FICHTNER

Consulting Engineers Limited

Ferrybridge 1 – Line 3

enfinium Ferrybridge 1 Limited

Environmental Risk Assessment

ENGINEERING CONSULTING

Document approval

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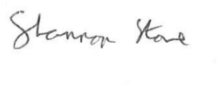
Prepared by:	Shannon Stone		Senior Consultant	16/12/2025
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Contents

1 Introduction

An Environmental Permit (EP) was granted by the Environment Agency (EA) for the operation of Ferrybridge 1 in November 2012. The EP allows for the operation of a two-line waste incineration plant. Since it was granted eight separate variations to the EP have also been granted by the EA. The variations included transferring the EP to the current Operator – enfinium Ferrybridge 1 Limited (herein referred to as enfinium).

Planning consent for the development of Ferrybridge 1 was granted under section 36 consent in accordance with the requirements of the Electricity Act 1989. The section 36 consent allows for the construction of up to three boiler and steam turbines, and restricts the power generation of Ferrybridge 1 to 108MWe.

In accordance with the constraints of the planning consent, enfinium is applying to vary the EP to allow for the construction of an additional waste processing line and flue gas treatment and energy generation systems (herein referred to as Line 3)

The aim of this report is to assess the environmental risks from the activities associated with the operation of Line 3.

Within the permit application, enfinium 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. odour;
b. noise;

c. fugitive emissions; and
d. accidents.

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 Table A1 – Odour Risk Assessment and Management Plan

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 remains? The balance and probability and consequence.**
Odorous emissions may occur during the delivery of waste, reception of waste and the storage and handling of waste prior to processing.	Immediate area. Immediate area and the nearest residential receptor is located approximately 300m to the west of the Tipping Hall.	Air – winds generally blow from a south-westerly direction.	All wastes received will be unloaded inside the enclosed tipping hall. The waste bunker area will be retained at negative pressure. Air from waste bunker area will be combusted within Line1, Line 2 and Line 3. Potentially odorous air extracted from waste handling and storage areas (namely the tipping hall and waste bunker area), maintaining these areas at negative pressure and minimising potential fugitive emissions of odour.	Unlikely	Odour annoyance. This will have more impact in the summer, when temperatures are higher and people are outdoors.	Not significant if managed well.
Odorous emissions may occur as a result of waste present in the bunker during	Immediate area. Immediate area. Immediate area and the nearest	Air – winds generally blow from a south-westerly direction.	Measures will be in place to minimise odorous emissions during periods of shutdown, as part of enfinium's existing	Unlikely	Odour annoyance, which will have greater impact in the summer when	Not significant due to management systems in place.

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 remains? The balance and probability and consequence.**
periods of shutdown of Line1, Line 2 and Line 3.	residential receptor is located approximately 300m to the west of the Tipping Hall.		Environmental Management Systems (EMS). Doors to the tipping hall will be kept shut. Regular olfactory checks will be undertaken during periods of shutdown. Prior to periods of planned shutdown, the quantities of waste stored will be run-down to minimise potential fugitive odour emissions. In the event of an extended unplanned shutdown requiring waste to be removed from the bunker, facilities will be provided to enable the waste to be back-loaded from the bunker and transferred off-site to a suitably licensed waste management facility.		temperatures are higher and people are outdoors and more likely to be exposed to odour.	

3 Table A2 – Noise and vibration risk assessment and management plan

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 remains? The balance and probability and consequence**
Noise from vehicle movements at the Facility.	Immediate area. Immediate area and the nearest residential receptor is located approximately 300m to the west of the Tipping Hall.	Sound propagation through air and the ground.	Roads will be maintained in a good condition, minimising noise from the movement of lorries/HGVs/waste delivery vehicles within the Installation Boundary.	Unlikely (due to the industrial location of the site and distance to receptors).	Annoyance.	Not significant. Refer to Appendix G of Application Pack (Noise Assessment) for further information on the impact of noise from the operation of the Facility.
Noise from plant items such as the waste treatment processes, heat recovery boiler, exhaust air fans, stack exhaust, steam turbine, cooling condensers and noise radiation from	Immediate area. Immediate area and the nearest residential receptor is located approximately 300m to the west of the Tipping Hall.	Sound propagation through the air and ground.	Noisy plant items, where practicable, will be installed within process buildings rather than outside and, where appropriate, they will be installed with appropriate noise attenuation measures. Line 3 will be designed to reduce noise and tonal components.	Unlikely (due to the industrial location of the site and distance to receptors).	Annoyance.	Not significant. Refer to Appendix G of Application Pack (Noise Assessment) for further information on the impact of noise from the operation of the Facility.

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 remains? The balance and probability and consequence**
the building envelope itself, etc.			Regular maintenance of plant items will be undertaken in accordance with documented maintenance procedures.			

4 Table A3 – Fugitive emissions risk assessment and management plan

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 remains? The balance and probability and consequence**
Emission releases from the tipping hall when opening and closing doors.	Immediate area – air.	Air, surface runoff, direct contact.	All waste handling activities will be undertaken within enclosed buildings. The waste bunker area will be held under negative pressure. Fast-acting roller shutter doors (or equivalent) will be installed at the ingress/egress to the tipping hall.	Unlikely.	Nuisance, dust on clothing and cars.	Insignificant.
Dust/litter from waste deliveries being blown off-site.	Immediate area – air, land.	Air, surface runoff.	Waste will be delivered in enclosed vehicles. All waste unloading activities will be undertaken within the enclosed tipping hall. The waste bunker area will be held under negative pressure. Housekeeping procedures will be employed to	Unlikely.	Nuisance and dust.	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 remains? The balance and probability and consequence**
			minimise the build-up of dust or litter.			
Fugitive emissions during periods of shutdown.	Immediate area – air.	Air, direct contact.	Doors to the tipping hall will be kept shut. Prior to periods of planned shutdown, the quantities of waste store within the waste bunker will be run-down, with incoming waste deliveries halted. In the event of an extended unplanned shutdown requiring waste to be removed from the bunker, it will be backloaded from the bunker and transferred off-site to a suitably licensed waste management facility.	Unlikely.	Nuisance, annoyance.	Insignificant.
Spillage of waste and materials during delivery and offloading.	Immediate area – air, land, water.	Air, surface runoff.	Waste unloading activities will be undertaken within an enclosed building. The waste	Unlikely.	Nuisance and dust.	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 remains? The balance and probability and consequence**
			bunker area will be held under negative pressure. Spillages would be cleaned up in accordance with documented management systems. Waste unloading areas will have contained drainage systems which discharge into the process drainage system to minimise the risk of emissions of contaminated water. Housekeeping procedures will be employed to reduce the build-up of litter at the site.			
Bottom ash discharge at the Facility.	Immediate area – air.	Air, surface runoff, direct contact.	Once removed from the combustion chamber by the bottom ash extractors, the bottom ash is then discharged to an ash quench	Low.	Nuisance.	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 remains? The balance and probability and consequence**
			system, prior to transfer to an ash storage area by enclosed conveyor and relocation to off-site to an IBA processing facility. An ash quench will minimise the potential of fugitive dust emissions. Ash handling within will be undertaken in an area with contained drainage which discharges into the process water drainage system. Therefore, there is minimal risk of bottom ash leachate being discharged to surface water drainage systems.			
Discharge of Air Pollution Control residues (APCr) when emptying the APCr silo.	Immediate area – air, land.	Air, surface runoff, direct contact.	When unloading the APCr silo, the displaced air from the tanker will be recirculated into the silo to prevent releases into the atmosphere. A fabric filter	Unlikely.	Nuisance, release of hazardous dust.	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 remains? The balance and probability and consequence**
			will minimise the risk of fugitive emissions of dust. APCr unloading activities will be undertaken by trained personnel and in accordance with documented management procedures. APCr unloading activities will be supervised by sufficiently trained personnel.			
Reagent and chemical discharges when filling silos.	Immediate area – air.	Air, surface runoff, direct contact.	Reagents will be delivered in sealed tankers and off-loaded via a standard hose connection. For solid reagents, air displaced from the silo will be discharged through fabric filters. Regular inspections and maintenance will be undertaken of abatement equipment.	Unlikely.	Nuisance.	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 remains? The balance and probability and consequence**
			Unloading activities will only be undertaken in areas of hardstanding with contained drainage. Unloading activities will be supervised by suitably trained personnel.			
Lime leak during injection into APC system.	Immediate area – air.	Air, surface runoff, direct contact.	Lime handling systems will be enclosed, and regular inspections and preventative maintenance will be carried out. Lime will be injected via a completely enclosed dosing and conveying system. Process areas will have contained drainage. Automated control systems will be in place to detect leaks from lime handing and dosing systems.	Unlikely.	Nuisance.	Insignificant.
Spillage of air pollution control reagents when	Immediate area – air, land.	Air, surface runoff, direct contact.	Enclosed system located inside building. Kept under suction by the ID fan. The	Unlikely.	Nuisance, release of hazardous dust.	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 remains? The balance and probability and consequence**
capping or changing filter bags.			fabric filter will have a number of cells. When capping or changing bags, the relevant cell will be shut down for a sufficient time to enable the dust to settle. This allows any faulty or damaged cells to be isolated easily. Process areas will have contained drainage.			
Spillage/leak of liquid chemicals when tanker off-loading.	Immediate area – air, land.	Air, direct contact.	Deliveries of liquid chemicals will be from sealed tankers and off-loaded via dedicated hoses. Spillages will be prevented by good operating procedures, high tank level alarm/trips etc. Tanks will be located within suitably designed secondary containment. Unloading of liquid chemicals will be undertaken on areas of contained drainage to	Unlikely.	Liquid or vapour release.	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 remains? The balance and probability and consequence**
			prevent the release of contaminated effluent off-site through any spillages.			
Spillage/leak when unloading from delivery vehicles and chemical containers (IBCs, FIBCs, drums etc).	Immediate area – air, land.	Air, direct contact.	Deliveries will be from road vehicles and off-loaded via mobile plant. Potential leaks/spills will be prevented by experienced mobile equipment operators undertaking unloading activities. Unloading activities will only be undertaken in areas of hard standing with contained drainage. Chemical containers will be stored within suitably designed secondary containment.	Unlikely.	Hazardous liquid or vapour release.	Insignificant.

5 Table A4 – Accidents risk assessment and management plan

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 remains? The balance and probability and consequence**
Making the wrong connections to drains.	Local environment – water.	Direct contact, leaching.	Detailed site drainage plan, which will be available to all staff. Drains will be labelled accordingly.	Unlikely.	Pollution of surface water.	Insignificant.
Incompatible substances coming into contact.	Immediate area.	Surface runoff, wind, direct contact.	Due care and attention. Retention of Material Safety Data Sheets (MSDS) to identify hazards of substances to be used on site.	Unlikely.	Pollution of surface water, human health impacts.	Insignificant.
Unwanted reactions.	Immediate area.	Surface runoff, wind, direct contact.	Due care and attention. Retention of MSDS to identify hazards of substances to be used on site.	Unlikely.	Low.	Insignificant.
Fires in waste reception storage and handling areas.	Immediate area – air.	Direct contact.	Fire detection and suppression systems. Refer to the Fire Prevention Plan, refer to Appendix H of the Supporting Information.	Unlikely.	Visual impact, pollution of air, harm to staff, damage to infrastructure.	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 remains? The balance and probability and consequence**
Contaminated fire water.	Immediate area – water, land.	Surface runoff, leaching.	Site drainage for external areas will be fitted with an isolation valve which is interfaced with the fire protection systems. The primary source of firewater containment in the event that there is a fire within the waste bunker itself, which is designed as a water-retaining structure. Additional firewater storage will be available from the attenuation pond, process water tank/pit, site kerbing and roadways.	Unlikely.	Pollution of surface water.	Insignificant.
Failure to contain firewater.	Land.	Land, water, groundwater.	Maintenance of the shut-off valve and/or pumping system within the drainage system.	Unlikely.	Release of chemicals/ contamination to water/land.	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 remains? The balance and probability and consequence**
			Inspection and maintenance of roadways and areas of hardstanding.			
Vandalism	Immediate area.	Land, air, water.	Security fences, controlled entrance to the site, security personnel, CCTV.	Unlikely.	Release of substances to any environment.	Insignificant.
Spill during unloading of chemicals.	Immediate area – air, land, water.	Direct contact.	Training in unloading practices. Under manual control, and continual observation. Impervious surfaces outdoors. Containment of drainage from chemical handling areas (links to the process drainage system and/or bunds). Documented procedures will be developed identifying actions in the event of spills. Spill kits will be readily available.	Unlikely.	Release of hazardous substances to the environment.	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 remains? The balance and probability and consequence**
Overfilling of vessels.	Local environment air, land, water.	Surface runoff, wind.	Training in unloading practices. Under manual control, and continual observation. Impervious surfaces outdoors. High level alarms. Secondary containment for storage vessels. Documented procedures will be developed identifying actions in the event of spills. Spill kits will be readily available.	Unlikely.	Release of hazardous substances to the environment.	Insignificant.
Leak of water from treatment plant, and leak of boiler water treatment chemicals.	Immediate area – water.	Surface runoff.	Secondary containment for storage of water treatment chemicals such as bunding. Routine inspection and maintenance. Impervious surface indoors, separate drains for process water. Regular preventative maintenance of storage vessels to confirm the	Unlikely.	Pollution 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 remains? The balance and probability and consequence**
			integrity of the storage vessel.			
Flue gas leak.	Local environment – air.	Air.	Design standards. Inspection and maintenance programme. Controls and alarms for over pressure conditions. Combustion systems will be retained at negative pressure. Emissions monitoring systems will detect exceedances of ELVs. Robust design of control systems.	Very unlikely.	Pollution of atmosphere, health impacts.	Insignificant.
Fuel storage failure.	Immediate area – litter.	Direct contact.	Storage of waste in a dedicated waste storage bunker. The bunker will be constructed of reinforced concrete. Construction quality assurance checks will be undertaken during construction to ensure the	Unlikely.	Litter.	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 remains? The balance and probability and consequence**
			integrity of the infrastructure. Regular preventative maintenance and visual inspections will be undertaken on the bunker throughout its lifetime.			
Control failure leading to combustion control upset.	Local environment – air.	Air - Winds generally blow from a south westerly direction.	Good/robust design of control system including system redundancy. Monitoring of combustion conditions. Maintenance of combustion air systems.	Unlikely,	Pollution of atmosphere (short term), human health impacts.	Insignificant.
Failure of emission abatement equipment.	Local environment – air.	Air - Winds generally blow from a south westerly direction.	Regular maintenance, inspections. Redundancy of critical equipment or spares on stock.	Unlikely.	Pollution of atmosphere, human health impacts.	Insignificant.
Failure of emission monitoring systems.	Immediate area – air.	Air - Winds generally blow from a south westerly direction.	Regular maintenance, inspections. A back-up CEMS system will be available in the event of a failure of the duty CEMS.	Unlikely.	Lack of data, public concern.	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 remains? The balance and probability and consequence**
Failure of containment (e.g. bund).	Immediate area – water, land.	Surface runoff, wind, leaching.	Regular inspections of bunds. Preventative maintenance will be employed through a documented management system.	Unlikely.	Pollution of surface water.	Insignificant.
Leaks from process water tank/pit.	Immediate area – water, land.	Leaching/infiltration	Underground structures will be designed in accordance with the relevant standards and will be impermeable to prevent the release of liquid pollutants into the ground/groundwater. Quality assurance checks will be undertaken during construction to test/inspect the integrity of structures. Structures will be subject to regular inspection and preventative maintenance. In the event of the integrity of the structure being compromised, remedial	Unlikely.	Pollution of ground/ groundwater.	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 remains? The balance and probability and consequence**
			maintenance will be undertaken in a timely manner and investigations of any potential contamination will be undertaken (such as water testing). Remediation will be undertaken if required.			
Loss of power.	None.	N/A	A back-up generation system to provide safe shutdown of the Facility in the event of loss of power.	Not likely.	None.	Not significant.
Loss of compressed air.	None.	N/A	Multiple compressors.	Unlikely.	None.	Insignificant.
Loss of boiler water.	None.	N/A	Automatic shutdown of the Facility.	Unlikely.	None.	Insignificant.
Steam leak to plant building/atmosphere.	Noise, visual impact.	Air	Statutory design, fabrication and inspection standards for steam systems. Controls and alarms for pressure. Routine operator checks.	Unlikely.	Nuisance from noise and visual impact.	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 remains? The balance and probability and consequence**
Residues handling failure.	Immediate area – air, land, water.	Direct contact.	Training in residue handling practices. Contained transfer systems. Impervious surfaces in residue handling areas with designated drainage systems in areas where residues are stored.	Unlikely.	Pollution of surface waters.	Insignificant.
Fires in FGT bag filter.	Local environment.	Air - Winds generally blow from a south westerly direction.	Temperature measurement and level control in filter hopper, fire-fighting systems.	Unlikely.	Dust, pollution of air.	Insignificant.
Fire in furnace feed system.	Immediate area – air.	Air.	Furnace charging procedures / training. Level indicator in chute. Fire-fighting system.	Unlikely.	Pollution of air.	Insignificant.
Over pressurisation of the steam boiler.	Immediate area – air.	Direct contact.	In case of over pressure, the pressure will be released through the pressure relief valve, preventing the risk of an explosion within the steam boiler.	Unlikely.	Pollution of air.	Insignificant.
Fire from ignition of lube oil leak.	Immediate area – air.	Wind, direct contact.	Fire detection and protection systems.	Unlikely.	Visual.	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 remains? The balance and probability and consequence**
Significant fugitive release of APCr.	Immediate area – air, land, water.	Air, land, surface runoff, groundwater infiltration.	Impervious surfaces in residue handling areas with designated drainage systems in areas where residues are stored. Storage of APCr inside an enclosed silo which will be subject to regular inspections/preventative maintenance. Spillages would be cleaned up in accordance with documented management systems for the Facility.	Unlikely.	Release of hazardous substances within APCr to the environment.	Insignificant due to mitigation and containment measures in place.
Significant fugitive release of fuel oil due to fire at the site.	Immediate area – air, land, water.	Air, land, surface runoff, groundwater infiltration.	Fire detection and suppression systems. Provisions for containment of contaminated firewater. Local fuel oil supply isolation valve will be automatically closed in the case of a fire.	Unlikely.	Release of hazardous substances within fuel oil to the environment.	Insignificant due to mitigation and containment measures in place.

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 remains? The balance and probability and consequence**
			Impervious surfaces in fuel oil areas with designated drainage systems in areas where fuel oil is stored. Spillages would be cleaned up in accordance with documented management systems.			

6 Detailed Assessment

The environmental impact of the Installation has considered within sections 6.1 to 6.9. More comprehensive Air Quality Assessments (refer to Appendix D to F of the Application Pack) and a detailed Noise Assessment (refer to Appendix G of the Application Pack).

6.1 Emissions to Air

The detailed air quality assessment is presented in Appendix D of the Application Pack. The assessment determines the impact on human health, and concludes as follows:

1. Emissions following implementation of Line will not cause a breach of any AQAL.
2. For all pollutants the change in impact as a result of the EP variation can be screened out as 'insignificant'.
3. For all pollutants the overall impact of the Facility can either be screened out as 'insignificant' or is 'not significant' when the total concentration is taken into consideration.

6.2 Habitats Assessment

There are a number of habitat sites present within a 10km radius of the installation. The following habitat features presented in Table 6-1 have been considered within the Dispersion Modelling Assessment:

Table 6-1: Sensitive Ecological Receptors

ID	Site	Desig-nation[1]	Location		Lichens/ bryophytes present[1]
			X (m)	Y (m)	
European and UK Designated Sites					
E1	Fairburn and Newton Ings	SSSI	447256	427242	Yes
Local nature sites					
E2	Well Wood	LNR	445749	426662	Yes
E3	Orchard head	LWS[2]	446147	423522	Yes
E4	Fryston Park	LWS[2]	446927	425475	Yes
E5	Former Fryston Colliery	LWS[2]	446627	427128	Yes
E6	Bank River Aire	LWS[2]	447660	426112	Yes
E7	Byram Park	LWS[2]	448516	426544	Yes

Notes:
[1] APIS does not hold any information on local nature sites. As a conservative measure it has been assumed that lichens and bryophytes are present at all local nature sites.
[2] Some ecological receptors are designated as sites of importance for nature conservation (SINCs). As these are locally designated they are considered equivalent to local wildlife sites.

The detailed air quality assessment is presented in Appendix D of the Application Pack. The assessment determines the impact on ecological receptors, and concludes as follows:

1. At the only European and UK designated ecological receptor (the Fairburn and Newton Ings Site of Special Scientific Interest, "SSSI") the change in impact can be screened out as 'insignificant'

as it is less than 1% of the long-term Critical Levels and Critical Loads and less than 10% of the short term Critical Levels.

2. The total impact of emissions from the Proposed Facility cannot be screened out as 'insignificant' at the Fairburn and Newton Ings SSSI. However, as the EP variation is predicted to result in a reduction in nitrogen deposition impacts and an imperceptible change in acid deposition impacts at this site, it is considered that there would be no significant effects on the integrity of the SSSI.
3. The change in impact and the overall impact of the Proposed Facility at all local nature sites are both less than 100% of the Critical Levels and Loads and can be screened out as 'insignificant'.

6.3 Emissions to water and sewer

There will be no process emissions discharged to water from Line 3.

During normal operations, process effluents from the Facility (such as washdown water) will be reused within the site (e.g. for the ash quench). In the event that excess process effluents are generated, these will be tankered off site for disposal.

Surface water run-off from building roofs and areas of hardstanding will be collected in an on-site surface water drainage system and collected in an attenuation pond, prior to discharge into the existing surface water drainage system for Lie 1 and Line 2 prior to discharge into Fryston Beck.

6.4 Noise

The impact of noise from the Installation is considered in the noise assessment contained in Appendix G of the Application Pack. The assessment concludes that**:**

> '*Operation of the combined L1 to L3 EfW facility compared to the existing L1 and L2 only EfW would result in at worst, noise levels increasing by 1 dB, a negligible increase which would likely not be noticeable, or increase the risk for adverse impacts to occur. Due to the construction of a new onsite building (L3 Boiler Hall) providing screen effects, noise level at one NSR, would be up to 5 dB lower as a result*'.

6.5 Visual Impact

The visual impact of the Installation has not been considered in the EP application, since this is primarily a matter for the planning determination process.

6.6 Odour

The mitigation measures for odour associated with the operation of Line 3 are consistent with those which have been demonstrated as being suitable for the abatement of odour from Line 1 and Line 2.

enfinium will extend the existing management systems for the abatement of odour associated with the operation of Line 1 and Line 2 to Line 3.

6.7 Disposal of Waste

Methods for reducing the impact from waste disposal are considered in section 3.9 of the Supporting Information.

6.8 Fire Prevention Plan

The waste combusted within Line 3 will be stored within the existing waste bunker that is used for the storage of waste which is combusted within Line 1 and Line 2. Therefore, there will be no additional waste storage capacity proposed with the implementation of Line 3. On this basis, it is understood that the 'fire risk' will not be changing with the implementation of Line 3, and it will not be necessary to submit a Fire Prevention Plan in support of the application.

6.9 Site Condition Report

The installation boundary is required to be amended to incorporate some additional land to facilitate the implementation of Line 3. enfinium has undertaken a detailed review of the existing installation boundary and its land ownership/lease boundary, and it has been identified that they are not consistent. Therefore, within this application, enfinium has updated the Site Condition Report to address the inconsistencies. The updated Site Condition Report is presented in Appendix B of the application pack.

During pre-application discussions were held with the Environment Agency (Area Team) to establish whether the land to be surrender would be subject to the 'low risk' surrender criteria stated in EA guidance titled, '*RGN 9 – Surrender*', which states:

> *… for installations (non-landfills) and waste facilities, where the risk to the environment is sufficiently low that we do not need intrusive site survey or monitoring data in the surrender site condition report;*

Given that there has not been any waste processing activities within the areas to be surrendered, it was agreed with the Area Team that the surrender process would be classified as a 'low risk surrender'.

7 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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