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Consulting Engineers Limited

Tilbury IBA Facility

Blue Phoenix Limited

Dust Management Plan

ENGINEERING CONSULTING

Document approval

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Contents

1 Introduction

The Tilbury Incinerator Bottom Ash Facility (the Facility) is located within the Tilbury Docks redevelopment area in Tilbury. The Facility is located within Thurrock. The boundary to Gravesend Borough Council is the other side of the River Thames, approximately 1.1 km south of the Facility.

The purpose of the Facility is to process IBA from off-site sources to produce an aggregate material called Incinerator Bottom Ash Aggregate (IBAA) for use in the construction industry.

Blue Phoenix is applying for a variation to the EP to increase the capacity of the existing Facility from 180,000 tonnes per annum to 400,000 tonnes per annum of waste. The additional capacity will enable the Facility to process the IBA generated by Cory's Riverside Energy Park, which is currently under construction, and expected to commence operations in 2025. Whilst Blue Phoenix operated the existing facility in accordance with an existing Dust Management Plan (DMP), as Blue Phoenix is applying for a variation to the EP it is submitting this updated DMP to include for the proposed changes to layout and design of the Facility.

There are two Air Quality Management Areas (AQMA) within 2 km of the Facility. The AQMAs are outlined in Table 1.

Table 1: AQMAs within 2 km of the Site.

AQMA Title	Distance from Site	Date declared	Pollutant declared for
Northfleet Industrial Area AQMA	1.2 km south west	01/01/2002	Particulate Matter PM10 - Annual Mean
AQMA 24	500 m north east	05/11/2014	Nitrogen dioxide NO2 - Annual Mean

Source: http://uk-air.defra.gov.uk/aqma/

1.1 Site name and address

The site address is as follows:

Tilbury IBA Facility

Port of Tilbury

Tilbury

Essex

RM18 7EH

1.2 Sensitive receptors

There are a number of receptors which are considered to be sensitive to potential dust and particulate emissions from the Facility. A human sensitive receptor is any location where a person may experience the annoyance effects of airborne dust or dust soiling or may be exposed to PM_{10} over a period of time relevant to the air quality objectives. Sensitive human receptors can include:

- Residential dwellings;
- Schools;
- Hospitals;
- Care homes;

- Childcare facilities;
- Hotels;
- Gardens (where relevant public exposure is likely i.e., excluding extremities of gardens or front gardens); and
- Sensitive commercial premises including vehicle showrooms, food manufacturers and electronics manufacturers.

In addition to the above, amenity impacts of dust and other emissions must be considered. These impacts could arise on neighbouring 'clean' industry and manufacturing processes, such as paint shops, offices, food manufacturing and food outlets, agricultural land, areas of car parking, etc. Cumulative impacts should also be considered in relation to neighbouring generators, busy roads, power stations, etc. Furthermore, environmental or ecological receptors sensitive to dust and particulates must be considered – such as environmental habitats sites or protected species sites.

In accordance with the Environment Agency's (EA) DMP guidance, receptors up to 1 km from the facility should be included, as these are considered to be the most likely to be impacted by dust and other emissions (such as those resulting from generators, mobile plant and road vehicles) from the site. The sensitive receptors have been chosen as the closest dust and other emissions sensitive properties to the Installation Boundary.

A plan identifying the location of sensitive receptors in relation to the installation boundary is provided within Appendix A. The sensitive receptors are also listed in Table 2.

Table 2: Sensitive receptors within 1 km of the Facility

ID	Receptor Name	Sensitivity	Location		Approximate distance to Tilbury IBA Facility Installation boundary (m)
			X	Y	
R1	Hughes & Associates	Medium	563043	176097	30
R2	Forest Product	Medium	563119	176093	30
R3	Tilbury Port West	Medium	562904	175638	160
R4	London Tilbury Seafarers	Medium	563195	176256	200
R5	Tilbury Port Central	Medium	563358	175946	180
R6	Tilbury Port South	Medium	563397	175369	360
R7	Dock Road 1	High	563493	176499	580
R8	Dock Road 2	High	563643	176340	610
R9	Dock Road 3	High	563839	176216	730
R10	Dock Road 4	High	563965	176101	800
R11	Landsdowne Primary Academy	High	563828	176325	760
R12	St Mary's Primary School	High	563936	176270	840

Source: https://www.google.com/maps

In addition, Table 3 provides the sources of dust and other emissions that could cumulatively impact, with the Facility, the sensitive receptors.

Table 3: Sources of Dust and/or other Emissions

Company	Address	Type of Business	Distance from Tilbury IBA Facility Installation boundary (m)
Port of Tilbury	Tilbury Docks Tilbury RM18 7LA	Port	0.2
	A1089	Major trunk road	1.0

Source: https://www.google.com/maps

2 Operations at Tilbury IBA Facility

2.1 Deliveries to Tilbury IBA facility

IBA generated at Cory's Riverside Energy Park or Riverside Resource Recovery Facility's passes through an ash quench to cool and wet the IBA prior to it being transferred from the incineration plants.

IBA is transported in ISO containers, via barge, from the waste incineration plants to the Port of Tilbury. The ISO containers are unloaded from the barge onto the wharf for storage at Berth 22.

The ISO containers are subsequently transferred from Berth 22 to the Facility by site vehicle.

As the IBA is wet when it is transferred into the containers, it is not a 'dry' material and will not give rise to dust emissions when unloaded from the ISO containers.

2.2 Overview of waste processing, dust and other emission controls

Fugitive emissions of dust have the potential to occur during transport, unloading, loading, processing and storage operations at the Facility. A number of control measures will be in place to reduce fugitive emissions of dust from the site and are set out below.

2.2.1 Wastes to be processed at Tilbury IBA Facility

In accordance with the EP, the EWC codes which will be processed at the Facility are provided in Table 4.

Table 4: Typical waste types processed at the Tilbury IBA Facility

European Waste Code (EWC)	Description
19	**Wastes from waste management facilities, off-site wastewater treatment plans and the preparation of water intended for human consumption and water for industrial use**
19 01	*Wastes from incineration or pyrolysis of waste*
19 01 12	Bottom ash and slag other than those mentioned in 19 10 11
19 12	*Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified*
19 12 12	Residual IBA received back for recovery

2.2.2 IBA deliveries to the Facility

All materials transferred into and out of the Facility by road within enclosed or covered vehicles to reduce dust emissions. As part of the facility's pre-acceptance procedures, Cory is required to dampen down the material prior to loading for dispatch the Facility.

All IBA delivered to the Facility is subject to the requirements of the Blue Phoenix's existing waste pre-acceptance and waste acceptance procedures. The arrangements for the pre-acceptance and acceptance of waste will not change as a result of the proposed extension to the Facility.

A record shall be kept of the types and quantities of waste delivered and removed from the Facility. These records are kept in the Site Office and available for inspection by Environment Agency officers. These records are kept secure from loss, damage or deterioration. Records are kept for a minimum of 6 years. The records of waste accepted and removed from site will include the following information:

- Time and date received or removed from site.
- Vehicle registration and waste carrier details.
- Producer's name and address, SIC Code, and Waste Hierarchy declaration.
- Description of the waste by EWC category and quantity in tonnes.
- Details of the onward site for wastes removed from site.
- A speed limit of 11mph is enforced on site.

Site vehicles will be regularly cleaned during dry months. This can also reduce dust emissions in dry conditions.

2.2.3 IBA Reception

All materials are transferred into and out of the site by road within enclosed or covered vehicles to reduce dust emissions. As part of the facility's pre-acceptance procedures Cory is required to dampen down the IBA prior to transfer to the Facility.

If the IBA is tipped and found to be unusually dusty (IBA is delivered with a moisture content that typically prevents dust from being generated), they will be dampened down to prevent dust being generated. If these measures are not sufficient, then the tipping and processing of the material will be temporarily halted until conditions improve.

Once tipped, the IBA will be stored in stockpiles for a period of up to four weeks prior to processing to:

1. reduce the water content of the IBA, as the material is allowed to dewater; and
2. allow the material time to undergo several naturally occurring chemical reactions. These reactions, including carbonisation and hydration, reducing its pH and thereby improves the material prior to processing.

The storage area for IBA delivered to the Facility will have a storage capacity of approximately 240,000 tonnes.

2.2.4 IBA Processing

IBA will be moved by a loading shovel from the IBA storage area to a hopper at the IBA Processing Building.

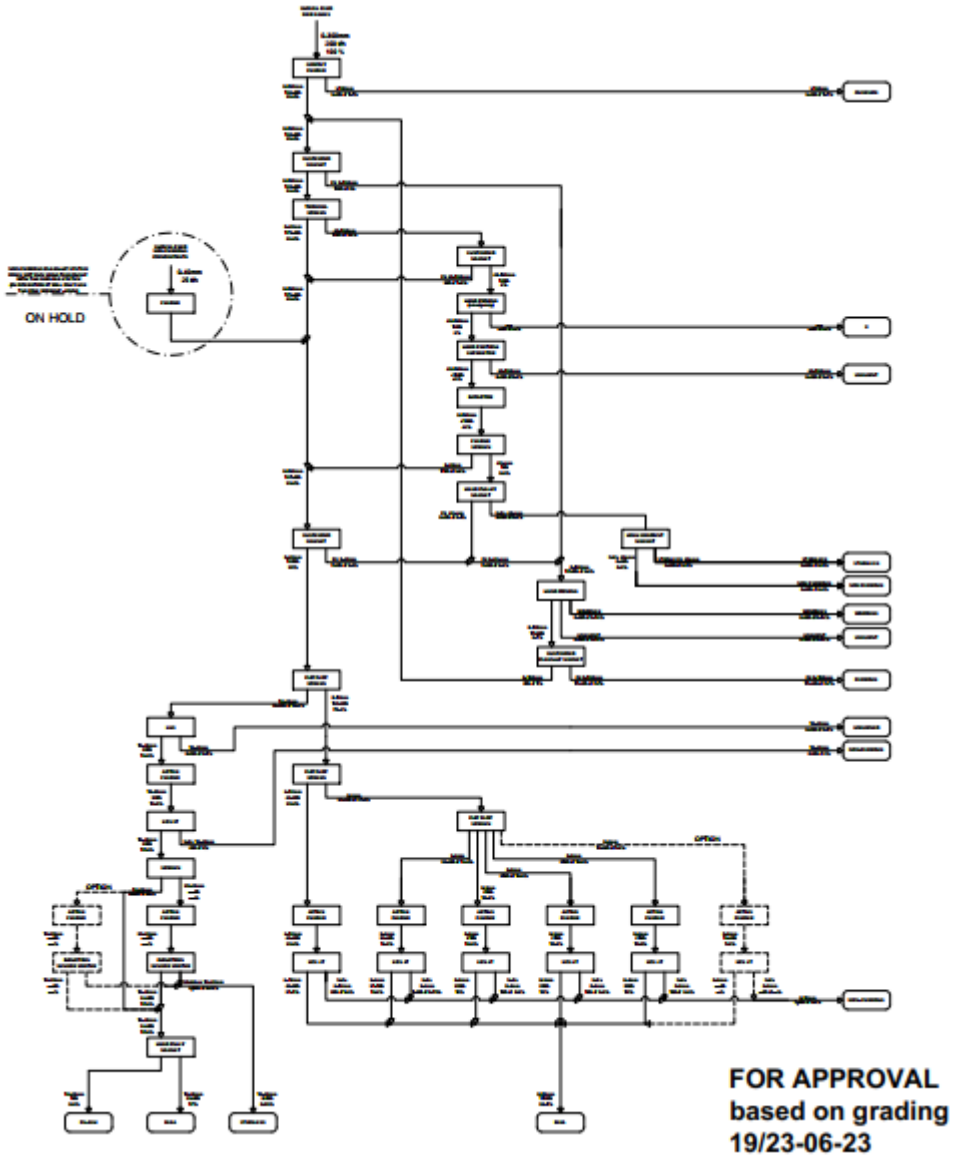
Within the processing building, the IBA is processed through vibrating screens and magnetic metal separation which removes the ferrous and non-ferrous metals and produces different sized fractions of Incinerator Bottom Ash Aggregate (IBAA).

The process screens, separates and sizes the IBA and extracts the non-ferrous and ferrous metals. The processed material is split into various product sizes, before being stored in stockpiles as IBAA in dedicated external stockpiles for onward delivery. Whilst the IBAA is being stored it will continue to be weathered by the air and rainwater.

The quantities of IBAA being stored on site will be influenced by the market demand for IBAA material. Typically, the lowest demand occurs during the winter months and the highest during the summer months.

An indicative process schematic for IBA processing is provided in Figure 1.

Figure 1: Indicative IBA processing schematic



The estimated storage capacities for the output materials recovered within the Facility is provided in Table 5.

Table 5: Storage capacities for materials recovered

Material Recovered	Estimated storage capacity (tonnes)
Fines aggregate	100,000
Coarse aggregate	40,000
Ferrous metals	2000
Non-ferrous metals	500

The Installation Boundary with an indicative site layout the Facility has been provided within Appendix A. The exact layout will be subject to detailed design and appointment of a technology provider. The DMP will be updated following completion of any detailed design, with site layout

drawings showing the locations of any generators, combustion equipment, mobile plant and dust suppression equipment.

2.2.5 IBA and IBAA Storage

IBA and IBAA will be stored in stockpiles prior to processing (IBA) or prior to transfer off-site as a product (IBAA). The external storage of the IBA and IBAA will have potential to generate dusts as it dries.

Rain guns/water cannons will be strategically located around the IBA and IBAA storage areas to provide dust suppression. The rain guns/water cannons are a comprehensive system of spray nozzles covering all loading, unloading and storage areas. Each rain gun/water cannon will spray water to a radius of 30m. A site layout plan showing the indicative locations of the rain guns/water cannons is provided in Appendix A. The location of the rain guns will ensure an arc coverage of all IBA and IBAA storage areas/stockpiles.

2.3 Mobile plant and equipment

Operators of mobile plant and vehicles at the site will be provided with suitable training (as documented in the site management systems) for the equipment they are operating and will ensure that vehicle engines are switched off when stationary for long periods of time – i.e., there will be no idling vehicles. All mobile plant and equipment will comply with the relevant standards. Where practicable, diesel or petrol-powered generators will be avoided, with mains electricity or battery powered equipment preferred. Cutting, grinding or sawing equipment will only be used when fitted with, or in conjunction with, suitable dust suppression techniques such as water sprays or local extraction, e.g., suitable local exhaust ventilation systems. Regular preventative maintenance of mobile plant will be undertaken in accordance with the manufacturer's recommendations. The speed of vehicles on-site will also be limited to minimise the generation of fugitive dust emissions.

Mobile plant and equipment will be regularly inspected to ensure that any leaks, trailing or tracking of residues from vehicles are quickly identified and suitably addressed. During prolonged periods of dry weather, the site roads will be damped down / washed if the potential for fugitive dust impacts resulting from traffic movements are identified by the sites operational staff.

Following completion of detailed design, a register of mobile plant and equipment used at the Facility will be incorporated into this DMP, including details of emissions ratings/emissions controls (which are particularly relevant for mobile plant with internal combustion engines). When selecting mobile plant and equipment to be used at the site, consideration will be given to environmental impacts (such as selection of plant to the lowest emissions standards, use of low-sulphur fuel oil, etc).

3 Dust and particulate (PM_{10}) management

3.1 Responsibility for implementation of this plan

This DMP is a working document. Initially, it is intended to demonstrate that the control of dust and particulate emissions has been and will be considered as part of the design of the Facility. The DMP will be refined once detailed design of the Facility has been completed.

Blue Phoenix will undertake periodic reviews of the DMP. It is expected that reviews will be undertaken on an annual basis, and whenever new equipment or mitigation measures are implemented at the site in accordance with the requirements of the Environmental Management System (EMS) for the existing facility. The existing EMS identifies the relevant roles and responsibilities for the implementation of the DMP.

The Competence Management System (CMS) assesses competence and provides training for relevant staff. Skills, competencies and training requirements for staff (such as understanding and implementation of the DMP) will be documented and recorded as part of the CMS. The CMS includes procedures to ensure all training (including refresher training) is recorded and all associated records are retained.

3.2 Sources and Control of fugitive dust and other emissions

In summary, the following activities have been identified as potential sources of dust and particulate emissions during the operation of the Facility:

- On-loading and off-loading incoming materials from barges to site vehicles.
  - Potential for particulates from exhausts and from barges importing IBA to the Facility.
- Site vehicles transporting IBA from the barge to the Facility.
  - Such as mud on wheels, tracking of dust on to or off the site, and particulates from the exhausts.
- Road vehicles importing IBA to the Facility and road vehicles exporting IBAA product from the Facility.
  - Such as mud on wheels, tracking of dust on to or off the site, debris falling off insufficiently covered HGVs.
- Processing of IBA (including crushing, size separation, etc).
  - Dust and particulates have the potential to arise from the operation of trommels and size screeners, crushers, ash dropping from conveyors etc.
- Transfer of IBA from the process building to the external storage areas.
  - IBA will be moved from the process building to external storage areas using bucket loaders.
- Storage of IBA within the external storage areas.
  - Potential for wind whipping of IBA stored in bays.
- Loading of IBAA onto vehicles for transfer off-site.
  - Using mobile plant such as bucket loaders.
- Emissions of combustion products from the operation of mobile plant (such as bucket loaders).
  - This may include particulates from exhausts.
- Maintenance and cleaning operations.
  - Washdown and sweeping activities.

- General movement of vehicles around the site.
  - Potential for particulates from exhausts, and also vehicles and plant moving around the site 'kicking up' dust.

There is no guidance available for the assessment of dust emissions from operational sites which are not mineral workings. Therefore, for each of these sources, a breakdown of the source-pathway-receptor model is presented within Table 6, with the final column in the table setting out details of where relationship can be interrupted. Table 7 provides a more detailed description and consideration of the mitigation/control measures that will be in place at the site to prevent, reduce and/or mitigate against dust and particulate emissions. Should control measures fail and pose a significant risk of dust and particulate emissions, operations at the site will be ceased and the EA will be informed. These tables will be reviewed by management as part of periodic reviews of the DMP. This will ensure that sources, pathways and receptors of dust and particulate emissions are regularly examined, to ensure that there are no 'gaps' in abating the sources of dust and particulate emissions at the site, and as part of Blue Phoenix's aim for continual improvement of management systems.

Table 6: Source-Pathway-Receptor routes

Source	Pathway	Receptor	Type of impact	Where relationship can be interrupted
Mud/dust tracking from vehicles/mobile plant.	Falling/dropping from vehicles when they leave site/as wheels dry out.	The receptors on Dock Road and near Berth 22 (such as R8 and R9).	Visual soiling, also consequent resuspension as airborne particulates.	Operation of road sweepers. Good housekeeping and regular washdown. Damping down of roads in dry periods.
Debris/dust falling from vehicles/mobile plant.	Atmospheric dispersion.	All human receptors. Receptors closest to the Facility (R1 & R2) most likely to be affected.	Visual soiling, also consequent resuspension as airborne particulates.	Ensure HGVs are sufficiently covered before leaving site (e.g. visual checks).
'Kicking up' of dust from movement of vehicles/mobile plant.	Atmospheric dispersion.	All human receptors. Receptors closest to the Facility (R1 & R2) most likely to be affected.	Visual soiling and airborne particulates.	Good housekeeping and regular washdown. Damping down of roads in dry periods.
Transfer of IBA using conveyors (e.g. ERF to reception bunker, or reception bunker to process building).	Escape from buildings and subsequent atmospheric dispersion.	All human receptors. Receptors closest to the Facility (R1 & R2) most likely to be affected.	Visual soiling and airborne particulates.	Keep conveyors enclosed, ensure integrity of conveyors.
IBA dropping from heights (e.g. conveyor into reception bunker, conveyors in process building).	Escape from buildings and subsequent atmospheric dispersion.	All human receptors. Receptors closest to the Facility (R1 & R2) most likely to be affected.	Visual soiling and airborne particulates.	Minimise source strength by means of low drop heights, Maintain IBA wet from quenching.
Processing of IBA (crushing, size separation).	Escape from buildings and subsequent atmospheric dispersion.	All human receptors. Receptors closest to the Facility (R1 & R2) most likely to be affected.	Visual soiling and airborne particulates.	Maximise containment, open doors only for entry of vehicles. Direct doors away from most sensitive receptors. Minimise source strength by misting/water/barrier

Source	Pathway	Receptor	Type of impact	Where relationship can be interrupted
				techniques on certain processing equipment. Good housekeeping and regular washdown.
Tipping and sorting of IBA in the open (e.g. transfer of IBA from process building to external storage areas, loading of IBA from external storage areas into vehicles for transfer off-site).	Atmospheric dispersion.	All human receptors. Receptors closest to the Facility (R1 & R2) most likely to be affected.	Visual soiling and airborne particulates.	Minimise manual handling where possible, limit drop heights, maintain IBA wet from quenching, good housekeeping and regular washdowns.
Storage of IBA in the open.	Atmospheric dispersion.	All human receptors. Receptors closest to the Facility (R1 & R2) most likely to be affected.	Visual soiling and airborne particulates.	Profiling and shielding of piles from wind whipping (e.g. using walls/shields), maintain IBA wet from quenching, positioning sources away from receptors.
Vehicle/mobile plant exhaust emissions.	Atmospheric dispersion.	All human receptors. Receptors closest to the Facility (R1 & R2) most likely to be affected.	Airborne particulates.	Regulatory controls and best-practice measures to minimise source strength (e.g. compliance with relevant emissions standards.
Maintenance and cleaning operations (washdown, sweeping).	Atmospheric dispersion, dispersion via washdown water.	All human receptors. Receptors closest to the Facility (R1 & R2) most likely to be affected.	Visual soiling, airborne particulates, pollutants in water.	Training in using road sweepers, damping down of roads in periods of dry weather, containment of process waters resulting from washdown.

Table 7: Measures that will be used on site to control dust/particulates (PM_{10}) and other emissions

Abatement Measure	Description / Effect	Overall consideration and implementation	Trigger for implementation
Preventative measures			
Enclosure within a building	This will create a solid barrier between the source of dust/particulates and receptors. This is considered to be the most effective method of control (i.e. control at source).	Will be implemented for process building and waste reception building. Entrances and exits will be well managed. Will not be implemented for external storage of IBA, as this would affect the weathering process (which typically takes place during stockpiling of IBA in open air conditions).	N/A – this is a continuous measure.
Site/process layout in relation to receptors	Locating certain dusty activities at a greater distance and downwind from receptors, to reduce receptor exposure.	The technology provider will implement an efficient layout as part of good practice. As can be seen from the installation boundary drawing provided in Appendix A, the external storage bays will be located to the south of the Facility. The nearest sensitive receptor (ecological receptor E1) is located predominantly to the north of the site. Therefore, the external storage area is located at the furthest point from the nearest sensitive receptor, with the main storage building in-between also providing some level of shielding.	N/A – this is a continuous measure.
Implementing a speed limit for vehicles at the site, a 'no idling' policy, and	Reducing vehicle movements and idling should reduce emissions from vehicles.	This will be implemented at the site as part of good practice. The speed limits	N/A – this is a continuous measure.

Abatement Measure	Description / Effect	Overall consideration and implementation	Trigger for implementation
minimisation of vehicle movements at the site.	Enforcement of a speed limit may reduce re-suspension of particulates by vehicle wheels.	will be clearly established and signposted around the site. The no idling policy will be clearly identified in the site management system. The site layout (including internal roads) will be designed to minimise unnecessary vehicle movements.	
Minimising drop heights	Minimising the height at which IBA/IBAA is handled should reduce the distance over which debris, dust and particulates could be blown and dispersed by winds.	This will be implemented at the Facility as part of good practice. For example, at the exit of conveyors, from process equipment, and from loading shovels.	N/A – this is a continuous measure.
Use of enclosed conveyors	This prevents the escape of dust and litter during the transport of waste to the site and within the site.	The conveyor transporting IBAA from IBA processing building to the IBAA storage area will be enclosed.	N/A – this is a continuous measure.
Good housekeeping	A consistent, regular housekeeping regime supported by management will ensure the site is regularly checked and issues remedied to prevent and remove dust and particulate build up.	Good housekeeping will be employed at the site, with a regime set out within the documented management systems. Regular washdown of process and storage areas will be undertaken, along with visual inspections by staff.	Housekeeping will be undertaken in accordance with a documented regime, with additional washdown undertaken following any visual inspections which have identified a build up of dust/litter.
Sheeting/covering of vehicles	This prevents the escape of debris, dust and particulates from vehicles as they travel to/from the site.	This will be a requirement for vehicles entering/exiting the site and will be clearly identified in the site management systems. Visual inspections of vehicles before they leave the site will ensure that sheeting is sufficiently fitted, reducing the	This will be a continuous requirement for vehicles entering/exiting the site. This may not apply to vehicles moving around the site (e.g. if IBA needs to be loaded onto a vehicle from two separate stockpiles).

Abatement Measure	Description / Effect	Overall consideration and implementation	Trigger for implementation
		potential for fugitive emissions during travel.	
Ceasing operation during high winds	The mobilisation of dust and particulates is likely to be greater during periods of strong winds. Therefore, ceasing operations at these times may reduce peak pollution events.	It is anticipated that during periods of exceptionally high winds (such as storms), some operations at the site will be ceased (e.g. the external movement and loading of ash). The site general manager will be responsible for making this decision and will monitor weather conditions at the site.	Implemented during periods of exceptionally high winds (such as storms).
Surfacing the site with easy-to-clean, impermeable concrete surfaces	This should reduce the amount of dust and particulate material generated at ground level by vehicles and site activities and ensure washdown and housekeeping activities are effective.	It can be confirmed that the site will be surfaced in impermeable concrete hardstanding. Maintenance and cleaning procedures / regimes will be defined in the site management systems.	N/A – this is a continuous measure.
Minimisation of waste storage heights and volumes on site	Minimising the height at which waste is stored and 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.	Maximum heights for stockpiles will be clearly established and not exceeded. Walls/shields around stockpiles will reduce the potential for wind-whipping and atmospheric dispersion. IBA will require storage for extended periods to allow weathering and stabilisation to take place – therefore, the storage volumes are limited by this (i.e. difficult to reduce quantity stored).	N/A – this is a continuous measure.

Abatement Measure	Description / Effect	Overall consideration and implementation	Trigger for implementation
Installation of walls surrounding IBA and IBAA storage areas	Walls can disrupt wind flow across the site and reduce the generation of dust.	The external storage area would comprise a large concrete storage yard, surrounded by a concrete wall. Site walls/barriers/fencing will be kept clean using wet methods.	N/A – this is a continuous measure.
Use of high integrity equipment	Selection of high integrity, modern and advanced equipment can reduce the generation of particulates and dust.	High integrity equipment will be installed at the Facility, with additional mitigation such as dust suppression sprays being strategically installed around the perimeter of the IBA and IBAA stockpile areas. (Refer to Appendix A.) Regulatory controls and best-practice measures will be implemented for vehicles/mobile plant to confirm they comply with relevant emissions standards.	High integrity equipment will be selected by the technology provider when undertaking the detailed design of the Facility. Should it be identified during the lifetime of the Facility that equipment is no longer 'fit-for-purpose' or is otherwise resulting in significant fugitive emissions, it will be repaired or replaced as appropriate.
Prohibit burning of waste materials at the Facility	Prohibiting the combustion of waste materials at the site to avoid combustion products such as particulates.	The burning of waste materials is prohibited at the Facility.	N/A – this is a continuous measure.

Abatement Measure	Description / Effect	Overall consideration and implementation	Trigger for implementation
Regular visual inspections	This will allow for timely mitigation / remediation once build-ups of dust and litter have been identified.	Regular visual inspections will be undertaken as part of documented procedures at the site. This will also extend to periodic inspections of site access roads and haul routes within the vicinity of the site for trackout/spillage of materials from vehicles. Inspections and subsequent actions will be recorded in a log book, with mitigation measures implemented if necessary. Visual checks will also be undertaken on HGVs leaving the site.	Inspections will be undertaken on a periodic basis in accordance with documented procedures.
Minimising the amount of movement of ash once outside	Minimising the amount of ash movement can reduce the quantities of dust and particulates generated at the site.	Handling during the external storage of processed IBA will be minimised where possible, and disturbance to stockpiles will also be minimised.	N/A – this is a continuous measure.

Abatement Measure	Description / Effect	Overall consideration and implementation	Trigger for implementation
Regular preventative maintenance	Regular preventative maintenance can help to maintain the integrity of plant and equipment, and as such reduce the generation of dust and particulates.	Regular preventative maintenance will be undertaken for all plant and equipment (including conveyors, processing equipment, mobile plant).	Preventative maintenance will be undertaken on a periodic basis in accordance with documented procedures.
Remedial measures			
On-site sweeping	Effective in managing larger debris e.g. on roads, but may re-suspend smaller particles (however this can be mitigated against using spray bars/filters etc on the sweepers).	Roadsweepers will be employed at the site to remove large debris and dust from roads. There will be training procedures to ensure that staff are sufficiently trained to operate this equipment.	The sweepers will be implemented when it has been identified (from visual inspections) that there is a build up of dust/debris/litter.
Water suppression	Damping down of site areas (using hoses) can reduce dust and particulate re-suspension and may assist in the cleaning of the site.	During periods of dry weather, site roads will be damped down to reduce the potential for fugitive dust emissions. Triggers will be installed on all hoses to reduce overall water consumption. It should be noted that the ash will be maintained wet during storage from quenching through the rain guns.	Implemented during extended periods of dry weather.

Abatement Measure	Description / Effect	Overall consideration and implementation	Trigger for implementation
Spill kits/cleaning equipment	The provision of easily accessible spill kits and cleaning equipment can ensure that spills are readily mitigated, hence reducing the quantity of time available for dust/particulates to be further dispersed off-site.	Equipment will be readily available on site to clean any spillages (including wet cleaning methods) as soon as reasonably practicable after the event. The EMS will include procedures to follow in the event of a significant spillage.	Spill kits/cleaning equipment will be available at the Facility at all times. The equipment will be used in the event of a spill.

3.3 Other considerations

3.3.1 Water usage and availability

Blue Phoenix will ensure an adequate water supply is provided at the Facility for effective dust/particulate matter mitigation. Water for dust suppression will be supplied from the following sources:

1. Attenuation lagoons;
2. Water storage tanks; and
3. Mains supply.

The priority supply of water for dust suppression will be as per the above, with mains water only being utilised when the water within the attenuation lagoons and the water storage tanks have been fully utilised.

3.3.2 Contingency measures

In the event that dust suppression systems are not functioning properly, mobile bowsers will be brought to the Facility as a supply of water for dust suppression.

3.4 Enclosure of waste processing and storage areas

As per the existing operations, and in accordance with the Waste Treatment Industries BREF, IBA processing will be undertaken within a fully enclosed building, which will reduce the potential for fugitive emissions of dust and particulates being blown off-site.

Furthermore, as per the existing operations, IBA and IBAA will be stored in external stockpiles. Blue Phoenix does not consider that it is appropriate to enclose the stockpiles of IBA and IBAA as this would affect the maturation process which requires open air conditions.

Taking the above into consideration, the arrangements for the storage and processing of IBA at the site are considered to represent Best Available Techniques.

4 Monitoring

4.1 Monitoring location and frequency

Throughout the day, the weather and condition of the Facility is visually assessed to identify the rate of dust suppression required. The rate of dust suppression is adjusted to suit the conditions observed, ensuring the Site water coverage is sufficient to prevent fugitive emissions to air. In extreme circumstances, if there is any evidence of significant amounts of dust, all production activities will stop until the affected area has been doused with sufficient water preventing emissions to air.

In addition to dust prevention monitoring the Installation Boundary will be checked daily to ensure material is not causing a nuisance.

Section 5 outlines the procedures to be implemented when a complaint is received.

4.2 Recording frequency

The assessments made daily will be recorded on the company production sheets. Any issues found will be reported to the Management team to review on a quarterly basis.

The report submitted to the Management team will contain the following information:

- Water level checks within the attenuation lagoons and the water storage tanks;
- Installation Boundary checks;
- Build-up of liquid (storage areas); and
- Dust control and mitigation measures (rain guns) are in good working order.

5 Reporting and complaints response

The measures outlined in this DMP are aimed at preventing dust and particulate emissions occurring to the extent where complaints made by sensitive receptors regarding off-site emissions of dust and particulates. Nevertheless, Blue Phoenix considers that having an established complaints procedure is an essential part of implementing a successful DMP.

As such, the EMS will include procedures for managing external complaints. This will include for complaints in relation to dust and particulate emissions from the site. The procedures will include those for the recording of the initial complaint, the approach to investigation, and proposed response time. This will align with the requirements of the EP. It is expected that management at the Facility will handle any complaints that are received. Management will be responsible for logging any complaints received in the Facility's incident reporting system, with the EA informed as soon as possible following receipt of a complaint. They will also be responsible in submitting a short report to the EA detailing the complaint and whether any remedial actions have been implemented.

Public comments, complaints and concerns could be received by email, telephone, or letter, either directly to the site or via the relevant authorities (such as the Local Planning Authority or the EA). Blue Phoenix will aim to respond to complaints within 2 working days of receipt, with a maximum time of 7 days implemented to respond to a complaint.

5.1 Engagement with the community

Blue Phoenix is committed to maintaining a comprehensive communications programme to ensure that local stakeholders are kept informed on the development of the Facility. A communications procedure has been implemented as part of the EMS for the existing facility. This will be extended to include for the expansion of the Facility, and provides details of how Blue Phoenix will interact with its external stakeholders.

A board displaying the relevant contact information will also be displayed at the entrance to the Facility. This will include for an emergency 24-hour contact number so that complaints/enquiries etc can be registered at all times.

5.2 Dust complaint investigation

The following actions will be undertaken upon receipt of an external dust complaint concerning the Facility:

- Any complaints received will be logged using the company's Environmental Incident Form, with the EA informed as soon as possible following receipt of a complaint.
- The site management will be provided with details of the complaint as soon as possible, including the location, nature, time and date of the complaint.
- Should a complaint be received, a visual inspection will be conducted as soon as is practicable by a suitably trained member of staff in the area of which the complaint is regarding, to assess the presence and intensity of dust. Where possible, the likely cause of the dust will be identified and recorded.
- For all complaints, reference will be made to the activities at the time of the complaint, and further onsite investigations will be conducted to determine whether any abnormal operations were/are occurring. Key potential causes of abnormal dust emissions will be investigated. These may include, but not be limited to, the following:
  - Is IBA arriving / leaving the site in appropriately covered vehicles?

  - Are there any unusual weather conditions (such as strong winds and very dry conditions)?
  - Are operations (waste processing and movement within the site) in 'normal operation'? Or is any equipment/mobile plant identified to be faulty or otherwise not working properly?
  - Are there any unusual activities taking place off-site?
- If the investigations identify that the source of dust is an off-site source, feedback will be given to the complainant, and a complaint logged with the off-site source of the dust emissions.
- Once any on-site cause of the dust complaint has been established, appropriate actions will be immediately implemented, and a strategy devised to prevent reoccurrence.
- Feedback will be given to all complainants on the findings of any investigations if they are known, and a summary will be provided of any remedial measures taken to rectify dust problems and ensure that the problem has been suitably resolved. The complainant will be asked if the perceived problem is still occurring to measure any improvement achieved.
- Records of all complaints, subsequent investigations, and remedial actions will be retained on site for a minimum of five years. The site management will ensure that records are readily retrievable and maintained as fit for retention. As applicable, records will be stored in accordance with data protection legislation.

5.3 Action plans

In the event that a dust complaint is proven to be justified and attributable to operations undertaken at the Facility, or a 'non-conformance' otherwise occurs, a defined action plan will be implemented. The following potential dust 'non-conformances' have been identified:

- abnormal dust and particulate emissions occur;
- significant dust and/or particulate emissions occur/are detected onsite, that are believed to pose a risk of offsite impacts; and/or
- significant dust and/or postulates are detected off-site during visual inspections, that are attributable to operations at the Facility.

In the event that any of the above occurs, the following actions will be taken:

- If not previously undertaken, a walk-around / visual inspection of the entire site and a review of the activities undertaken at the Facility will be conducted in order to identify the likely cause(s) of the dust/particulate emissions.
- Upon identification of the likely source(s), appropriate corrective and preventative measures will be identified and implemented, depending on the outcome of the investigations. The measures will consider, but not be limited to the following:
  - Suspension of receipt of IBA in the relevant waste storage/processing areas and the closure of all doors to process buildings.
  - Ceasing of IBA processing operations, including movement of IBA in external areas.
  - Implementation of additional dust suppression measures (such as bringing a water bowser to the site).

Details of any 'non-conformances' including the nature of the incident, results of investigations, action taken and any required amendments to the DMP will be made available to the EA on request.

It is expected that management at the Facility will handle any complaints that are received. Management will be responsible for logging any complaints received in the site's incident reporting system, with the EA informed as soon as possible following receipt of a complaint. They will also be

responsible in submitting a short report to the EA detailing the complaint and whether any remedial actions have been implemented.

6 Summary

This DMP has been prepared to set out operational procedures to control and mitigate dust and particulate emissions from the Facility. It will be refined and updated following detailed design of the Facility, and at regular intervals (expected to be annually) as part of periodic reviews of the documented management systems at the site. Reviews will serve to confirm the identification of any new sensitive receptors, sources of dust, monitoring equipment or changes to relevant procedures (such as complaints handling and reporting).

With the implementation of the control measures that have been identified, there is considered to be a low risk of residual dust and particulate impacts resulting from the operation of the Facility.

Appendices

A Site plans

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