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Consulting Engineers Limited

Tilbury IBA Facility

Blue Phoenix Limited

Environmental Risk Assessment

ENGINEERING CONSULTING

Document approval

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1 Introduction

Blue Phoenix Limited (Blue Phoenix) operates an IBA processing facility (the Facility), at the Port of Tilbury, Essex, herein referred to as the Facility. An Environmental Permit (EP) for the operation of the Tilbury IBA Facility was originally granted by the Environment Agency (EA) on 25 June 2012. Since the EP was granted, there have been four variations granted by the EA.

Blue Phoenix is applying for a variation to the EP to increase the capacity of the Facility from 180,000 tonnes per annum to 400,000 tonnes per annum of waste.

The aim of this report is to assess the environmental risks from the activities associated with the operation of the Facility.

Within the permit application, Blue Phoenix is required to demonstrate that the necessary measures are in place to protect the environment and ensure that the Facility, throughout its life, will not pose an unacceptable risk to the environment.

The aim of this document is to:

a. identify potential risks that the activity may present to the environment;
b. screen out those that are insignificant and don't require detailed assessment;
c. identify potentially significant risks, where appropriate;
d. choose the right control measures, where appropriate; and
e. report the findings of the assessment.

This document has been developed to consider the requirements of Environment Agency Guidance Notes H1 Annexes A, C, H and F. It is acknowledged that these guidance documents have been withdrawn; however, it is understood that the requirements of the guidance are still applicable.

1.1 Risk Assessment Process

This assessment has been developed in accordance with the Environment Agency Guidance Note H1. This guidance promotes four key steps:

1. identify risks from the activity;
2. assess the risks and check that they are acceptable;
3. justify appropriate measures to control the risks; and
4. present the assessment.

1.2 Step 1 – Identify Risks

The following report will identify the activities that present different types of risk to the environment associated with the operation of the Installation, including:

a. noise;
b. fugitive emissions; and
c. accidents.

Impacts of odour has not been considered within this assessment, as it is understood that IBA is not inherently odorous and the operation of the Facility will not result in off-site odour impacts.

1.3 Step 2 – Assess the Risk

The report will include an assessment of risks associated with the operation of the Installation, and will identify the:

a. hazard;
b. receptor; and
c. pathway.

1.4 Step 3 – Justify Appropriate Measures

This report will demonstrate that the risks associated with the operation of the Installation have been considered, and identify the control measures which will be in place to demonstrate that the risks are being appropriately managed.

1.5 Step 4 – Present the Assessment

The assessment will conclude by presenting the following:

a. possibility of exposure;
b. consequence; and
c. the overall risk.

The report will present the overall risk applying the Environment Agency's H1 criteria, defined as:

a. insignificant;
b. not significant; and
c. significant.

2 Noise and Vibration Risk Assessment

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Vehicle movement for the transfer of IBA from to the Facility	Local environment and sensitive receptors.	Sound and vibration propagation through air and the ground.	Vehicle movement will be limited during night time operations.	Minimal.	Nuisance.	Low noise impact. Refer to the noise assessment provided in Appendix C of the Application Pack.
Outside the process building - noise from mobile plant and road going vehicles.	Local environment and sensitive receptors.	Sound and vibration propagation through air and the ground.	Vehicle movement will be limited during night time operations.	Minimal.	Nuisance.	Low noise impact. Refer to the noise assessment provided in Appendix C of the Application Pack.
Noise from IBA recycling site items such as screening, conveyors and noise radiation from the building envelope itself etc.	Local environment and sensitive receptors.	Sound propagation through air and the ground.	Processing plant will be installed inside the IBA processing building. There will be limited vehicle movements in/out at nighttime. Regular maintenance of plant items.	Minimal.	Nuisance.	Low noise impact. Refer to the noise assessment provided in Appendix C of the Application Pack.

3 Fugitive Emissions Risk Assessment

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Dust from IBA deliveries being blown off-site.	Immediate area – air, land.	Air, direct contact.	The IBA will be transferred to the Facility in enclosed containers, minimising the risk of fugitive emissions. Visual checks on vehicles arriving to/leaving the site will be undertaken by trained operatives.	Unlikely.	Nuisance, dust on cars and road.	Insignificant.
Tracking of IBA from vehicle wheels on roads within the Port of Tilbury.	Immediate area – air, land.	Air, direct contact.	Road sweepers and/or regular washdown will be implemented on roads where dust build-up has been identified, as part of good housekeeping procedures.	Not likely.	Nuisance, dust on cars and road.	Not significant.
Transfer of processed IBA to IBAA storage areas.	Immediate area – air, land, water.	Air, direct contact, surface runoff.	Conveyors for the transfer of IBA will be enclosed, with their integrity regularly inspected as part of documented procedures.	Unlikely.	Nuisance, dust on cars and road, contamination of surface water.	Insignificant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Emissions from IBA processing stages (crushing, size separation etc).	Immediate area – air, land, water.	Air, direct contact, surface runoff.	IBA will be maintained wet from quenching to reduce the generation of dust. The main processing building will be enclosed, with doors only opened for access/egress purposes. The site layout will take into account the location of sensitive receptors. Where appropriate, processing equipment will be fitted with dust suppression such as misting/water/barrier techniques. Good housekeeping and regular washdown will be employed. Drop heights (e.g. from conveyors) will be minimised where possible.	Unlikely.	Nuisance, dust on cars and road, contamination of surface water.	Insignificant.

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Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Fugitive emissions during IBAA storage in external areas.	Immediate area – air, land, water.	Air, direct contact, surface runoff.	Profiling and shielding of piles from wind whipping (using walls/shields). IBAA will be maintained wet through the dust suppressions sprays.	Not likely.	Nuisance, dust on cars and road, contamination of surface water.	Not significant.
Fugitive emissions during IBA/IBAA movement in external areas (including loading/unloading of IBAA/IBA onto/from vehicles in external areas).	Immediate area – air, land, water.	Air, direct contact, surface runoff.	The drainage from the external storage yard will be collected in a sealed drainage system and collected within attenuation lagoons for re-use within the Facility. Excess effluents would be discharged to sewer or tankered off-site to a waste management facility. Manual handling will be minimised where possible. IBAA/IBA will be maintained wet from quenching. Good housekeeping and regular washdown of IBA and IBAA	Not likely.	Nuisance, dust on cars and road, contamination of surface water.	Not significant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
			storage areas will be undertaken.			
Spillage during IBA/IBAA movement in external areas (e.g. using bucket loaders).	Immediate area – air, land, water.	Air, direct contact, surface runoff.	The Facility will have a fully contained drainage system for all areas of IBA/IBAA storage. Manual handling will be minimised where possible. Spill kits will be available at easily accessible locations. Mobile plant will be operated by trained operatives.	Not likely.	Nuisance, dust on cars and road, contamination of surface water.	Not significant.
Emissions of combustion products from the operation of mobile plant (such as bucket loaders).	Immediate area – air, land.	Air, direct contact, surface runoff.	Regulatory controls and best-practice measures to minimise source strength – vehicles will comply with relevant emissions standards. A no-idling policy will be in place for mobile plant when not in use.	Not likely.	Nuisance, dust on cars and road, contamination of surface water.	Not significant.

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What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Emissions as a result of maintenance and cleaning operations.	Immediate area – air, land, water.	Air, direct contact, surface runoff.	Operators will be trained in using road sweepers, and site roads will be damped down in periods of dry weather. Process waters resulting from washdown would be contained within the process drainage system.	Not likely.	Nuisance, dust on cars and road, contamination of surface water.	Not significant.

4 Accidents Risk Assessment

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Spillage during unloading/loading of IBA/IBAA.	Immediate area – air, land, water.	Direct contact, wind, surface runoff.	Deliveries of IBA will be supervised by trained staff. The material would be unloaded in the main reception bunker which will be an enclosed building. The Facility will have a full contained drainage system for all areas of IBA/IBAA storage. Management procedures will be in place to deal with spillages, with spill kits available at the site.	Unlikely.	Release of substances to the wider environment, litter, nuisance.	Insignificant.
Exceeding the capacity of storage facilities.	Immediate area – air, land, water.	Direct contact, wind, surface runoff.	Storage will be regularly monitored against maximum capacities through visual inspections.	Unlikely.	Release of substances to the wider environment, litter, nuisance.	Insignificant.

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What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
			Storage will be in areas with links to the process drainage system. Spill kits will be readily available.			
Integrity failure of storage areas.	Immediate area – air, land, water.	Direct contact, wind, surface runoff.	All IBA/IBAA storage areas will be constructed of concrete hardstanding. Integrity checks of the hardstanding will be undertaken during construction. Regular preventative maintenance and visual inspections will be undertaken of all IBA/IBAA storage areas throughout the lifetime of the Facility.	Unlikely.	Release of substances to the wider environment, litter, nuisance.	Insignificant.
Leaks in the drainage system	Immediate area – water, land.	Leaching/infiltration.	The attenuation lagoon will be designed in accordance with the relevant standards and will be impermeable to	Unlikely.	Pollution of ground/groundwater	Insignificant.

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			prevent the release of liquid pollutants into the ground/groundwater. Quality assurance checks will be undertaken during construction to test/inspect the integrity of the attenuation lagoon. Structures will be subject to regular inspection and preventative maintenance. In the event of the integrity of the structure being compromised, remedial maintenance will be undertaken in a timely manner and investigations of any potential contamination will be undertaken (such as water testing).			
Failure of IBA processing equipment	Immediate area – air, land, water.	Direct contact, wind, surface runoff.	Integrity checks will be undertaken during the construction phase, and	Unlikely.	Release of substances to the	Insignificant.

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			regular preventative maintenance of equipment would be undertaken throughout its lifetime. Equipment would be operated by trained staff, with visual monitoring of the waste processing stages. Safe shutdown procedures will be in place to prevent continued operation of equipment under abnormal operation. Redundancy of critical equipment or spares on stock.		wider environment, litter, nuisance.	
Blockages in processing equipment	Immediate area – air, land, water.	Direct contact, wind, surface runoff.	Equipment would be operated by trained staff, with visual monitoring of the processing stages. Safe shutdown procedures will be in place to prevent continued operation of equipment under abnormal	Unlikely.	Release of substances to the wider environment, litter, nuisance.	Insignificant.

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			circumstances such as a blockage.			

5 Conclusions

As presented in this report, the Facility is considered to contain appropriate control measures and management systems to ensure that the Facility does not have any significant impacts upon the local environment.

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