


ENVIRONMENTAL RISK ASSESSMENT

Henley Biomass Ltd
Evaporative Waste Water Treatment Facility

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Henley Biomass Ltd

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Authors Name:		Sophie Perrin	
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1. INTRODUCTION

As part of an application for an environmental permit Operators must assess the risk to the environment and human health from the activities they seek to permit. This Environmental Risk Assessment has been undertaken in accordance with the online Environment Agency Guidance for undertaking environmental risk assessments. Environmental risks relevant to the proposed activities are:

- Emissions to Air;
- Emissions to Water;
- Emissions to Land;
- Odour;
- Noise;
- Litter;
- Pests;
- Vandalism;
- Fire; and
- Incompatible Feedstock.

For each of the above environmental criteria the approach to the assessment has followed the following four stage process:

- Identify the risks;
- Assess the risks (assuming those control measures proposed are in place);
- Choose appropriate further measures to control these (if required); and
- Present the assessment.

Environmental Risk Assessment						
Hazard	Receptor	Pathway	Risk Management Techniques	Probability of Exposure	Consequence	Overall Risk (following Mitigation)
Point Source \ Releases to Air	Atmosphere	Airborne	<ul style="list-style-type: none"> The facility only processes non-hazardous waste water. The wastewater treated by the plant will include leachate from landfill sites which may include contaminants, which may be liberated in the vapour phase via the evaporation process and discharged through the stacks. However, a pre-treatment system has been designed based on the proposed waste acceptance criteria (WAC) of the waste water accepted on site. Detailed monitoring has been carried out to assess this (SOL1703HB01 Volume 2: Annex C1 – Risk Assessment and Air Impact Report). The flues are equipped with a two 1" BSP ports should any sampling, monitoring of the emissions be required. The sampling port allows extractive sampling to take place which will involve obtaining a grab sample which can then be analysed. There is also the ability to measure the temperature and humidity of the air stream. 	Low: offsite receptor impacts	Air Pollution	LOW due to the proposed management techniques and wastes processed on site.
Emissions to Water	Groundwater / Geology / Surface Water	Waterborne	<ul style="list-style-type: none"> The entire site is constructed on sealed concrete hardstanding with a sealed drainage system. All surface water runoff drains to an underground attenuation tank (91.2m³). A penstock valve will then be used to enable the 	Low: all runoff is controlled on site, therefore the probability of exposure is low.	Contamination	VERY LOW due to the proposed management techniques and dust

control of surface water from site in the following modes;

- Mode 1 - surface rainwater leaving the site (W1), at a controlled outfall rate of 2.2l/s;
- Mode 2 - surface rainwater being diverted from site into one of the waste water treatment plant reception tanks to dilute the leachate water being treated; and
- Mode 3 - in the case of a fire on site, any potentially contaminated fire water will be contained by closing the penstock valve. The firewater will then tankered off site.
- The attenuation tank and surface water discharge system is shared with the neighbouring SWIP. There will be management procedures in place to ensure that there is no risk of pollution off site. However, only clean surface water runoff from both sites is collected in the attenuation tank and released off site (W1) so the risk of pollution off site is very low.
- The waste water treatment hall has been constructed with measures to prevent water from escaping. Any spillage / washing down waters within the building will drain to one of the two 4m³ below ground concrete storage tanks. The water collected within these tanks will then be tankered off site or manually pumped back into one of the waste reception tanks.
- Any water caught within the bunded waste water storage tank area will also be

suppressions
equipment

			automatically pumped back into one of the water reception tanks.			
Emissions to Land	Groundwater / Geology	Spills / Leaks	<ul style="list-style-type: none"> The entire site is constructed on concrete hardstanding. There will be no emissions to land arising from the proposed facilities. All activities are carried out on concrete hardstanding with a sealed drainage system. Therefore, no spillage / leak can enter surface water or the ground. Any water caught within the bunded waste water storage tank area will be automatically pumped back into one of the water reception tanks. Any potential spillage during the tanker unloading process will be contained within the bund. If there is a spillage, the driver will report this to a trained site operative who will use one of the sites spill kits to clean it up. Spill kits will be strategically located around site. Minor spills to be cleaned up immediately, using spill kits. Resultant materials to be placed in container for off-site disposal to appropriate facility, if necessary. Immediate action to be taken in event of any major spills. Spillage to be cleared immediately and placed in containers for offsite disposal. EA to be informed. 	Low: spills / leaks could potentially contaminate the ground / groundwater underneath the site.	Contamination	VERY LOW due to the proposed risk management techniques
Noise	Local Residents	Airborne	<ul style="list-style-type: none"> All potentially noisy plant will be acoustically enclosed and / or fitted with attenuation. Vehicle deliveries will only take place during daytime; 	Medium: due to the nature of the activities, noise	Nuisance	LOW due to the proposed risk

			<ul style="list-style-type: none"> • Appropriate preventative maintenance will be provided for the various elements of the installation. This will ensure no deterioration of plant or equipment that would give rise to increases in noise. • All equipment has been designed in accordance with best practice and to ensure that any internal noise does not present an issue to the employees at the site under the Control of Noise at Work Regulations, and also to ensure that noise breakout does not lead to noise nuisance at the identified sensitive receptors. • The facility will not give rise to reasonable cause for annoyance. In the unlikely event that complaints are received measures described in the integrated management system will be put in place. 	emissions from the plant are inevitable and could cause offsite receptor impacts		management techniques
Odour	Local Residents	Airborne	<ul style="list-style-type: none"> • Waste water will be delivered, stored and processed in a fully enclosed system with air vented from the reception tanks through an internal activated carbon filter. Additionally, hydrogen sulphide will be dosed into the waste water storage tanks during reception. • The addition of hydrogen sulphide will prevent odour release during reception and will greatly reduce odour release from the main evaporation process. The use of sulphuric acid within the pre-treatment for pH correction will also stabilise free ammonia resulting in a reduced emission of ammonia from the evaporators, however the chance of odour 	Medium: the occurrence of odour emissions from the site is possible	Nuisance	LOW due to the proposed risk management techniques

would be minimal even without the pH correction.

- The air vented from the storage tanks is then exhausted out of the hall via the four flues which eject hot air from the evaporation process at 17m³ per second.
- The proposed carbon filter is a Drum Filter Vessel (DFV200) provided by ACC Eurovent Ltd.
- Another odour control measure on site is the strict adherence to the waste acceptance procedures.
- The waste acceptance procedures detail the Waste Acceptance Criteria (WAC) which will allow the acceptance of waste water only with origin certificates.
- As part of the WAC procedures, no waste will be accepted on site that exceeds an odour potential of 1,000,000ouE/m³ or contains any volatile organic compounds or hydrocarbons.
- The sites waste acceptance regime will result in a significant reduction in the likely odour potential of waste water treated at the facility.
- The site has a detailed monitoring / sampling regime to prevent any odourous waste being accepted and treated on site.
- The site has a dedicated Odour Management Plan (SOL1703HB01 Volume 2: Annex D3 – Odour Management Plan) which provides more information on how odour issues will be managed on site.
- Detailed dispersion modelling has been undertaken to determine the potential odour impacts associated with the proposed development which is summarised in an Odour

			<p>Impact Assessment (SOL1703HB01 Volume 2: Annex C4 – Odour Impact Assessment).</p> <ul style="list-style-type: none"> • The assessment concludes that predicted odour concentrations were below the selected benchmark range of 1.0 to 3.0ouE/m³ for residential receptors and below 3.0 to 5.0ouE/m³ at industrial locations in the vicinity of the site. • Based on the assessment results, significant odour impacts are not predicted at any sensitive location as a result of the operation of the facility. As such, the potential for adverse odour impact in the vicinity of the site is considered to be low. • Please refer to the Odour Impact Assessment and Odour Management Plan for more information. 			
Litter	Local Residents	Airborne	<ul style="list-style-type: none"> • There are no external activities on site. Waste water will be delivered, stored and processed in a fully enclosed system. Therefore, it is unlikely external litter will be generated for the new activities on site. • All incoming and exporting waste vehicles will be covered. • The site access and concrete hardstanding shall be swept as necessary. • The site shall be inspected daily by the site manager and any litter or accumulated debris shall be dealt with immediately. 	Low: the occurrence of litter on site is highly unlikely therefore the probability of exposure is very low.	Nuisance	VERY LOW due to the proposed risk management techniques
Pests	Local Residents	Airborne & migration	<ul style="list-style-type: none"> • Pests are not likely to become a problem on site. • However, if a problem does develop, reasonable measures will be taken to use 	Low: the occurrence of pests on site is highly unlikely.	Nuisance	VERY LOW due to the proposed risk

			<p>commercially available products and services to control pests.</p> <ul style="list-style-type: none"> If a particular waste is determined to be the cause of a problem it shall be removed from site at the earliest available opportunity and consideration given to mitigation measures that may be implemented before any more waste from that source is accepted on site. 			management techniques
Vandalism	Operator	The site could be subject to intentional vandalism and damage by intruders / trespassers who could cause damage or harm to the site or cause fires.	<ul style="list-style-type: none"> The site has a CCTV system which is capable of being remotely monitored. The site has 24/7 security and is continuously manned. Site is secure and has perimeter fencing. Unauthorised access is prohibited onsite. Fencing is inspected daily by operations staff to identify deterioration and damage and the need for repair. Fencing is maintained and repaired to ensure its continued integrity. If damage is sustained, repair will be made within the same working day. If this is not possible, suitable measures will be taken to prevent unauthorised access to the site and permanent repairs will be affected as soon as is practicable. All visitors to the site are required to register in the visitor's book and sign out again on exit, thereby minimising the risk of unauthorised visitors on the site. 	Low: the occurrence of vandalism taking place on site is highly unlikely.	Nuisance, Damage or Fire	VERY LOW due to the proposed risk management techniques
Fire on site.	Operator Residential Properties	/ Windborne	<ul style="list-style-type: none"> Arson by intruders is controlled via 24/7 security. The site is well lit and secured and will be manned on a permanent basis. No combustible materials are stored on site. 	Low: the occurrence of a fire taking place on site is highly unlikely	Fire	VERY LOW due to the proposed risk

			<ul style="list-style-type: none"> • Machinery is regularly cleaned to remove any dust, etc; • All equipment on site is equipped with dedicated fire suppression. • A number of fire extinguishers are placed at strategic locations around the plant. • The potential for sparks is regularly monitored by site staff. • The risk of damaged or exposed electrical cables is controlled via the regular inspection and maintenance programme. • Staff and visitors are only permitted to smoke within the designated smoking area outside the operational area. • There is no smoking permitted within the operational area of the site. 			management techniques		
Incompatible Feedstock	Operator Residential Properties	/	If incorrect waste is accepted on site it could result in adverse emissions	The following methods will be implemented to ensure that incompatible feedstocks do not compromise the safe operation of the plant: <ul style="list-style-type: none"> • All wastes accepted onto site have been subject to 'pre-acceptance' in accordance to established procedure HB-E01; • All incoming wastes are accepted in accordance with established procedure HB-E02; • Any non conforming waste will be removed prior to acceptance in accordance with established procedure HB-E03; • Records of incidents involving incompatible compatible will be kept on site together with a summary of the remedial action taken. 	Low: off site receptor impacts	Nuisance Adverse Emissions	/	VERY LOW due to the proposed risk management techniques