Environmental Risk Assessment

Prepared for:

BioConstruct NewEnergy LTD

By:

ENVIROSOLUTION LTD

Suite 53

3a Bridgewater Street

Liverpool

L1 0AB

Date: February 2025

EnviroSolution Ltd
Document Verification

Site Address	Arrow Bio Waste Recycling Facility, Weighbridge Road, Deeside Industrial Park, Deeside, CH5 2LL		
Report Title	Environmental Risk Assessment		
Job Number	ES2502	**Document Ref.**	ES2502-11
Date Issued	28th February 2025	**Report Version**	V1
Prepared by	Melvin Thomas	**Signature**	
Checked by	Gemma Lucus	**Signature**	

Disclaimer

This report has been prepared by EnviroSolution Ltd who has exercised such professional skill, care and diligence as may reasonably be expected of a properly qualified and competent consultant experienced in preparing reports of a similar scope.

However, to the extent that the report is based on or relies upon information contained in records, reports or other materials provided to EnviroSolution Ltd, which have not been independently produced or verified, EnviroSolution Ltd, gives no warranty, representation or assurance as to the accuracy or completeness of such information.

Environmental Risk Assessment – Arrow Bio Waste Recycling Facility, Deeside

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
1.1 Local human population.	Releases of NOx and SOx, CO and Total Volatile Organic Compounds (VOC)	Harm to human health - respiratory irritation and illness.	Air transport then inhalation.	Low	Medium	Low	There is potential for exposure to anyone living close to the site. The nearest residential properties are 1.8km southwest of the site. The Air Quality Impact Assessment has identified a negligible risk of exposure to human health from atmospheric releases of gases from the CHP plants	Activities are managed and operated in accordance with a written management system which includes inspection and maintenance of equipment, including engine management systems (under third party contract for CHP maintenance).	Low

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								Emissions to air from the CHP stack are monitored annually by a MCERTS contractor in accordance with the permit. Activities are not undertaken within an Air Quality Management Area for NOx. Leak detection and repair (LDAR) surveys are undertaken 6 monthly to mitigate and prevent methane emissions. Gas pressure is continuously monitored by SCADA system. All pressure relief systems are	

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								inspected and calibrated as per manufacturers recommendations. This is included within the site's Maintenance Schedule.	
1.2 Local human population.	Release of microorganisms (bio-aerosols).	Harm to human health – respiratory irritation and illness.	Air transport then inhalation.	Low	Low	Low	The nearest residential properties are 1.8km southwest of the site. There is the potential for bioaerosol release: • When waste is received; and • during storage of digestate.	During conventional AD operation, emissions from digestate fibre are minimised. Separation of fibers will be difficult given the dry nature if the feed stock. PAS110 whole digestate specification will be used.	Low

								A Site Specific Bioaerosol Risk	

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								Assessment has been carried out which indicated residual risk from all sources was determined as low or very low.	
1.3 Local human population	Odour	Nuisance, loss of amenity	Air transport then inhalation.	Low	Medium	Medium	Local residents often sensitive to odour. The nearest residential properties are 1.8km southwest of the site. Odour can result from: • a wide range of waste, particularly when the site receives it • the release of biogas • digestate	An Odour Management Plan is in place. All solid wastes will be received into the reception building. Liquid feedstocks are discharged directly from road tanker into the sealed buffer tank prior to treatment within the AD plant. The digester tanks are all covered and gas tight. Minimise storage times of digestate	Low

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								fibre produced during the operation of the separator as described above. Leak detection and repair (LDAR) surveys are undertaken 6 monthly to prevent fugitive emissions of biogas. In order to reduce emissions to air and to improve the overall environmental performance (BAT 38), process monitoring is undertaken and digestate samples are analysed periodically to verify that process controls have been effective in	

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								producing stable digestates. Odour releases have been modelled to evaluate the odour impact at sensitive receptors which concluded a 'not significant' impact at nearby receptors.	

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
1.4 Local human population.	Noise and vibration.	Nuisance, loss of amenity, loss of sleep.	Noise through the air and vibration through the ground.	Low	Medium	Low	Local residents often sensitive to noise and vibration. The nearest residential properties are 1.8km southwest of the site. The baseline noise climate in the area includes contributions from transport (road, rail and air traffic) and industrial sources. Due to the nature of the area surrounding the proposed development, i.e. industrial and transport infrastructure developments, and the separation distances between the site and nearby receptor locations it has been shown that the effects of noise during both construction and	Noise and vibration shall be minimised so as not to cause nuisance. Although the AD system will operate continuously, The core operational hours are predicted to be from 6am to 8pm 7 days a week, with deliveries from 6am to 4pm 5 days a week. The maintenance of all critical plant and equipment (including fans and extraction equipment) is be captured on the site's Maintenance Schedules, to ensure it is suitably maintained and	Low

							operation of the facility are negligible	reduce the likelihood of noise from improper upkeep. Flare usage will be minimised with operating hours recorded on SCADA. A noise and vibration management plan will be prepared if required.	

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
2.1 Local human population, livestock or wildlife after gaining unauthorised access to the installation.	Gaining unauthorised access to the installation.	There is a risk of direct physical contact with all on-site hazards such as wastes, machinery and vehicles. There is a risk of causing injury to humans or livestock.	Direct physical contact.	Low	Low	Low	Direct physical contact is minimised by activity being carried out within enclosed digesters, so a low magnitude risk is estimated.	Activities are managed and operated in accordance with a management system which includes site security measures to prevent unauthorised access. Specifically, the site benefits from	Low

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								perimeter fencing, a locked gate at entrance. A DSEAR assessment has been produced and covers unauthorised access to site. Maintenance workers and contractors will only be permitted on site if suitably qualified for planned tasks and in accordance with Permit to Work requirements if applicable.	

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
3.1 Local human population and local environment.	Arson and / or vandalism causing the release of polluting materials to air (smoke or fumes), water or land.	Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters or arsonists/vandals. Pollution of water or land.	Air transport of smoke. Spillages and contaminated firewater by direct run-off from site and via surface water drains and ditches.	Medium	Medium	Medium	Although biogas is flammable, risk of direct physical contact is reduced by activity being carried out within enclosed systems. The consequences of an incident may be serious, affecting both human health and the environment, through loss of containment.	As above. An accident management plan forms part of the management system (includes fire and spillages). A DSEAR assessment has been produced which identifies all areas of risk. Fire control measures and procedures are set out in the DSEAR plan and have been communicated to the local fire service. A HAZOP has been produced, which in part informs the maintenance schedule.	Low

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								Warning signs are clearly displayed and operatives are fully trained in gas alarm procedures All visitors shall be accompanied by trained staff. LDAR surveys are undertaken to mitigate and to prevent fugitive emissions of biogas. Contingency measures will be considered in the event of loss of plant and are detailed in the contingency plan. This will include contingencies for waste diversion and digestate storage in the	

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								absence of critical plant.	

3.2 Local human population and local environment.	Accidental explosion and fire causing the release of polluting materials to air (smoke or fumes), water or land.	Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters or arsonists/vandals. Pollution of water or land.	Air transport. Spillages and digestate direct run-off from site and via surface water drains and ditches.	Low	Medium	Medium	The risk of occurrence is reduced by effective management systems. However, biogas is flammable, and the consequences are likely to be serious, including risk to: • safety and wellbeing of those working or in close proximity to the site. • loss of containment may be detrimental to	Risks will be managed as per 2.1 and 3.1. The management system includes the risk management measures specified in the HAZOP and DSEAR plans including planned maintenance schedules. An Accident Management Plan forms part of management system (includes fire, biogas release and spillages).	Low

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
							the environment.	A Training procedure (BCNE-PROC-40) and overarching Training and Competency Matrix (BCNE-EMP-006) forms part of the EMS and includes training for emergency situations and incident preparedness, at prescribed training intervals. Details of the site's secondary containment, including tank bunding design is included within the EMS Manual. As we develop the EMS further we may need to restructure this manual.	

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
3.3 Local human population and local environment.	Accidental fire causing the release of polluting materials to air (smoke or fumes), water or land.	Respiratory irritation, illness and nuisance to local population. Injury to staff or fire fighters. Pollution of water or land.	As above.	Low	Medium	Medium	The risk is reduced by an effective management system. Risk of accidental combustion of feedstocks is low due to nature of feedstocks.	This risk is managed in the same way as risks 2.1, 3.1 and 3.2. A risk assessment has been undertaken for the requirement of any lightning conduction equipment. Equipment identified as necessary by the risk assessment or required for insurance purposes, has been installed. Activated charcoal and other combustible materials will be stored safely and in accordance with any	Low

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								manufacturers' recommendations	
4. Risk of land bank contamination	Plastic, potentially toxic elements within digestate and by product fertiliser, landspreading of contaminated material.	Risk of long term impact on soil and crop quality.	Direct application to soils through landspreading, uptake of contaminants from crops.	Low	Low	Low	There is a risk of impact on soil and crop quality.	Feedstock materials are unlikely to contain plastics due to nature and origin. Appropriate waste acceptance controls are in place to mitigate the risk of introducing contamination. Feedstocks are visually inspected prior to use in accordance with the Feedstock Acceptance & Rejection Procedures .	

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								Visible plastics are removed prior to processing and where not possible, the feedstock will be rejected. Digestate liquor and fibre will be routinely tested to ensure it is suitable for application to land and it is applied at an appropriate rate. Quarterly waste returns will include the details of any recovered outputs.	

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
5.1 All surface waters close to and downstream of site.	Spillage of liquids, including digestate and oil.	Acute effects: fish kill.	Direct run-off from site across ground surface, via surface water drains, ditches etc.	Low	Medium	Medium	There is the potential for spillage from digestion tanks and digestate and other polluting substances such as oil from storage vessels on site.	Construction Quality Assurance validation undertaken on all anaerobic digestion tanks and reports retained. Tanks and secondary containment built to CIRIA C736. All biogas condensate is treated in AD process. All contaminated leachate and drainage from potentially 'dirty' areas will be contained within the main concrete bund.	Low

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								Polluting substances are contained with CHP containers or secondary containment system. Digestate is contained within concrete tanks. Wastes are stored on impermeable surface, within the reception building with sealed drainage back to the process. Any liquid waste will be stored within the liquid pre store tank or fed directly to the digesters. There are no point source emissions to surface waters.	

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								There is a documented drainage plan for the site. . The clean and dirty areas will be identified and cover will be painted (res/blue) accordingly. The digestate off-take, silage clamps, the area around the solid's feeder and the apron between them are all designated as dirty and any run-off from these areas is designated as 'dirty' as well as condensate will be recirculated back through the AD process.	

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								Condensate traps are checked daily. There is a written management system in place. All staff and contractors are trained in the site written accident management plan and spillage procedures.	
5.2 All surface waters close to and downstream of site.	As above	Chronic effects: deterioration of water quality.	As above. Indirect run-off via the soil layer.	Low	Medium	Medium	As above	As above. All storage areas and containment have been designed and constructed to the	Low

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								relevant industry standard (for CIRIA 736 for primary and secondary containment). A validation report for all critical infrastructure (primary and secondary containment) has been produced to ensure all elements have been designed and built to the relevant standard. A maintenance schedule of the facility's critical infrastructure, including the impermeable surfacing and drainage system is in place.	

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								The transfer of digestate from the digestate storage tank is supervised.	
6. Abstraction from watercourse downstream of facility (for agricultural or potable use).	As above	Acute effects, closure of abstraction intakes.	Direct run-off from site across ground surface, via surface water drains, ditches etc. then abstraction.	Medium	Medium	Medium	As above	This risk is managed in the same way as risks 5.1 and 5.2 above. An impermeable surface is in place for the site. Visual integrity checks of all primary containment will be undertaken daily and documented in the Daily Site Walk Around Report. Inspection of all primary tanks is included on maintenance schedules.	Low

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								There is a written management system in place and staff are process parameters are monitored and understood by site operatives.	
7.Groundwater	Spillage of liquids, including oil and digestate	Chronic effects: contamination of groundwater, requiring treatment of water or closure of borehole.	Transport through soil/groundwater then extraction at borehole.	Medium	Medium	Medium	As above.	Risk management is as set out in 5.1, 5.2 and 6.1. Process parameters, such as volumes within tanks and digestate stores are monitored daily by site operatives and recorded. All pipes, ducts and cables are fixed on cable trays and	Low

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								stanchions positioned above the concrete containment. Operational staff carry out daily inspections of the containment bund structure.	
8. Risk of diffuse emissions from polluting and greenhouse gases such as methane and ammonia	Fugitive releases of volatile organic compounds such as methane from storage of gas bags, lagoons, tanks, vents and pipe work.	Acute effects and long-term effects on air quality, longer term effects of volatile organic compound releases and adding to global climate change	Airborne fugitive emissions from site	Medium	Medium	Medium	Biogas contains high levels of methane and carbon dioxide. Digestate and digestate storage may release ammonia which can impact air quality. Burning biogas and biomethane can	There are a series of controls in place to mitigate the risk of diffuse emissions from the site which include: Limiting residence time for separated digestate fibre on site. Venting to air from tanks is minimised;	Low

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
							produce harmful pollutants.	emergency biogas flare in place with a set point lower than that of the PVRVs preventing emissions of unburnt biogas. Gas pressures are continually measured and monitored within SCADA. LDAR surveys are undertaken 6 monthly to mitigate and prevent fugitive emissions. Gas holders are maintained as per manufacturer's recommendations and are included on the sites Maintenance Schedule.	

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								Emissions to air from the CHP stacks are monitored annually by a MCERTS contractor in accordance with the permit. All monitoring required by the permit is reported as per the permit requirements.	
9. Protected Sites, including National Parks and Areas of Outstanding Natural Beauty, Marine Conservation Zones, Sites of Special	Any, but principally NOx and NH_3.	Risk of harm to protected sites including: Toxic contamination Nutrient enrichment Leachate Contaminated surface water run-off	Any	Medium	Medium	Medium	Anaerobic digestion operations may cause harm to and deterioration of nature conservation sites.	The site is located with in 1,500 meter radius of Sites of Special Scientific Interest (SSSI) and Ramsar Sites	Low

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
Scientific Interest, Special Areas of Conservation, Special Protection Areas & Ramsar wetland sites		Smothering Disturbance Predation from pests and vermin							

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management ?
								Emission limits for stack gases are specified. All tanks are covered. An ammonia reduction plan will be implemented if deemed necessary. A fugitive emission plan will be implemented.	

Magnitude of Risk	Consequence		
Probability of Exposure	**Low**	**Medium**	**High**
Low	**Very Low**	**Low**	**Medium**
Medium	**Low**	**Medium**	**Medium**
High	**Medium**	**Medium**	**High**