Management Plan taking into account the TGN M17 guidance. It has been agreed after the second monitoring survey which was carried out on the 19/10/2014 that Autumn/Winter is not the ideal time of the year to undertake dust monitoring due to the general damp atmosphere which does not lend to the greater chance of creating elevated emissions which would be more likely to be produced when the weather is dry and windy. A progress report will be prepared in April 2015 based on any additional

information/evidence including investigating any complaints and any follow actions, and any NRW or staff observations. From this a decision will be taken to see if there is a still a need for any further monitoring to be carried in during dry, windy conditions.