MUNDAYS HILL QUARRY RESTORATION

Environmental Permit Application

Emissions (Dust) Management Plan

Prepared for: Fox (Owmby) Limited

Client Ref: 416.00583.00012

Environmental Permit Ref: EPR/KB3609MU/A001

SLR Ref: 416.00583.00012
Version No: 1
October 2022

BASIS OF REPORT

This document has been prepared by SLR Consulting Limited with reasonable skill, care and diligence, and taking account of the manpower, timescales and resources devoted to it by agreement with Fox (Owmby) Limited (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

SLR shall not be liable for the use of or reliance on any information, advice, recommendations and opinions in this document for any purpose by any person other than the Client. Reliance may be granted to a third party only in the event that SLR and the third party have executed a reliance agreement or collateral warranty.

Information reported herein may be based on the interpretation of public domain data collected by SLR, and/or information supplied by the Client and/or its other advisors and associates. These data have been accepted in good faith as being accurate and valid.

The copyright and intellectual property in all drawings, reports, specifications, bills of quantities, calculations and other information set out in this report remain vested in SLR unless the terms of appointment state otherwise.

This document may contain information of a specialised and/or highly technical nature and the Client is advised to seek clarification on any elements which may be unclear to it.

Information, advice, recommendations and opinions in this document should only be relied upon in the context of the whole document and any documents referenced explicitly herein and should then only be used within the context of the appointment.

CONTENTS

1.0 INTRODUCTION 2
1.1 Scope 2
2.0 OVERVIEW & POTENTIAL FOR DUST EMISSIONS 3
2.1 Site Description 3
2.2 Site Operations Description 3
2.3 Site Surroundings 4
2.4 Potential Dust Sources 4
3.0 POTENTIAL DUST EFFECTS 5
3.1 Prevailing Meteorological Conditions 5
3.1.1 Local Wind Speed & Direction Data 5
3.1.2 Rainfall Data 5
3.2 Sources of Dust 6
3.2.1 Designed in Dust Control Measures 6
3.3 Dust Complaints 8
4.0 CONTROL OF DUST EMISSIONS 9
4.1 Overview 9
4.2 Dust Control Measures 9
4.3 Monitoring 11
4.3.1 Meteorological Conditions 11
4.3.2 Visual Dust Monitoring 12
5.0 SITE MANAGEMENT & CONTINGENCY MEASURES 13
5.1 Responsibilities 13
5.2 Training 14
5.3 Incident Reporting 14
5.4 Dust Complaint Procedure 14
5.5 Liaison with Community and the EA 15
5.6 Record Keeping 16
5.7 DEMP Update and Review 16
6.0 CONTINGENCY ACTION PLAN 17

DOCUMENT REFERENCES

TABLES

Table 3-1 Designed in Dust Control Measures 6
Table 3-2 Sources of Dust 8
Table 4-1 General Site Control Measures 9
Table 4-2 Activity Specific Preventative Dust Control Measures 10
Table 4-3 Activity Specific Remedial Dust Control Measures 11
Table 5-1 Dust Management Responsibilities 14
Table 6-1 Contingency Plans 17

FIGURES

Figure 3-1 Windrose for Luton Meteorological Station, 2015 – 2019 6
Figure 5-1 Dust Management Plan Process 13

APPENDICES

Appendix 01: Example Meteorological Condition Record Sheet
Appendix 02: Example Dust Event Form
Appendix 03: Dust Complaint Form

DRAWINGS

Drawing 001	Proposed Permit Boundary
Drawing 002	Illustrative Cross Sections
Drawing 003	Environmental Site Setting
Drawing C17011/D/400	Phase 2
Drawing C17011/D/401	Phase 3
Drawing C17011/D/402	Phase 4
Drawing C17011/D/403	Phase 5
Drawing 1-74_201.C	Concept Restoration Plan Revision C
Drawing HRA1	Hydrogeological Conceptual Site Model
Drawing HRA2	Hydrogeological Cross-Sections

1.0 Introduction

Fox (Owmby) Limited (Fox) has instructed SLR Consulting Limited (SLR) to prepare an Environmental Permit (EP) application. The application seeks approval for the use of suitable waste in the restoration of Mundays Hill Quarry (the site), located near Heath and Reach, Bedfordshire LU7 9LE as a waste recovery operation under the Environmental Permitting (England and Wales) Regulations 2016.

Mundays Hill West will be restored first using approximately 1,960,000m^3 of suitable waste/site won material, followed by Mundays Hill East with approximately 465,070m^3 of suitable waste/site won material. In total 2,425,070m^3 of imported suitable waste/site won material will be required to restore the site. This includes a 300mm layer of imported waste topsoil which will be placed over the entire site to act as a growing medium. This will be achieved by importing approximately 1,700,000m^3 of suitable fill and using site won material.

It is recognised that activities on site could lead to the release of fugitive emissions of dust particles and therefore it is a requirement to control activities on site in order to prevent or mitigate potential releases of dust.

The implementation of this plan will be under the control of site management.

This plan shall be incorporated into the site procedures and shall be revised as necessary to ensure that it remains appropriate to the activities occurring on site and that any changes in conditions relating to dust management are dealt with as part of those revisions. In particular, the monitoring procedures and compliance actions will be updated as required by the procedures within the Emissions (Dust) Management Plan (DEMP).

A Dust Management Plan was prepared in support of the site's planning application (Ref: CB/19/02297/MW) however, this DEMP has been written with reference to the Environment Agency's (EA) guidance, Control and Monitor Emissions for your Environmental Permit.

1.1 Scope

The objective of this document is to specify a range of measures to manage the environmental impacts that could arise during the activities taking place on site, in respect of managing dust emissions. A series of site specific control measures as described will therefore minimise potential risks to surrounding receptors and the environment.

The components of the DEMP are set out within this document as follows:

- Section 2 – Overview and Potential for Dust emissions;
- Section 3 - Potential Dust Effects;
- Section 4 - Dust Control Measures;
- Section 5 - Site Management & Contingency Measures; and
- Section 6 – Contingency Action Plan.

This version (1.0) represents the situation in October 2022 that is based on the proposed activities as detailed in supporting documentation to EP application.

2.0 Overview & Potential for Dust Emissions

2.1 Site Description

Mundays Hill Quarry forms part of Eastern Way Quarries which is a complex of active and worked mineral extraction sites along with their associated processing and manufacturing works. The site is situated approximately 700m east of the village of Heath and Reach and approximately 2000m north of the town of Leighton Buzzard. The total area of the site to be restored measures approximately 21 hectares. The site is accessed from a roadway off Eastern Way which runs to the north of the site. The National Grid Reference (NGR) for the site is SP 93611 28087.

Two depressions from past sand quarrying activities remain at the site. The western depression (Mundays Hill West) has an area of approximately 160,824m^2 and is irregularly shaped, covering an area of land that runs from Eastern Way to the north along the western edge of the quarry boundary and extends towards the southern edge of the quarry. The eastern depression (Mundays Hill East/Nash Hole) is smaller with an area of 48,683m^2. It is more regularly shaped and sits towards the north eastern end of Mundays Hill Quarry, close to Mile Tree Road. It is proposed that both areas will be regulated under the same EP but given the distance between the areas, each will have a distinct EP boundary as shown on Drawing 001.

An adequate area of hard surfaced road between the EP boundary this DEMP relates to the and the site entrance/exit will be maintained.

The infrastructure on site would include:

- 360 excavators up to 2no. If, for example, several operations are happening i.e. during lining campaigns;
- D6 size dozer, up to two if several operations are happening on site;
- Roller (for engineering purposes) if required;
- Tractor/Bowser/Brush; and
- Road Sweeper.

2.2 Site Operations Description

The area of the quarry to be restored is approximately, 21 hectares in size. The works comprise a phased restoration of the site, which includes four phases of restoration, guiding the infilling to reinstate the landscape in different parts of the site.

The western void will be restored first with 1,960,000m^3 of suitable waste/site won material, followed by the eastern void with 465,070m^3 of suitable waste/site won material. In total 2,425,070m^3 of imported suitable waste/site won material will be required to restore the site, including a 300mm topsoil layer. Infilling will be carried out progressively with a phased approach.

The restoration proposals aim to reinstate the land close to historic, pre-extraction levels by reinstating the hillside. Restoration will take place in accordance with the concept restoration plan (Drawing Number 1-74_2021.C). Cross sections are illustrated on Drawing 002. Mundays Hill West will be restored to mostly broadleaf woodland with an area of lowland grassland mosaic and agricultural land whilst Mundays Hill East will be restored to lowland grassland mosaic and a surface water basin surrounded by reed fringe habitat. The restored site will form part of the wider agricultural landscape whilst incorporating measures that will provide environmental benefits.

Infilling will commence following the completion of mineral extraction at the site, which is anticipated to be in 2022. In accordance with condition 3 of the planning permission, infilling activities are expected to take 14 years with an additional year for (final) restoration (greening of the site).

The proposed operating hours of the site are between 07:00 and 19:00 Monday to Friday and between 07:00 and 13:00 on Saturdays. No operations will be undertaken on Sundays and Bank Holidays.

2.3 Site Surroundings

The site is primarily surrounded by arable fields and working and disused sand quarries with their associated processing plant. Individual residential properties lie to the east, south east and west with the village of Heath and Reach located approximately 700m west.

The closest ecological receptor for consideration is a Nine Acres Pit, a geological SSSI, which is located immediately to the south east of the western depression. Nine Acres Pit was backfilled recently as required by the ROMP. The site was designated because it shows a Lower Cretaceous section spanning the Aptian and Albian stages, including the finest development of Carstone and Shenley Limestone in the Leighton Buzzard area as well as superb exposures of dune bedding in the Upper Woburn Sands. The famous Shenley Limestone contains a unique fossil fauna of a diversity virtually unparalleled in the Albian elsewhere. Double Arches Pit is a further geological SSSI situated approximately 750m to the north. Kings and bakers Wood and Heaths SSSI, which is designated for its broadleaved, mixed and yew woodland, lies approximately 1100m to the north west.

There are no Air Quality Management Area's (AQMA's) within close proximity to the site, and as such they are not considered further within this document.

The closest AQMA to the site is as follows:

- Bedford Town Centre AQMA situated approximately 23km north east of the site – declared for breaching annual mean NO_2 levels within the Bedford Borough Council administrative area. This AQMA encompasses Bedford town centre from Victoria Road to Brookfield Road and Manton Lane.

Garside Sands, which is a sand quarry located approximately 20m north, and a quarry owned by L.B Silica Sand Limited which lies approximately 70m north west of site both have the potential to release dust. The closest residential properties to the site are located along Mile Tree Road approximately 50m to the east and the village of Heath and Reach lies approximately 700m west. As the prevailing wind is from the southwest, the impact of dust for Garside Sands, L.B Silica Sand Limited and the residential properties should be minimal due to their locations.

2.4 Potential Dust Sources

The preparation, and operation of the restoration activity at Mundays Hill Quarry has the potential to generate dust and can be divided into the following activities:

- Waste acceptance and tipping of waste from vehicles;
- Restoration operations; and
- Transport – internal movements.

No storage or treatment of material is undertaken within the EP boundary.

3.0 Potential Dust Effects

This section presents a review of the potential risk of dust effects and has been completed in order to inform the selection of appropriate dust control techniques to mitigate against the release of dust emissions.

3.1 Prevailing Meteorological Conditions

The most important climatic parameters governing the generation and dispersal of fugitive dust are:

- Wind speed will affect the potential for dust entrainment and the distance it may travel;
- Wind direction determines the broad transport of the emission and the sector of the compass into which the emission is dispersed; and
- Rainfall is an important climatological parameter in the generation of dust; sufficient amounts of rainfall can suppress dust at the source and eliminate the pathway to the receptor. According to Arup (1995)[1] rainfall greater than 0.2mm per day is sufficient to suppress dust emissions.

3.1.1 Local Wind Speed & Direction Data

Wind speed and direction data from the meteorological observation station at Luton located 20.6km to the south of the site is considered to be broadly representative of the local site conditions. A windrose for Luton is presented in Figure 3-1.

Figure 3-1 indicates that the prevailing wind direction is from the south west with winds from other directions being more infrequent. On this basis, the locations in the north eastern sectors have the highest potential for impacts from any dust emissions originating from the site.

3.1.2 Rainfall Data

Relevant rainfall data applicable to the site has been obtained from the Met Office website[2] of UK mapped climate averages for 1991-2020. The average annual rainfall >1mm/day[3] for the area of the site is 120.2 days per year, comprising 33% of the year. It is therefore considered that on those days the natural suppression afforded by the rain would eliminate all sources of dust across the site.

Rainfall is typically lower in the summer months, combined with higher temperatures to increase the drying time of material. The potential for dust generation and subsequent transfer of airborne dust emissions beyond the site boundary is therefore higher during the summer months.

[1] Arup & Ove Arup Environmental. Environment Effects of Surface Mineral Workings. DoE, October 1995.

[3] UK climate averages - Met Office, accessed May 2022

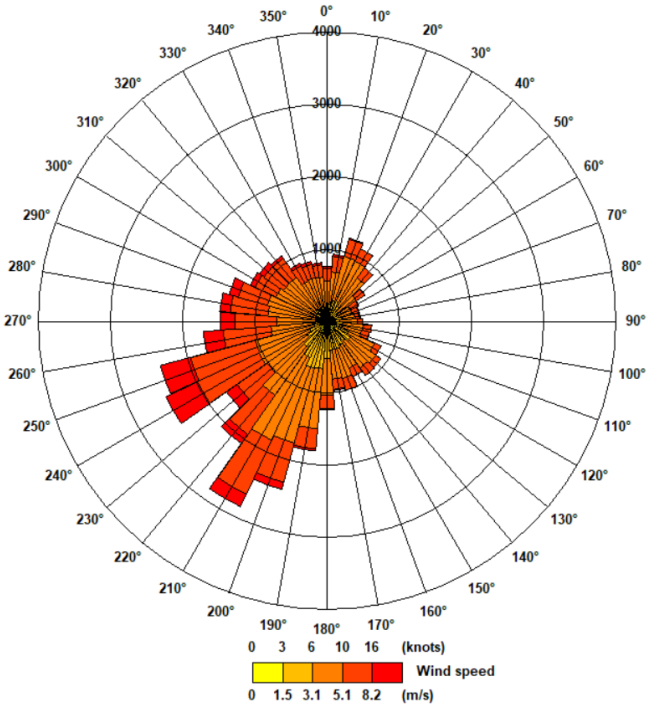

Figure 3-1
Windrose for Luton Meteorological Station, 2015 – 2019

3.2 Sources of Dust

3.2.1 Designed in Dust Control Measures

The following measures that are incorporated into the working scheme are considered to afford a degree of reduction in the potential for dust generation. These 'designed in' control measures are presented in

Table 3-1.

Table 3-1
Designed in Dust Control Measures

Activity	Designed in Dust Control Measures
Management Procedures	The Site Supervisor, or their nominee, will exercise day to day control on site at all times. They will have particular responsibility for ensuring full compliance with the conditions attached to the permit. They will assume control either personally or by delegation to suitably trained and responsible staff of: - • Vehicle movements; • Deposit of materials; • Operation of dust suppression measures.

Activity	Designed in Dust Control Measures
	All staff will receive necessary training and instruction in their duties relating to the control of all operations and the potential sources of dust emissions. Particular emphasis will be given to dealing with abnormal conditions. Site staff will inform the manager whenever visible dust emissions are observed or appear likely to occur, as a result of any site operation.
	If at any time dust emissions likely to cause a nuisance beyond the site boundary are detected by the site staff or any complaints relating to dust is received, the incident will be recorded in the Site Diary, and immediate action taken to identify the cause of the problem.
	If a dust associated problem is related to a specific source of waste then action will immediately be taken to suppress any aerial emissions by damping down or covering the waste with material less susceptible to dust generation.
Complaints Procedure	A complaints procedure will be established to ensure that any perceived nuisance being caused to local residents is dealt with effectively. A register of complaints will be kept on site to record all concerns made either directly to the Site Manager or via the EA.
	Each complaint will be investigated. The Site Supervisor will report the findings and the action taken to the General Manager. The complaint and any corrective action taken will be recorded by the General Manager in the Site Logbook.
Transportation of Materials	Internal haulage restricted to clearly delineated routes, on a prepared surface.
	Temporary haul roads will be maintained in good condition and kept free from mud by regular grading, good drainage and use of hardcore as necessary.
	A water bowser (with tractor) is available on site to supress dust emissions as and when necessary.
	All site vehicles will be maintained in accordance with the manufacturer's specification.
	Site haulage speeds will be controlled 20 mph to minimise dust entrainment. Appropriate instruction will be issued to all vehicle drivers. When conditions are particularly dry/windy, the Site Supervisor will reduce the speed limit will to 10 mph.
	The Site Supervisor will be responsible for checking the situation with regard to dust on a regular basis throughout working hours, and for ensuring that mitigating measures are provided as necessary.
	A wheel wash and rumble grid located at the entrance to the wider site will be implemented for vehicles before they re-enter the public highway if and when required to remove dirt and debris.
Material Handling	Only suitable waste (inert/soil) will be accepted.

Activity	Designed in Dust Control Measures
	In unusually dry / windy conditions working areas will be sprayed with water with the use of a tractor and bowser as necessary. Site activities will be suspended if it appears likely dust may be carried towards sensitive receptors.

The activities on site that have the greatest potential for dust emissions have been identified as movements on internal haul roads and restoration activities. Table 3-2 outlines the potential sources of dust associated with the proposed operations.

Table 3-2
Sources of Dust

Activity	Potential for Dust Generation	Description / Location
Waste acceptance and tipping of waste from vehicles	Medium	Activities will be intermittent and temporary in nature.
Transport – internal movements	Medium	Dust will be created by the movement of the lorries on the haul road, particularly in dry spells. Particulate emissions from road surfaces are primarily due to re-suspension of loose material present on the road surface as a result of either deposition from the undercarriage of passing vehicles or through the erosion of the surface.
Restoration operations	Medium	Restoration of the area to reinstate the land close to historic, pre-extraction levels with finished contours, by depositing imported suitable waste materials.

3.3 Dust Complaints

The site has been an active quarry for over 50 years with appropriate dust control and perimeter boundary treatments implemented throughout the lifetime of the quarry.

Therefore, it is considered that the dust control measures on site are currently sufficient for current aggregate recycling and processing activities.

4.0 Control of Dust Emissions

4.1 Overview

Fox recognises the potential for the site to generate dust emissions and is committed to preparing, operating and restoring the Site in accordance with industry best practise. The implementation of industry best practice measures to control and mitigate the generation and transportation of dust can ensure that dust is adequately controlled.

The key method for controlling dust emissions is through good site design, management practices and subsequent good housekeeping, i.e. avoidance of dust generation.

4.2 Dust Control Measures

Dust control measures that will be employed at the site as part of routine planning and operations are detailed below in Table 4-1 and Table 4-2.

Table 4-1
General Site Control Measures

Activity	Control Measures
Design and location of dust-generating activities	No storage or treatment of material will be undertaken within the EP boundary. Only the deposit of suitable waste materials will be undertaken. Location of deposit cannot be changed.
Equipment and Vehicles	The site should be designed to minimise haul route distances and to locate haul routes away from receptors, particularly to the north east.
Planting	Existing woodland/hedgerows along site boundaries will be retained where possible. Any dead or diseased trees, shrubs will be replaced.
Communication	Good communication will be maintained to prevent anxieties between the operator and the surrounding communities. Regular, accessible liaison arrangements will be implemented in order to provide information as freely as possible, if required.
Training	Training on dust mitigation will be provided to site personnel. Training will also cover 'emergency preparedness plans' to react quickly in case of any failure of the planned dust mitigation.
Monitoring	See section 4.3.
Management	All dust and air quality complaints will be recorded. The cause will be identified, and appropriate measures taken. See Section 5.0.

Table 4-2
Activity Specific Preventative Dust Control Measures

Activity	Management Actions and Preventative Dust Control Technique	Trigger for Implementation
Waste acceptance and tipping of waste	The following measures are considered to be effective in minimising dust emissions during the waste acceptance and tipping process: • If waste cannot be received without dust emissions causing an unacceptable impact, then receipt of load will be ceased and the carrier will be informed; • Suitable material will be imported for the restoration works; • Good standards of all plant and equipment will be maintained; and • Drop heights will be minimised when depositing the restoration material.	Control techniques will be implemented during all periods when the site is operational.
Transport – internal movements	All vehicles will adhere to the site speed limit of 20 mph with speed restriction signs on haul routes. In particularly dry/windy conditions the Site Supervisor will reduce the speed limit to 10 mph. Unsurfaced routes will be fixed, well maintained and compacted to minimise spillages from passing vehicles and erosion of road surface. Necessary repairs to the site surfacing will be instigated as soon as reasonably practicable, within a maximum of 48 hours. All inspections will be record in the Site Logbook. A road sweeper will be used on the highway as required. A dust suppression unit (tractor and bowser) is available to dampen haul routes. Adequate water supply will be maintained for effective dust mitigation. Abrupt changes in direction will be avoided.	Control techniques will be implemented during all periods when the site is operational.
Transport – access road	An adequate area of hard surfaced road between site activities and site exit will be maintained. All vehicles leaving the site will pass through the wheel wash and over the rumble grid at the entrance to the wider site to remove dirt and debris. A dust suppression unit (tractor and bowser) is available to dampen haul routes.	Control techniques will be implemented during all periods when the site is operational.

Activity	Management Actions and Preventative Dust Control Technique	Trigger for Implementation
Restoration Operations	Suitable (inert/soil) material is proposed to be imported for the restoration works. In the event that visible plumes of dust emissions are crossing the site boundary operations will cease until dust can be satisfactorily managed.	Control techniques will be implemented during all periods when the site is operational. Daily monitoring to assist with this decision.

Table 4-3
Activity Specific Remedial Dust Control Measures

Activity	Management Actions and Remedial Dust Control Technique	Trigger for Implementation
Waste acceptance and tipping of waste	Dampen material undergoing tipping and infilling.	Visible dust plumes carried towards / across site boundary.
Transport – internal movements	A dust suppression unit (tractor and bowser) is available to dampen haul routes.	If large debris and dust has accumulated on haul roads/access roads. Material to be damped down first before sweeping. Not to be undertaken during dry, windy conditions as may resuspend the dust.
Restoration Operations	A dust suppression unit (tractor and bowser) is available to dampen operational areas.	Visible dust plumes carried towards / across site boundary.

The remedial dust control measures outlined above would be undertaken until the dust emissions were contained within the site boundary and significantly reduced. The decision would be at the discretion of the Site Supervisor.

4.3 Monitoring

4.3.1 Meteorological Conditions

During the preparation, operational and restoration phase weather forecasts will be monitored on a daily basis to predict weather conditions such as prolonged dry, hot spells or significantly strong winds which may generate elevated levels of dust for which additional dust control would need to be planned / prepared. In addition to this, Fox will install a met station to monitor wind direction and speed. Using this information, the necessary precautionary measures will be planned or employed on site, and if necessary, suspension or relocation of certain activities may be undertaken.

Wind direction, wind speed and daily weather and site conditions will be recorded on a daily basis within the Site Logbook or using the example record sheet in Appendix 01. This information is beneficial when dust events / complaints are reviewed retrospectively, and the source of dust is trying to be identified.

4.3.2 Visual Dust Monitoring

The site will undertake regular visual monitoring to ensure that dust control techniques in operation are being carried out effectively. The objective of the visual monitoring is to anticipate whether dust is being transported off-site in quantities sufficient to cause a nuisance at off-site receptor locations. Visual monitoring undertaken on a regular basis allows immediate action to be instigated.

Visual monitoring of dust will be undertaken by the Site Manager / experienced site operatives on a minimum of a daily basis. Responsibilities can either be delegated to various Site operatives to carry out visual observations of their working areas during normal operations or be delegated to a single operative to perform a daily visual check of key areas.

The areas that require consideration for inclusion within the visual observations are as follows:

- Waste acceptance and tipping of waste from vehicles;
- Internal movements on haul roads; and
- Restoration of the site.

The results of all visual observations, along with any remedial actions implemented will be recorded. Any personnel who undertake visual dust monitoring will have received appropriate training, guidance and instruction on how to carry out the task in line with the requirements of this DEMP.

5.0 Site Management & Contingency Measures

This section details the responsibilities of management within the DEMP, as annotated in Figure 5-1.

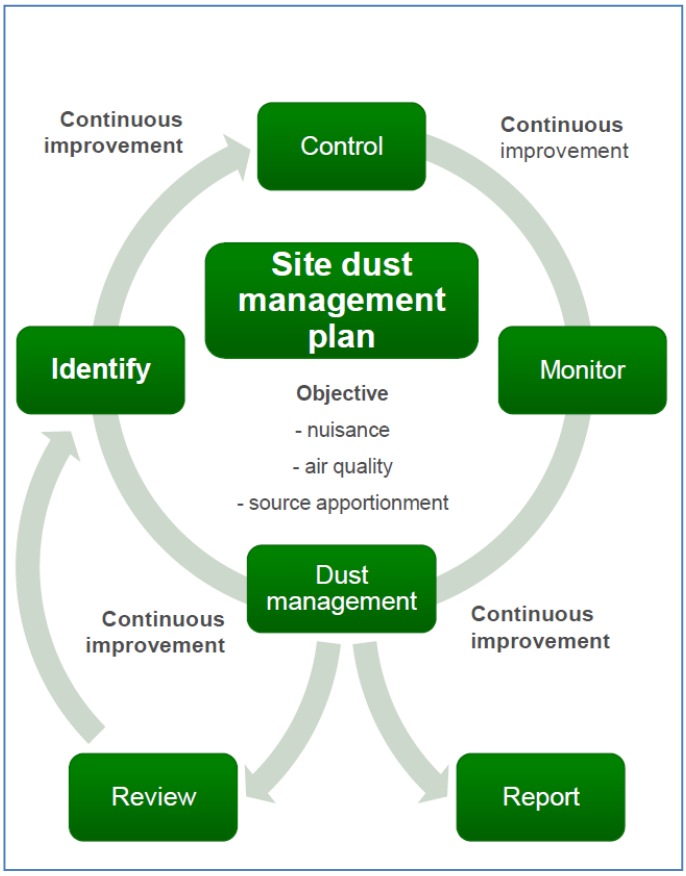

Figure 5-1
Dust Management Plan Process[4]

5.1 Responsibilities

There will be a trained Site Supervisor / manager on site during working hours responsible for dust management and visual observations. The Site Supervisor will be responsible for ensuring effective dust control is achieved by good operational practises, including:

- Identifying and monitoring the intensity of activities with a high potential for dust generation;
- Monitoring weather conditions during periods of such activity;
- Planning and preparing for the implementation of contingency measures;
- Responding to potential and actual dust monitoring issues; and
- Ceasing operations in the event that significant off-site impacts cannot be avoided.

[4] Reproduced from - Report to The Mineral Industry Research Organisation (MIRO), *Good practice guide: control and measurement of nuisance dust and PM_{10} from the extractive industries* AEAT/ENV/R3140 Issue 1 (February 2011)

Responsibilities will be allocated to specific personnel to ensure dust generation is avoided or effectively controlled, as presented in Table 5-1.

Table 5-1
Dust Management Responsibilities

Actions	Responsibility
Monitoring weather Forecasts and current wind directions on site	Site Supervisor
Routine visual observation monitoring	Site Supervisor
Coordination of application of water dust suppression	Site Supervisor
Completion of dust event forms	Site Supervisor
Activation of contingency action plans	Site Supervisor
Liaison with public and EA	Site Supervisor
Coordinating reviews and updates of the DEMP	Site Supervisor

5.2 Training

All personnel on site will understand their responsibility to ensure the generation of dust is avoided, minimised and controlled. Each employee shall be made aware of the importance of effective dust control and the most effective measures available to minimise such emissions from the various activities. Such training shall be provided as part of the induction process for all new employees.

Specific training will be provided to:

- Operatives in use of the water suppression techniques; and
- All site personnel on the importance of reporting potential / actual dust emissions or the malfunctioning of dust control to the appropriate person.

Training will also cover 'emergency preparation plans' to ensure rapid reactions to any failure of dust control.

5.3 Incident Reporting

Incidents of high dust levels will be reported to the Site Manager and recorded in the daily logbook. Any incidents that have created significant dust issues off site shall be reported to the EA as appropriate.

5.4 Dust Complaint Procedure

Complaints may be notified by a member of the public either directly to the Site Management or indirectly through the EA. Complaints received directly by the Site Management will be recorded in the Site Logbook along with any corrective action taken. The following details shall be recorded:

- Date, time and name of complainant (if provided);
- Nature of complaints;

- Locality of complaint;
- Summary of resulting investigations and actions taken; and
- Date at which the complainant was updated with the outcome / remedial actions undertaken, if required.

The objective of this response to complaints received is to investigate the incident and review the site practises and dust controls in place at the time of the event to allow for additional controls to be put in place, thus preventing a repeat of the incident. If necessary, the complainant(s) and the EA would be informed of the findings of the investigation and any actions subsequently taken.

Investigations will include, but not be limited to the following:

- Visit by a member of Site Management to location of complainant to verify the issue (if complaint is made after the event this may not be possible);
- A review of site activities in operation at the time of the incident;
- A review of the daily visual dust monitoring results for the period of the incident, if applicable;
- For recurring events, the frequency of visual monitoring should be increased to a twice daily basis;
- A review of control measures and dust suppression in place at the time of the incident (i.e. application of water, frequency of water bowser on internal haulage routes, drop heights during deposit);
- A review of the meteorological conditions at the time of the incident (i.e. recorded wind direction and wind speed recorded in the Site Logbook); and
- Reporting of findings (either in Appendix 03 pro-forma or in Site Logbook).

The escalation procedures in the event that subsequent dust complaints are received are as follows:

- Initial Complaint - Initial/first time contact received – complaint investigated, and contingency actions taken by Site Management.
- Complaint level 1 - An Interaction that has not been resolved to the satisfaction of the complainant or where frequent contact has been received from the public via the EA. Complaints investigated by senior management team and remedial actions taken.
- Complaint level 2 - Unresolved Complaint level 1 – this may involve support from Environmental Consultants to review, investigate, determined required actions and respond to the complaint.

5.5 Liaison with Community and the EA

The Site Manager (or nominated representative) shall act as liaison with the regulator and local community for issues relating to dust emissions off-site. Maintaining good communications with the local community will help prevent anxieties occurring.

If appropriate key issues will be communicated between both sides, including but not limited to the following:

- Presentation of the monitoring scheme and the latest dust monitoring results;
- Update on the working scheme of the site and when / where future operations will be;
- Summary of the dust controls on site and any updates / improvements undertaken / planned;
- Provision of a contact for the site should any issues arise between the meetings; and
- Observe and alleviate any anxieties or complaints member of the public have experienced.

5.6 Record Keeping

The operator will keep records of all dust monitoring, dust contingency actions, investigations and complaints on site for a minimum period of 2 years; these shall be made available to the regulator for examination on request.

5.7 DEMP Update and Review

This DEMP is an active, controlled document which forms part of the Site Management documentation. It shall be reviewed on an annual basis, as a minimum by senior Site Management. Given that the document is a point of reference for daily operations, it shall be updated as required should any of the following situations occur:

- Significant changes are made to the plant or operational practises;
- The regulator specifically requests for the DEMP to be updated; or
- Following investigations into dust control, additional measures are adopted that are not contained within the document.

On review of site operations and the effectiveness of the DEMP, Senior Management are required to make any changes deemed appropriate to ensure dust emissions are kept to a minimum.

6.0 Contingency Action Plan

A contingency action plan has been defined to react to situations whereby visual monitoring of dust indicates that a potential dust source is not being mitigated effectively, appropriate control measures are not in place or that an adverse impact has / may occur.

This includes incidents or accidents which would result in the loss of control of potential dust sources and have the potential to cause an unacceptable impact on the environment. The contingency action plan therefore includes both pro-active and re-active actions to events.

Contingency measures have been identified for the following scenarios, as presented in Table 6-1.

- Observed change in wind direction towards nearby receptors during activities close to site boundary;
- Visual monitoring records visible dust plumes across the site boundary in the direction / proximity to the off-site receptors. Receptors of notable importance include:
    - Eastern Way (northern boundary);
    - Residential Property (eastern boundary); and
    - Double Arches Farm (north eastern boundary).
- Malfunction in water suppression techniques rendering them in-effective;
- Receipt of a particularly dusty load (material for infilling);
- Malfunction of road sweeper rendering it in-effective;
- Complaints received from members of the public or neighbouring businesses, verified by visual monitoring on site;
- Malfunction of water collection system, resulting in inadequate water for dust suppression;
- Malfunction of vehicle wheel wash and/or rumble grid (at the entrance to the wider site), rendering it in effective; and
- Prolonged periods of hot weather, resulting in very dry ground and limited supply of water.

Table 6-1
Contingency Plans

Event	Change in wind direction (moderate-high winds) towards off-site receptors
Contingency Actions	The frequency of visual monitoring will increase to twice daily which will incorporate walkovers along boundary in question. Additional dust suppression will be implemented on high risk activities using water sprays, reduction in drop heights or cessation of material handling / transfer. In the event dust is visually observed to be crossing the boundary with additional dust suppression in place, any activities will be relocated or ceased until more effective mitigation is in place.
Comment	The weather forecasts will be monitored.

	The Site Manager will be informed of actions taken and the event will be recorded in the Site Logbook.
Event	Visual monitoring records dust plumes across site boundary in direction of offsite receptors
	The frequency of visual monitoring will increase to a minimum of twice daily, which will incorporate a walkover along the boundary in question. Wind direction will be determined using the onsite met station. The likely dust source will be determined, and additional dust suppression will be implemented e.g. Increased frequency of water suppression on internal haul roads and commence water suppression on material using manual techniques on site. If additional dust suppression is not effective, activity operations will be relocated or ceased until dust can be satisfactorily controlled.
Comment	Water supply will be available for high risk activities. The Site Manager will be informed of actions taken and the event will be recorded in the Site Logbook.
Event	Malfunction of water suppression techniques, rendering them ineffective
Contingency Actions	Repairs will be undertaken using on-site spares if possible, or a technician will be called to repair at earliest opportunity. Manual methods will be undertaken to clean down vehicles. The frequency of visual monitoring will increase to twice daily, which will incorporate a walkover of the all the boundaries. Manual water techniques will be available on site and at the location of the dust source. An IBC is maintained on site which could be used in the event of the bowser failing.
Comment	Essential spares will be retained on site. The Site Manager will be informed of actions taken and the event will be recorded in the Site Logbook.
Event	Receipt of a particularly dusty load (material for infilling)
Contingency Actions	Management will be notified, and receipt records will be updated. Loads will be investigated to ascertain whether they can be received without causing dust emissions to leave site. The following be will be reviewed: - Use of additional mitigation, e.g. use of water bowser during unloading for all loads. - Use of subsequent cover material (that is less susceptible to dust generation) once deposited.

	Ultimately, if waste cannot be received without dust emissions causing an unacceptable impact, then receipt of load will be ceased and the carrier will be informed.
Comment	Details will be recorded in the Site Logbook.
Event	Complaints received from members of the public or neighbouring businesses, verified by visual monitoring on site
Contingency Actions	Management will be notified. Complaint reporting and investigation procedure will be undertaken and appropriate contingency measures will be undertaken as detailed above. The frequency of visual monitoring will increase to twice daily and will focus on boundary locations in proximity to the location of complainants. If required, correspond with the EA to discuss the requirement of quantitative dust monitoring. Complaint escalation procedure: Initial Complaint - Initial/first time contact received – complaint investigated, and contingency actions taken by site Management. Complaint level 1 - An Interaction that has not been resolved to the satisfaction of the complainant or where frequent contact has been received from the public via the Regulators. Complaints investigated by senior management team and remedial actions taken. Complaint level 2 Unresolved Complaint level 1 – this may involve support from Environmental Consultants to review, investigate, determined required actions and respond to the complaint.
Comment	DEMP may require updating on basis of results of investigations.
Event	Malfunction of water collection system, resulting in inadequate supply of water for dust suppression
Contingency Actions	The frequency of visual monitoring will increase to twice daily and will focus on boundary locations in proximity to the location of complainants. All other dust control measures will be adhered to (see Table 4-1, Table 4-2 and Table 4-3). If required, water will be imported and used for the water bowser. In the event dust is visually observed to be crossing the boundary with additional dust suppression in place, any activities will be relocated or ceased until more effective mitigation is in place.
Comment	Details will be recorded in the Site Logbook.
Event	Malfunction of vehicle wheel wash, rendering it in effective

Contingency Actions	Undertake repairs using on site spares if possible or call out technician to repair system. Use manual methods to clean down vehicles or truck wash as necessary. Increase frequency of visual monitoring and ensure monitoring of access road to identify trackout on Eastern Way. Increase frequency of road sweeper on access road, as required. If dust is being released in significant quantities likely to cause an impact then cease activities.
Comment	Essential spares retained on site. Hoses for manual water application retained on site. Frequency of street sweeping alone is likely to be an effective measure. Inform Site Manager of actions taken and record in the Site Logbook.
Event	Prolonged periods of hot weather, resulting in very dry ground and limited supply of water
Contingency Actions	Water suppressant techniques to be prioritised for operational activities occurring in the north, closest to the off-site receptors. Road sweeping to be undertaken if large material accumulating on haul roads, in operational areas and access road. However, be mindful this may resuspend the dust therefore not to be undertaken in windy conditions. If water supply on site has significantly reduced, consider importing water onto site. Increase daily monitoring to twice daily and if dust is being released in significant quantities likely to cause impact then cease activities.
Comment	Inform Site Manager of actions taken and record in the Site Logbook.

APPENDIX 01

Example Meteorological Condition Record Sheet

Date	Initials of Author	Predominant Wind Direction	Wind Speed (beaufort scale	Rainfall	Areas of Working	Additional Comments (On- and Off-Site)
11/02/17 Example	*AB*	*W- NW*	*1-2 Light air – light breeze*	*Dry*	*Topsoil Stripping*	*Agricultural operations in field adjacent to site active with visible dust emissions*

Beaufort Scale Definitions:

0 – Calm
1 – Light air
2 – Light breeze
3 – Gentle breeze
4 – Moderate breeze
5 – Fresh breeze
6 – Strong breeze
7 – Near gale
8 – Gale
9 – Strong gale
10–Storm

APPENDIX 02

Example Dust Event Form

Visual Monitoring and Dust Event Form	
Name of Author	
Description of Event[(a)]	
Date / Time / Period	
Activities taking place during time / period of event:	
Dust control employed at the time of the event:	
Summary of weather conditions leading up to and during the event:	
Details of Corrective Action:	
Notes:	

(a) E.g. complaint registered (name and address) or visible dust seen crossing site boundary during routine visual monitoring

APPENDIX 03

Dust Complaint Form

Customer Details	
Customer Name	
Address Postcode	
Customer Contact Details	
Telephone	
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 -	

Customer Details	
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	

EUROPEAN OFFICES

United Kingdom

AYLESBURY
T: +44 (0)1844 337380

BELFAST
T: +44 (0)28 9073 2493

BRADFORD-ON-AVON
T: +44 (0)1225 309400

BRISTOL
T: +44 (0)117 906 4280

CAMBRIDGE
T: + 44 (0)1223 813805

CARDIFF
T: +44 (0)29 2049 1010

CHELMSFORD
T: +44 (0)1245 392170

EDINBURGH
T: +44 (0)131 335 6830

EXETER
T: + 44 (0)1392 490152

GLASGOW
T: +44 (0)141 353 5037

GUILDFORD
T: +44 (0)1483 889800

LEEDS
T: +44 (0)113 258 0650

LONDON
T: +44 (0)203 691 5810

MAIDSTONE
T: +44 (0)1622 609242

MANCHESTER
T: +44 (0)161 872 7564

NEWCASTLE UPON TYNE
T: +44 (0)191 261 1966

NOTTINGHAM
T: +44 (0)115 964 7280

SHEFFIELD
T: +44 (0)114 245 5153

SHREWSBURY
T: +44 (0)1743 23 9250

STAFFORD
T: +44 (0)1785 241755

STIRLING
T: +44 (0)1786 239900

WORCESTER
T: +44 (0)1905 751310

Ireland

DUBLIN
T: + 353 (0)1 296 4667

France

GRENOBLE
T: +33 (0)4 76 70 93 41