

APPLICATION FOR AN ENVIRONMENTAL PERMIT – RICCALL WOOD TREATMENT FACILITY

H Barker and Son Limited

Environmental Risk Assessment

JER8763
Riccall Site Environmental Risk
Assessment
2
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23 August 2023

Quality Management

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Appendices

- Appendix A - Pre-application Conservation Screening Report and Maps
- Appendix B - H1 Assessment

1 INTRODUCTION

- 1.1.1 This Environmental Risk Assessment (ERA) has been carried out in support of an application for an Environmental Permit for the operation of the Riccall waste wood treatment facility, King Rudding Lane, York, North Yorkshire, YO19 6QL.
- 1.1.2 The scope of the ERA considers risks associated with the operation of the facility and demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage these risks.
- 1.1.3 The Environment Agency's 'Risk Assessments for your environmental permit'¹ covers a range of environmental risks. Those aspects relevant to the operation of the proposed facility are covered within the following sections:
- 1.1.4 Section 2 outlines the environmental setting and sensitivities.
- 1.1.5 Section 3 provides the environmental risk assessment of 'Amenity and Accident' hazards associated with the operation of the Riccall waste wood treatment facility. This document provides the relevant risk assessments covering these aspects.
- 1.1.6 There will be two-point source emissions to air from the chipper and shredder machine. An H1 screening assessment of these emissions is included in Section 4.
- 1.1.7 There are no process emissions to water or sewer from Riccall waste wood treatment site. It is proposed that the site drainage system drains to an impermeable concrete surface which drains to a below ground storage tank.

¹ Environment Agency (2019), Risk assessments for your environmental permit. Available at: <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit>

2 SITE DETAILS

2.1 Site Setting

2.1.1 The site is located to the east of Riccall village and approximately 5 km to the North East of Selby. The centre of the site is at approximate grid reference.

2.1.2 The site address is:

Riccall Wood Treatment Facility

4 King Rudding Lane

Riccall

York

YO19 6QL

2.1.3 The site location is shown marked with a red x in Figure 2.1 below:

Figure 2.1: Site Location



2.1.4 The centre of the site is at National Grid Reference (NGR) SE 63681 37227.

2.1.5 The main land use surrounding the area in which the facility is sited is identified as rural. The current surrounding land uses are:

North – Agricultural Land;

East – Agricultural Land / Woodland;

South – Woodland / Business Park with Selby approximately 5km away;

West – Riccall Village is approximately 1.5 km away

- 2.1.6 The nearest residential receptor is a staff bungalow located between the poultry facility and the wood treatment facility.
- 2.1.7 The nearest surface water features to the site are the Dam Dike (~800m north) and the River Ouse (~1200m southwest).
- 2.1.8 A Habitats Screening Assessment from the Environment Agency (EA) has identified the following relevant statutory and local ecological sites in Table 2.1 below. The Habitats Screening Assessment is included as Appendix A:

Table 2.1: Statutory Designated Sites

Site Name	Screening Distance (km)	Distance / Direction from the Proposed Site
Special Areas of Conservation (SAC)		
River Derwent	10	6.5 km / East
Lower Derwent Valley		6.5 km / East
Skipwith Common		0.6 km / East
Special Protection Areas (SPA)		
Lower Derwent Valley	10	6.5 km / East
Ramsar		
Lower Derwent Valley	10	6.5 km / East
Sites of Special Scientific Interest (SSSI)		
Skipwith Common	2	0.6 km / East
National Nature Reserve (NNR)		
Skipwith Common	2	0.6 km / East
Local Wildlife Sites (LWS)		
York and Selby Cycle Track	2	2.10 km / North West
Ancient Woodland		
Holly Cars / Hart Nooking	2	2.1 km / North

- 2.1.9 A description of the geology of the area from the British Geological Survey Geology of Britain viewer² shows the bedrock and superficial geology as follows:
- bedrock geology description:** Sherwood Sandstone Group - Sandstone. Sedimentary Bedrock formed approximately 237 to 272 million years ago in the Triassic and Permian Periods. Local environment previously dominated by rivers.

Setting: rivers. These sedimentary rocks are fluvial in origin. They are detrital, ranging from coarse- to fine-grained and form beds and lenses of deposits reflecting the channels, floodplains and levees of a river or estuary (if in a coastal setting).
 - superficial deposits description:** Skipwith Sand Member - Sand, Clayey, Gravelly. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions (U).
 - Setting:** ice age conditions (U). These sedimentary deposits are glacial in origin. They are detrital, created by the action of ice and meltwater, they can form a wide range of deposits and geomorphologies associated with glacial and inter-glacial periods during the Quaternary.

² https://mapapps.bgs.ac.uk/geologyofbritain/home.html?&_ga=2.25909565.1897171817.1615208442-378857989.1615208442

-
- 2.1.10 The bedrock is classified as a Principal aquifer with the superficial classified as a Secondary (undifferentiated) aquifer.
 - 2.1.11 Magic map³ has shown that the site is not located within any source protection zones, however, there is an on-site water abstraction for supplying water to the poultry facility. The site is located in an area with a groundwater vulnerability (GWV) classification of medium-high.
 - 2.1.12 A Pre-application Conservation Screening Report and Maps can be found in Appendix A.

³ <https://magic.defra.gov.uk/magicmap.aspx>

3 ENVIRONMENTAL RISK ASSESSMENT

3.1.1 This environmental risk assessment complies with regulatory guidance⁴ and uses the following approach for identifying and assessing the risks in six steps:

- Step 1: Identify and consider risks for your site, and the sources of the risks;
- Step 2: Identify the receptors (people, animals, property and anything else that could be affected by the hazard) at risk from your site;
- Step 3: Identify the possible pathways from the sources of the risks to the receptors;
- Step 4: Assess risks relevant to your specific activity and check they're acceptable and can be screened out;
- Step 5: State what you'll do to control risks if they're too high;
- Step 6: Present your assessment as part of you permit application.

3.1.2 This section provides an assessment of risks to environmental amenity and from accidents that could arise from operation of the facility. The assessment has been completed in accordance with the EA's Risk Assessments for your environmental permit.

3.1.3 The scope of the assessment has covered the following aspects:

- odour;
- noise and vibration;
- fugitive emissions; and
- accidents.

3.1.4 For each of the above, the approach to the assessment has followed the following six stage process:

- identify and consider risks for the site, and the sources of the risks;
- identify the receptors at risk;
- identify the possible pathways from the sources of the risks to the receptors;
- assess risks relevant to the activity;
- choose appropriate further measures to control these risks (if required); and
- submit the assessment of overall risk.

3.1.5 Results of the assessment are provided in the following tables:

- Table 3-2: Odour Risk Assessment and Management Plan
- Table 3.3: Noise and vibration risk assessment and management plan
- Table 3.4: Fugitive emissions risk assessment and management plan
- Table 3.5: Accidents risk assessment and management plan

3.1.6 The risk assessment methodology has used a scoring mechanism whereby scores are assigned to:

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- the probability of exposure; and
- the consequence of the hazard to the environment or human health.

3.1.7 The risk assessment has been completed by scoring the hazard areas outlined above using a risk matrix as shown in Table 3-1: Risk Matrix below:

Table 3-1: Risk Matrix

Consequence of the hazard to the environment or human health	Probability of Exposure			
	High	Medium	Low	Very Low
High	High	Medium	Low	Low
Medium	Medium	Medium	Low	Very Low
Low	Low	Low	Low	Very Low
Very Low	Low	Very Low	Very Low	Very Low

3.1.8 In completing the assessment, the proposed prevention and control measures are assumed to be put in place prior to operation. Where relevant, details of these measures are identified within the assessment.

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Table 3-2: Odour Risk Assessment and Management Plan

Hazard What has the potential to cause harm?	Receptor What is at risk? What do I wish to protect?	Pathway How can the hazard get to the receptor?	Risk management What measures will you take to reduce the risk? If it occurs – who is responsible for what?	Probability of exposure How likely is this contact?	Consequence What is the harm that can be caused?	What is the overall risk? What is the risk that still remains? The balance of probability and consequence.
Odour from waste storage	Local residents (nearest residential receptor is a staff bungalow immediately adjacent to the facility and then Riccall Village approximately 1.5 km to the west)	Air	<p>The site has been operational as an exempt wood treatment facility for a number of years and during this time has not received any complaints relating to odour from the site. The nature of the waste in the proposed facility is the same or similar therefore no increased odour potential.</p> <p>The waste wood that is processed at the facility is not significantly odorous and as such, there is limited risk of odours as a result of the proposed activities. Waste acceptance procedures include checks for any odorous waste upon delivery to the site and should any odorous waste be found, it will either be rejected and returned to the supplier or quarantined and removed from site within 24 hours.</p> <p>Any odour complaints will be investigated as detailed in the EMS complaints procedures and details recorded in the Site Diary.</p>	Low	Low - Odour nuisance	Low

Table 3.3: Noise and vibration risk assessment and management plan

Hazard What has the potential to cause harm?	Receptor What is at risk? What do I wish to protect?	Pathway How can the hazard get to the receptor?	Risk management What measures will you take to reduce the risk? If it occurs – who is responsible for what?	Probability of exposure How likely is this contact?	Consequence What is the harm that can be caused?	What is the overall risk? What is the risk that still remains? The balance of probability and consequence.
Noise from operational site plant and vehicle movements	Local residents (nearest residential receptor is a staff bungalow immediately adjacent to the facility and then Riccall Village approximately 1.5 km to the west)	Air	<p>The site has been operational as an exempt wood treatment facility for a number of years and during this time has not received any complaints relating to noise or encountered any noise related issues from the site.</p> <p>There are no proposed changes to the machinery to be used for processing the wood at the site and therefore, even though the throughput capacity will increase, the overall noise levels associated with the facility when operating will remain similar.</p> <p>Noise mitigation will include ensuring mobile plant is silenced to the current recommended standards, drop heights are kept as low as possible, plant and machinery will be turned off when not in use and processing managed so as to keep operational noise to as short a time period as possible.</p> <p>All plant equipment will be subject to regular inspection and planned preventative maintenance schedules to maintain its operational performance.</p> <p>The site will only be operational during the hours of 07:30 – 18:00 (Monday - Friday) and 07:30 – 13:00 (Saturday). The Shredder and Grinder will be limited to up to 15 hours operation per week. The site will be closed on Sundays and bank holidays.</p>	Low	Low - Noise nuisance	Low

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			Noise levels will be assessed by staff as part of the daily site checks. Any noise complaints will be investigated as detailed in the EMS complaints procedures and details recorded in the Site Diary.			
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Table 3.4: Fugitive emissions risk assessment and management plan

Hazard What has the potential to cause harm?	Receptor What is at risk? What do I wish to protect?	Pathway How can the hazard get to the receptor?	Risk management What measures will you take to reduce the risk? If it occurs – who is responsible for what?	Probability of exposure How likely is this contact?	Consequence What is the harm that can be caused?	What is the overall risk? What is the risk that still remains? The balance of probability and consequence.
To Air						
Dust from waste storage, deposits and handling	Local residents (nearest residential receptor is a staff bungalow immediately adjacent to the facility and then Riccall Village approximately 1.5 km to the west)	Air	<p>The site has been operational as an exempt wood treatment facility for a number of years and during this time has not received any complaints relating to dust emissions from the site. There are no changes to the processes or machinery on site therefore no increase for the potential for dust generation.</p> <p>Processed waste wood is stored undercover within a building to prevent risk of dust emissions to air.</p> <p>A Dust Management Plan will be produced as part of the site EMS and will set out the control measures to be put in place at the site to minimise emissions of dust.</p> <p>These include:</p> <ul style="list-style-type: none"> • All loaded vehicles will be enclosed or sheeted. • Waste wood material will be dampened down during the summer and water suppression used on roadways. • Disturbance of wood piles/chipped wood will be kept to a minimum to avoid any dust being generated. 	Low	Low - Nuisance, dust on windows, cars etc.	Low

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			<ul style="list-style-type: none"> Material drop heights will also be kept to a minimum from end of conveyors and loading shovels to minimise dust risk. <p>Routine checks are carried out to identify visual evidence of dust off-site from the site activities. These inspections are carried out daily and recorded in the site diary.</p> <p>In the event of a complaint, the complaints procedure is followed to record and act on the complaint and instigate appropriate action.</p>			
VOCs from fuel storage	Local residents (nearest residential receptor is a staff bungalow immediately adjacent to the facility and then Riccall Village approximately 1.5 km to the west)	Air	During tank filling there is a small potential for VOC emissions. This is considered low risk due to the low frequency of tank filling and the location of sensitive receptors. Any emissions will be for a short duration only.	Very Low	Very Low	Very Low
To Water						
Run off from waste processing and storage areas	Watercourse – Dam Dike ~800m north / River Ouse ~ 1200m southwest	Groundwater / surface water	<p>All waste wood is stored on impermeable surfaces with sealed drainage within a building. Processed waste wood is stored undercover within a building to prevent contaminated run-off.</p> <p>It is proposed that the site drainage system comprises an impermeable concrete surface which drains to a below ground storage tank for collect surface water and waste storage area run-off.</p> <p>The wood processing area is located in the open air and comprises material stockpiles and mobile plant. The whole external storage and processing area will be laid to concrete to provide an impermeable surface with sealed drainage so as to prevent release of polluting substances into ground.</p>	Low	Medium – surface water/groundwater contamination	Low

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<p>Leak of fuel from storage area / tanks / mobile bowser</p>	<p>Watercourse – Dam Dike ~800m north / River Ouse ~ 1200m southwest</p>	<p>Groundwater / surface water</p>	<p>Diesel for the chipper/shredder and other mobile plant is stored within a 10,000-litre tank which is located next to the poultry sheds. This is stored on impermeable surface within a bunded area.</p> <p>A separate mobile bowser is used for filling machinery on site. This is filled from the diesel tank detailed above and then moved to the wood treatment facility for use.</p> <p>Lubricating oils are stored internally within a dedicated store on impermeable surface with sealed drainage etc.</p> <p>Procedures for loading and control will be in place. Inspections of storage tank, bowser and bund will take place regularly within site's EMS programme.</p> <p>The fuel storage tank be constructed to the appropriate British Standard so that any leaks/spillages will be contained. The tank will be surrounded by a leakage containment bund capable of containing at least 110% of the volume of the tank within the bund.</p> <p>The mobile bowser is double skinned.</p> <p>The fuel tank, bowser and bunding will be inspected visually on a daily basis by the site staff to ensure the continued integrity of the tanks and identify the requirement for any remedial action.</p> <p>A spill kit is stored at a prominent location on the site. Staff are aware of spill kit locations and are trained in spillage response.</p> <p>Minor spillages will be cleaned up immediately.</p> <p>Site operatives will inspect the site on a daily basis for evidence of spillage and leakage. Alongside regular visual inspections, the tanks will be fitted with level indicators to prevent overfilling.</p> <p>Deliveries of fuel for powering onsite vehicles are all overseen by a trained member of staff, who will ensure that there is sufficient capacity within the storage vessel for the oil/fuel.</p> <p>A hard, impermeable surface will underlie the oil storage areas to prevent fugitive emissions to groundwater should spills / leaks occur.</p>	<p>Very low.</p> <p>A release would only occur in the event of an accident/incident and would require failure of both primary and secondary containment.</p> <p>Operational management procedures will prevent this from happening.</p>	<p>Medium/high - Contamination of local water course / ground</p>	<p>Very Low / Low</p>
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Litter						
Waste release	Local residents (nearest residential receptor is a staff bungalow immediately adjacent to the facility and then Riccall Village approximately 1.5 km to the west)	Windblown to air / spillage on highway	All loaded vehicles will be enclosed or sheeted and secured, if necessary. Incoming waste is stored externally, however, it is not susceptible to wind pick-up as it is in large pieces. Good housekeeping procedures are in place to ensure all waste is removed from vehicles before leaving the site. Any unexpected spillage would be cleaned up immediately.	Low	Low/medium - Nuisance to local receptors	Low
Pests:						
Flies and other pests or vermin in waste storage areas	Local residents (nearest residential receptor is a staff bungalow immediately adjacent to the facility and then Riccall Village approximately 1.5 km to the west)	Air	The waste wood to be treated on site is unlikely to attract vermin. Pest control measures will be applied on site in accordance with recommendations from a specialist pest control advisor.	Low	Low - Nuisance	Low
Other:						
Unauthorised Wastes	Local residents (nearest residential receptor is a staff bungalow immediately adjacent to the facility and then Riccall Village approximately 1.5 km to the west)	Air / Water / Land	Waste pre-acceptance and waste acceptance procedures will be in place. All wastes will be subject to inspection and checking against the declaration on the waste transfer note. Upon delivery, waste will be subject to strict waste acceptance procedures to identify, reject and/or segregate potentially non-conforming waste. In the event that unauthorised waste is accepted to the site, the waste will be segregated and stored in a designated quarantine area prior to export from site. The quarantine area will consist of a	Low	Low - Odour nuisance (other – dependant on waste type e.g. dust / pests etc.) Contamination of land, surface	Low

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	Watercourse – Dam Dike ~800m north / River Ouse ~ 1200m southwest		sealed lockable skip and be situated on impermeable surface with sealed drainage.		water and groundwater.	
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Table 3.5: Accidents risk assessment and management plan

Hazard What has the potential to cause harm?	Receptor What is at risk? What do I wish to protect?	Pathway How can the hazard get to the receptor?	Risk management What measures will you take to reduce the risk? If it occurs – who is responsible for what?	Probability of exposure How likely is this contact?	Consequence What is the harm that can be caused?	What is the overall risk? What is the risk that still remains? The balance of probability and consequence.
Operator error	Variable (as previously identified) - dependent on nature of the error	Air/Water/Land	All operational staff are fully trained in the site operations. Training will not only address normal operations but will also include those actions required in the event of abnormal operations and emergencies.	Low	Variable depending upon nature of incident but may result in excessive noise / dust emissions or oil/diesel spillage	Low - provided operating procedures are followed
Loss of power	None	n/a	In the event of a loss of power during normal operation, waste chipping or shredding processes will not be able to be carried out.	n/a	n/a	n/a

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			<p>There is no automatically controlled plant on site and therefore there is no significant risk associated with a loss of power to the site.</p> <p>Should plant not be operational for a number of days, incoming waste will be halted so as to manage volumes of waste on site within permitted amounts.</p>			
Loss of containment during storage or transfer of waste, fuels and oil	Watercourse – Dam Dike ~800m north / River Ouse ~ 1200m southwest	Water / Land	<p>Any waste spillage during transfer between grinder and shredder or into the building may result in dust emissions and will be cleared immediately.</p> <p>A procedure is in place to ensure that any damaged or leaking containers (fuel tank / bowser) are dealt with and to allow regular inspections for any signs of deterioration.</p> <p>A site spill procedure will be put in place as part of the EMS and will be followed in the event of a spillage. Spill kits are available to contain and clean up the spill.</p> <p>All bunds/tank/bowser will be visually checked each day to ensure that they are not damaged/leaking. All storage areas, skips and containers are built of suitable materials which are resistant to the vessel content. An inspection programme is in place for the inspection of all storage areas and tanks.</p> <p>Incidents will be recorded and investigated appropriately according to the site incident procedure.</p> <p>Significant incidents will be reported to the EA in accordance with the requirements of the permit.</p>	Very Low – requires multiple failure events	Medium	Very Low
Fire in waste storage areas causing emissions to air	Local residents (nearest residential receptor is a staff bungalow immediately adjacent to the facility and then Riccall Village approximately 1.5 km to the west)	Air	<p>A fire prevention plan (FPP) has been prepared for the site detailing measures in place to minimise the risk of fires and aim to ensure a fire would be dealt with within 4 hours. This includes appropriate storage layout with fire breaks, storage times and monitoring along with ensuring that combustible waste is stored away from potential ignition sources.</p>	Low	Low / Medium - Uncontrolled release of combustion gases to air – impacts likely to be short term	Low

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			<p>Training will not only address normal operations but will also include those actions required in the event of abnormal operations and emergencies such as fire.</p> <p>Any hot loads or non-compatible wastes which increase the risk of fire identified during the unloading is placed within a suitable quarantine container for disposal as soon as is reasonably practicable.</p> <p>Fire protection systems will be in place in accordance with those set out in the FPP in Appendix E to the main permit application.</p>			
Failure to contain firewater	Watercourse – Dam Dike ~800m north / River Ouse ~ 1200m southwest	Water / Land	<p>Measures are in place to protect against a fire. Fire response systems should ensure a rapid response thereby addressing the fire at the earliest point to avoid fire spread and therefore minimising the potential volumes of fire waters.</p> <p>Firewater containment system will be in place, further detail included in the fire prevention plan.</p> <p>The drainage design will ensure that there is sufficient capacity on site to contain foreseeable firewater volumes. A Penstock shut-off valve will therefore be placed between the silt trap and the interceptor in order to prevent the ingress of fire water into the interceptor or tank and to contain firewater on site.</p> <p>A fire prevention plan (FPP) is included in Appendix E to the main application and sets out the measures proposed for fire prevention as well as those measures for firefighting and containment and management of firewater.</p>	Low – plant designed to contain firewater	Medium– although firewater would not be discharged to surface water	Low
Vandalism	Variable (as previously identified) - dependent on nature of the error	Air/water/land	<p>There is a low probability of vandalism and trespass due to site staff living on site and 24 hr CCTV coverage which is remotely monitored by third party contractors.</p>	Low - due to security measures in place	Low /Medium depending on nature of the event. Potential contamination of local water course/air/land and/or local	Low, given the low probability of any unauthorised access to the site

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					nuisance depending on nature of event.	
Flooding	Watercourse – Dam Dike ~800m north / River Ouse ~ 1200m southwest	Water/Land	<p>An assessment of flood risk shows that the site is located in a flood zone 1, an area with a low probability of flooding.</p> <p>The drainage design will ensure that there is sufficient capacity on site to contain foreseeable surface water runoff volumes for a 1 in 100-year storm event. Surface water and run-off will be contained within a below ground tank.</p> <p>Evacuation procedures will be implemented in the event of localised flooding from rainwater/surface run-off.</p> <p>As part of the site's accident management procedures, the appropriate procedures for responding to, reporting and investigation in the event of a flood have been set out.</p>	Very Low	<p>Medium</p> <p>Potential contamination of flood waters due to hazardous wood on site. Chipped material in building.</p>	Very Low

4 AIR EMISSIONS SCREENING ASSESSMENT

4.1.1 This section provides background and interpretation of the H1 screening assessment of point source emissions to air that could arise from operation of the plant carrying out the wood treatment processes at the Riccall Wood Treatment facility.

4.1.2 The scope of the assessment has covered the following aspects:

- Release point characteristics.
- Air emissions inventory and mass flows.
- Emissions screening for further assessment.
- Photochemical Ozone Creation Potential (POCP).

4.1.3 Air emissions screening using the H1 software (Appendix A) has identified a subset of emissions whose significance warrants further modelling. The H1 software output tables are detailed below.

4.2 Emissions release points

4.2.1 Point-source emissions to air from the proposed facility will be from two emission points as detailed below.

Table 4-1: Emission Point Details

Description	Stack height (m)	Efflux velocity (m/s)	Volumetric flow (m ³ /hr)
Shredder engine	3.5	84.6	972
Rotochopper engine	2.2	71.4	1,584

4.2.2 The H1 screening assessment has considered emissions of the substances listed below:

- Particulate matter (PM₁₀).
- Sulphur dioxide.
- Nitrogen dioxide.
- Carbon monoxide.

4.3 H1 Screening Assessment

4.3.1 Emissions to air have been screened for significance against appropriate environmental standards for long-term and short-term exposure. Environmental standards are based on statutory air quality limits where available, and upon human health protection environmental assessment levels (EALs) as given in H1 guidance.

4.3.2 EA guidance states that emissions can be screened out as insignificant where:

- Long term PC < 1% of EAL
- Short term PC <10% of EAL

4.3.3 Figures 2.1 and 2.2 below show the calculated release of combustion products from each engine. The Rotochopper is powered by a CAT C18 engine and the Shredder by a CAT C13 engine. Emissions concentrations and mass flow data was obtained from engine specifications obtained from CAT with the exception of sulphur dioxide emissions which are fuel dependant. Sulphur dioxide emissions were calculated.

4.3.4

4.3.5 The shredding and grinding activity is undertaken for no more than 15 hours per week which equates to 780 hours per year (15 x 52 = 1,560) or 9% of the year.

Figure 4.1: Air Emissions Inventory, Release Point 1 - Shredder Engine

Air Emissions Inventory											
Please list all Substances released to Air for each Release Point identified in the previous page.											
Number	Substance	Meas'ment Method	Operating Mode (% of Year)	Data relating to Long Term effects			Data relating to Short Term effects			Annual Rate tonne/yr	ELV Conc. mg/m3
				Conc. mg/m3	Release Rate g/s	Meas'ment Basis	Conc. mg/m3	Release Rate g/s	Meas'ment Basis		
e.g.	sulphur dioxide	Estimated*	70% load	151.0	3000	annual avg	151.0	3000	hourly avg	55.000	2000
1	Carbon monoxide	Estimated	9.0%	596.5	0.160785	annual avera				0.4563	
2	Nitrogen Dioxide	Estimated	9.0%	1236.9	0.333963	annual avera				0.9479	
3	Particulates (PM10) (Annual Mean)	Estimated	9.0%	30.6	0.008262	annual avera			24 hr Mean	0.0234	
4	Particulates (PM10) (24 hr Mean)	Estimated	9.0%				30.6	0.008262	24 hr Mean		
5	Sulphur Dioxide (24 Hour Mean)	Estimated	9.0%	590.0	0.159300				24 Hr Mean	0.4521	
6	Sulphur Dioxide (1 Hour Mean)	Estimated	9.0%				590.0	0.159300	1 Hr Mean		
7	Sulphur Dioxide (15 Min Mean)	Estimated	9.0%				590.0	0.159300	15 Min Mean		

Measurement method: * provide detail in comments box

Comments: Data source: Appendix I - AQ assessment

Substances: Add Delete Copy

Figure 4.2: Air Emissions Inventory, Release Point 2 – Rotochopper (Grinder) Engine

Air Emissions Inventory											
Please list all Substances released to Air for each Release Point identified in the previous page.											
Number	Substance	Meas'ment Method	Operating Mode (% of Year)	Data relating to Long Term effects			Data relating to Short Term effects			Annual Rate tonne/yr	ELV Conc. mg/m3
				Conc. mg/m3	Release Rate g/s	Meas'ment Basis	Conc. mg/m3	Release Rate g/s	Meas'ment Basis		
e.g.	sulphur dioxide	Estimated*	70% load	151.0	3000	annual avg	151.0	3000	hourly avg	55.000	2000
1	Carbon monoxide	Estimated	9.0%	596.5	0.262020	annual avg				0.7437	
2	Particulates (PM10) (24 hr Mean)	Estimated	9.0%			annual avg	30.6	0.013464	24 hr Mean		
3	Particulates (PM10) (Annual Mean)	Estimated	9.0%	30.6	0.013464	annual avg			24 hr Mean	0.0382	
4	Nitrogen Dioxide	Estimated	9.0%	1236.9	0.544236	annual avg				1.5447	
5	Sulphur Dioxide (24 Hour Mean)	Estimated	9.0%	576.0	0.253440				24 Hr Mean	0.7193	
6	Sulphur Dioxide (1 Hour Mean)	Estimated	9.0%				576.0	0.253440	1 Hr Mean		
7	Sulphur Dioxide (15 Min Mean)	Estimated	9.0%				576.0	0.253440	15 Min Mean		

Measurement method: * provide detail in comments box

Comments: Data source: Appendix I - AQ assessment

Substances: Add Delete Copy

4.3.6 Figure 2.3 shows the output of the first screening stage. As can be seen, only emissions of carbon monoxide are screened out as insignificant at this stage.

Figure 4.3: Results of Stage 1 Screening

Air Impact Screening Stage One									
Screen out Insignificant Emissions to Air									
This page displays the Process Contribution as a proportion of the EAL or EQS. Emissions with PCs that are less than the criteria indicated may be screened from further assessment as they are likely to have an insignificant impact.									
Number	Substance	Long Term	Short Term	Long Term			Short Term		
		EAL	EAL	PC	% PC of EAL	> 1% of EAL?	PC	% PC of EAL	> 10% of EAL?
		µg/m ³	µg/m ³	µg/m ³	%		µg/m ³	%	
1	Carbon monoxide	-	10,000	4.50	-		1,288	12.9	Yes
2	Nitrogen Dioxide	40.0	200	1.82	4.53	Yes	162	80.8	Yes
3	Particulates (PM10) (d)	40.0	-	0.0631	0.158	No	66.2	-	
4	Particulates (PM10) (f)	-	50.0	-	-		2.69	5.37	No
5	Sulphur Dioxide (24 h)	-	125	78.3	-		1,256	1,005	Yes
6	Sulphur Dioxide (1 Hour)	-	350	-	-		204	58.2	Yes
7	Sulphur Dioxide (15 Min)	-	266	-	-		223	83.9	Yes

4.3.7 The second stage of screening assesses the predicted environmental concentration (PEC) against EALs.

4.3.8 The background concentration for pollutants is taken from the air quality modelling assessment in Appendix I.

	Long-term	Short-term (a)	Data Source
Nitrogen dioxide (NO ₂)	7.3 µg.m ⁻³	14.6 µg.m ⁻³	Defra mapped
Particulates (PM ₁₀)	14.1 µg.m ⁻³	28.1 µg.m ⁻³	Defra mapped
Carbon monoxide (CO)	200 µg.m ⁻³	400 µg.m ⁻³	5-year average (2016-2020) at Leeds Centre AURN
Sulphur dioxide (SO ₂)	1.42 µg.m ⁻³	2.84 µg.m ⁻³	

Figure 4.4: Stage Two Assessment

Air Impact Modelling Stage Two Screening										
Identify need for Detailed Modelling of Emissions to Air										
This page displays the Process Contributions in relation to the background pollutant levels and the EAL or EQS. You should use this information to decide whether to conduct detailed modelling. Note that releases that are insignificant are not shown as they are screened from further assessment. Also complete this page if you have already done detailed modelling.										
Number	Substance	Air Bkgnd Conc. µg/m ³	Long Term				Short Term			
			PC µg/m ³	% PC of headroom (EAL - Bkgnd)	PEC mg/m ³	% PEC of EAL	% PEC of EAL >=70?	PC µg/m ³	% PC of headroom (EAL - Bkgnd)	% PC of headroom >=20?
		e.g. 12								
1	Carbon monoxide	1.42	4.50	-	0	-		1,288	12.9	No
2	Nitrogen Dioxide	7.3	1.82	5.54	9.11	22.8	No	162	87.2	Yes
5	Sulphur Dioxide (24 Hour Mean)	1.42	78.3	-	0	-		1,256	1,028	Yes
6	Sulphur Dioxide (1 Hour Mean)	1.42	-	-	0	-		204	58.7	Yes
7	Sulphur Dioxide (15 Min Mean)	1.42	-	-	0	-		223	84.8	Yes

4.3.9 The stage two screening assessment shows that nitrogen oxide and sulphur dioxide do not screen out as insignificant. An air quality assessment including detailed modelling has been carried out to further consider impacts from emissions to air and is included in Appendix I.

4.4 Photochemical ozone creation potential

- 4.4.1 The photochemical ozone creation potential (POCP) has been calculated in accordance with the H1 guidance⁴. Nitrogen dioxide, sulphur dioxide and carbon monoxide emissions from the installation contribute to photochemical ozone creation.
- 4.4.2 The POCP for the wood waste treatment facility is approximately 15.84.

⁴ Environment Agency, H1 Annex F: air emissions [withdrawn] <https://www.gov.uk/government/publications/h1-annex-f-air-emissions>

5 CONCLUSIONS

- 5.1.1 The environmental risk assessment (ERA) report has been undertaken to assess the likelihood of risk from amenity and accidents associated with the operation of the Riccall waste wood treatment facility.
- 5.1.2 The results of the ERA have shown that with the proposed management measures in place the risk of odour, noise and vibration, fugitive emissions, and accidents range from 'very low' to 'low'.
- 5.1.3 H1 screening of emissions to air has concluded that nitrogen dioxide and sulphur dioxide do not screen out as insignificant. An air quality assessment has been completed and is included as Appendix I.
- 5.1.4 The POCP associated with emissions to air is calculated to be 15.84.

REFERENCES

1. Environment Agency (2016), Risk assessments for your environmental permit. Available at: <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit>
2. British Geological Survey Geology of Britain viewer. Available at: https://mapapps.bgs.ac.uk/geologyofbritain/home.html?&_ga=2.25909565.1897171817.1615208442-378857989.1615208442
3. Magic Map. Available at: <https://magic.defra.gov.uk/magicmap.aspx>

Appendices

Appendix A

Pre-application Conservation Screening Report and Maps



Appendix B

H1 Assessment

