

Risk Assessment Form – AD Plant Operation
Version 3 – 01/03/2025



COMPANY:	GUY&WRIGHT	SITE:	GREEN TYE		
SITE LOCATION:	The Vineries, Green Tye, Much Hadham SG10 6JJ	COUNTY:	HERTFORDSHIRE	POST CODE:	SG10 6JJ

**This form is to be completed by the person(s) undertaking the Risk Assessment and / or the supporting scope of works.*

RISK ASSESSMENT COMPLETED BY:	SARAH PERRY	POSITION TITLE:	SENIOR CONSULTANT
OTHER PERSONS INVOLVED:	NICK GERRARD	POSITION TITLE:	SENIOR CONSULTANT
OTHER PERSONS INVOLVED:	-	POSITION TITLE:	-

TASK / EQUIPMENT / ACTIVITY TO BE RISK ASSESSED:	Ad Plant Operation				
PERSONS POTENTIALLY AT RISK:	Wiser Employee <input checked="" type="checkbox"/>	Site Employee <input checked="" type="checkbox"/>	Contractors <input checked="" type="checkbox"/>	Member of Public <input checked="" type="checkbox"/>	On-Site Visitor <input checked="" type="checkbox"/>

DATE OF CURRENT ASSESSMENT:	01/03/2025	DATE OF LAST ASSESSMENT:	01/03/2024	NEXT REVIEW DATE:	01/03/2026
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SECTION 1 – SUMMARY OF THE KEY HAZARDS THAT WERE IDENTIFIED DURING THE ASSESSMENT:

1.	Plant vs Pedestrian Interaction	9.	Leaks and Spills
2.	Plant vs Fixed Structure Interaction	10.	Slip, trip and falls
3.	Third-Party deliveries / Entry & Exit of trucks	11.	Bacterial pathogens
4.	Fire	12.	Confined space
5.	Exposure to Chemicals / Hazardous Substances	13.	Electrical hazards
6.	Biogas	14.	Noise
7.	Nitrogen	15.	Pressurised systems / stored energy
8.	High Temperatures	16.	Catastrophic Failure of Tank
17.	Drowning (Lagoon)		

Identified Hazards	Uncontrolled Risk		Risk Rating	Current Controls	Controlled Risk		Residual Risk Rating	Further Controls Required
	Likelihood	Consequences			Likelihood	Consequences		
<p>Workplace Transport and Pedestrian Segregation</p> <p><i>(Risk of pedestrian fatality, serious injury or vehicular accident with people or property)</i></p>	Possible	Significant	23	<p>Only trained and competent staff to operate vehicles / machinery.</p> <p>Vehicles / machinery to be checked daily as per the Daily Pre-Start Inspection process.</p> <p>All visitors to be accompanied by site personnel.</p> <p>All drivers directed to drive slowly and with care, paying particular attention to situations with poor visibility, blind corners etc., with the horn to be sounded for awareness.</p> <p>Site speed limit maintained at 5 mph</p> <p>Gated, secure entry to the site therefore drivers are required to stop and check in on entry.</p> <p>Pedestrians to make hand/eye contact with all drivers, and wait for acknowledgement before proceeding.</p>	Possible	Major	18	<p>Barriers / exclusion zones and clearly demarked pedestrian areas.</p> <p>Designated walking routes and roadways.</p> <p>Use of hard barricading around delicate pieces of infrastructure.</p> <p>Speed limit signage installation</p> <p>Check site induction for traffic movements.</p>

				<p>High visibility clothing to be worn at all times.</p> <p>Task Specific Risk Assessments and Safe Operating Procedures for site mobile plant in place and employees trained in the procedures.</p> <p>All pedestrians must walk to the side of the road at all times.</p>				
Third-Party deliveries / Entry & Exit of trucks	Almost Certain	Significant	25	<p>Deliveries booked prior to arriving at site.</p> <p>Drivers stop and book in at the gate before entry.</p> <p>Site induction for truck drivers.</p> <p>AD Plant personnel to direct truck drivers to unloading area. Be present while unloading occurs.</p> <p>Limit pedestrian movement around unloading area.</p>	Possible	Major	18	Safe pedestrian routes to be established.
Fire	Possible	Significant	23	<p>Keep potential sources of ignition away from fuel sources on site, such as biogas, combustible materials, and diesel.</p> <p>Electrical Equipment and mechanical equipment is inspected frequently for defects. Isolation will occur</p>	Unlikely	Minor	7	<p>Lightening conductors in place to reduce the risk of lightning strike- will be added to the new barn.</p> <p>Documentation and records for electrical inspections to be maintained.</p>

				<p>as soon as reasonably practicable by a qualified person if defect found.</p> <p>Fire Risk Assessment conducted/ reviewed annually.</p> <p>On-site fire appliances in place and appropriately serviced / maintained.</p> <p>Training provided on the use of fire extinguishers.</p> <p>Emergency Management Plan in place.</p> <p>Bi-annual fire drills conducted.</p> <p>High standards of housekeeping maintained.</p> <p>Qualified electrical personnel only to undertake electrical work issued prior to commencement of works.</p> <p>Ensure equipment is turned off at the end of each shift.</p> <p>Check fire extinguishers as part of the Monthly Workplace Inspection process.</p> <p>Fire extinguishers installed in ample locations on site.</p>			<p>Review controls on electrical works (i.e permit to work, hot works)</p>
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			18	<p>Emergency Exits clearly identified.</p> <p>Site Map in place detailing escape routes / Muster Point.</p> <p>SDS available for chemicals sorted on site.</p>			7	
Exposure to Chemicals / Hazardous Substances	Possible	Major	18	<p>Register of chemicals, including their up to date SDS available for all chemicals used on site.</p> <p>COSHH Assessments undertaken to ensure most practical and lowest risk options are sourced and used.</p> <p>If working on equipment, the Isolation Procedure must be followed (i.e valves closed and locked out/ bled out).</p> <p>If working on a pressurised system, ensure measures are taken to de-pressurise it safely prior to work commencing.</p> <p>All PPE readily available and worn as required.</p> <p>Spill kits in place and readily available. Spillages cleared up as soon as practically possible and reported to site management.</p>	Unlikely	Minor	7	<p>Review isolation, lock out and tag out Procedure</p> <p>Review Safety Shower requirements.</p>

				<p>Spill training delivered to all employees.</p> <p>First aid kits, including eyewash available on site, and they are checked regularly.</p> <p>Trained first aiders on site, with in-date certification.</p> <p>Wash any spills with plenty of water</p>				
Biogas	Almost Certain	Significant	25	Please refer to separate biogas risk assessment.	Possible	Moderate	13	
High Temperatures	Likely	Major	20	<p>Hot Surfaces are lagged.</p> <p>When draining hot water, condensate, or opening flanges for post isolation and/ or drain off. Suitable gloves must be worn and arms/legs must be covered.</p> <p>Report missing insulation and replace it.</p> <p>Visitors are to be always accompanied by a member of staff.</p> <p>Burns kits are included in first aid kit.</p>	Unlikely	Minor	7	Review feasibility of pressure display on drain points/ valves of concern.
Leaks and Spills	Likely	Major	20	High Level sensors and visual alarms/phone/text notification in place for overfill protection.	Unlikely	Minor	7	Review Sensor Set up- H, then HH?

				<p>Pumps will automatically cut out if High Level Sensor is activated.</p> <p>Pumps will trip if blockage detected in pipework.</p> <p>Refit blanks/plugs on open pipework ends</p> <p>Correct or report leaks before they lead to more serious problems.</p> <p>Clear up spilt material promptly using spill kits, following the spill procedure.</p> <p>Correct or report instrumentation or other problems which could lead to overfilling tanks etc.</p> <p>Regular tank cleaning</p> <p>Antifoam used should foaming become a problem to prevent PVRVs becoming blocked leading to overpressure event within the tank.</p>				
Slip, trip and falls	Likely	Major	20	<p>Ensure items are returned to their correct place after use</p> <p>Correct or report unsafe conditions promptly</p> <p>Clear up spillages immediately</p>	Unlikely	Minor	7	<p>WAH training to be organised.</p> <p>Improvements made to ladder inspections on site.</p>

				<p>Use approved access equipment, ladders, scaffolding, hydraulic platforms, and check that inspections are up-to-date before use.</p> <p>Ensure that safety rails, steps, platforms and stairs are in good condition; report any defects.</p> <p>Keep three points of contact at all times.</p> <p>Dynamic Risk Assessments are conducted for Work at Height on site. Ladders, platforms or other equipment such as MWEPs will be inspected prior to use, and at regular intervals as required by the Work at Height Regulations and LOLER where required. Records of inspections are kept.</p> <p>Only competent, trained people are permitted to work at height.</p> <p>Work at height is not permitted during foul weather, including strong winds.</p>				<p>Improvements to SSoW for Working at Height.</p> <p>Improved pre-use checks for harnesses based on: INDG367 - Inspecting fall arrest equipment made from webbing or rope (hse.gov.uk)</p>
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				<p>Harnesses will be worn when working at height, on a mobile platform or fixed platform.</p> <p>Harnesses are inspected as per the Work at Height Regulations.</p>				
Bacterial pathogens	Likely	Major	20	<p>Wear robust, non-absorbent gloves.</p> <p>Ensure residual pressure has been released</p> <p>Avoid contact with sludge as far as possible</p> <p>Clear up spills of sludge promptly and wash down the area to a safe location.</p> <p>Wash hands thoroughly before eating or drinking</p> <p>Follow good hygiene practice and wash hands regularly, especially before eating, drinking and smoking.</p> <p>Animal by-products are tankered into the processes via tanker hose therefore human intervention and contact is limited.</p>	Unlikely	Minor	7	
Confined space	Likely	Major	20	<p>Entry into tanks, and other confined spaces as defined by management is prohibited.</p>	Possible	Moderate	13	<p>Review and update existing confined space procedure for the AD plant.</p> <p>Improved PTW procedures for Confined Space work.</p>

				<p>Confined Space entry is performed only by external contractors who are qualified, competent and experienced under full permit to work, agreed SSoW that includes an appropriate rescue plan.</p> <p>Do not climb onto unsafe structures</p> <p>Ensure decking and hand railing are in good condition before access and are inspected regularly.</p> <p>For on site welding within the designated area, adequate ventilation is ensured throughout the task to ensure that the space does not become a confined space.</p>				
Electrical hazards	Likely	Major	20	<p>Work on High Voltage Systems must be carried out by a qualified, competent and experienced person.</p> <p>Electrical switch panels and transformers are kept secured at all times to prevent unauthorised access.</p> <p>Never access the inside of electrical panels, unless fully trained.</p> <p>Always ensure electrical equipment is electrically isolated and locked/tagged</p>	Possible	Moderate	13	Review Permit to Work procedure.

				out prior to work being carried out. Follow Control of Work at all times.				
Noise	Likely	Minor	9	Hearing protection mandatory when in CHP building. External CHPs do not require this. Follow all safety signage No admittance into CHP building for prolonged periods of time without authorisation. Regular servicing and maintenance of the engines to ensure they operate correctly and to the manufacturer predicted noise levels. CHP skid(s) are bolted down to prevent excessive noise and vibration.	Unlikely	Insignificant	2	Noise monitoring for external CHPs recommended to assess against WEL.
Pressurised systems / stored energy	Likely	Major	20	Follow the Isolation Procedure Always ensure isolating valves are closed Vent off stored pressure before starting work as per the Isolation procedure.	Possible	Moderate	13	Review and update the Isolation Procedure

<p>Catastrophic Tank Failure</p>	<p>Likely</p>	<p>Significant</p>	<p>24</p> <p>Pressure sensors installed in the digester to monitor any gradual or sudden pressure increases.</p> <p>Visual alarm on SCADA and phone/text alarm for increases in pressure.</p> <p>Pumps will automatically stop feed if tank High Level alarm is tripped.</p> <p>Tanks are visually inspected regularly by site staff to examine for obvious signs of damage or defect.</p> <p>Planned preventative maintenance takes place on tanks, according to the design life of the tank (e.g tank desilting, sensor cleaning and calibration)</p> <p>Secondary containment (Earth Bunding) of the digester is provided. Leak detection is in place underneath digester 1.</p> <p>Liquid level Pressure Relief Valves installed in the event of over pressure.</p> <p>Foaming is not often a problem, but foaming is monitored for. If foam occurs, antifoam is added.</p>	<p>Unlikely</p>	<p>Minor</p>	<p>7</p>	<p>Review tank design life, and requirements for NDT Testing.</p> <p>Records of regular inspection to be kept. Check pump logic for feed pumps.</p>
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			24	<p>Pumps will trip if blockage detected in pipework.</p> <p>Lagoon is secured by fencing and locked gate to prevent unauthorised access.</p> <p>Entry by site personnel only, double manned.</p> <p>Staff must always walk around the outside of the lagoon edge, and never walk down into the lagoon bank.</p> <p>Life bouy available for emergency use at the lagoon.</p> <p>Tyre ladders and ropes on the lagoon bank.</p>			12	
Drowning (Lagoon)	Likely	Significant			Unlikely	Moderate	12	

IMPLEMENTATION PLAN (For each "Further Control Required", please complete the below table)

Further Control Required	Hierarchy (See below)	Resources Required	Person(s) Responsible	Control Considered but not Implemented?	Implementation Date
See Action Plan					

SIGN-OFF

PERSON COMPLETING RISK ASSESSMENT:	Sarah Perry	DATE:	01/03/2024
WISER PEER REVIEW & SIGN OFF:	Nick Gerrard	DATE:	01/03/2024
SIGN OFF: *(Where Required)		DATE:	

The “HIERARCHY OF CONTROL” consists of the following:

ELIMINATION: Removing the hazard is always the best option and may include elimination of a specific part of a job, the plant, or its energy source.

SUBSTITUTION: Involves replacing the hazard, energy source or process with one that presents a lower and more manageable risk.

ISOLATION/ ENGINEERING: Utilising a number of methods that creates a barrier or changes / alters the process between the hazard or energy source and persons / equipment. Such methods include:

- Designing hazards out and control measures to be designed in.
- Redesign of plant, or work processes involving plant, to eliminate or reduce risk.
- Installing monitoring devices for ventilation, guarding, operator controls and automation.
- Isolation of the plant and/or the operators.
- Rearranging aspects of the workplace.

ADMINISTRATION: Involves minimising exposure to risks through the development and use of specific procedures or work instructions. Other methods include:

- Changing procedures to eliminate hazardous steps.
- Changing the sequence of tasks in a job.
- Reducing the frequency of performing a dangerous task.
- Measuring performance.
- Housekeeping, maintenance and purchasing.
- Combining tasks.
- Preparing JSEA.

PPE: Personal Protective Equipment - The last line of defence between the hazard and the worker.



1. CONSEQUENCE / IMPACT CRITERIA			Consequence / Impact Ratings				
DESCRIPTION			*Where an event has more than one "Loss Type", choose the "Consequence / Impact" with the highest rating. If "Near Miss" select potential rating.				
			Insignificant	Minor	Moderate	Major	Significant
Health and Safety			Near miss	First aid treatment required	Medical treatment required	Lost time injury to worker, injury to member of the public or permanent injury or disability (public or workers)	One or more fatalities (public or workers)
Environmental			Limited or no environmental damage with no intervention required	Limited or minor damage requiring possible intervention	Environmental impact requiring treatment inside or outside site	Serious environmental harm requiring restoration and/or remediation inside or outside of site with possible regulatory intervention	Permanent/material damage to environment requiring ongoing remediation and monitoring with regulatory involvement and possible further enforcement action
Business Interruption			A temporary delay in servicing a small number of customers	Delay affecting customers but no damage to relationships	Inconvenience to customers that cause some harm to relationships	Widespread damage to customer relationships (some permanent)	Irreversible damage to a large number of customers (impacts viability of the business)
Reputational			Slight impact- public awareness may exist but no public concern.	Limited impact- local public concern.	Considerable impact- regional public concern. Client unease.	National public concern. Leads to share price volatility. Loss of client.	International public attention. Direct impact on share price. Loss of core client.
2. LIKELIHOOD / PROBABILITY & RISK RATING			Risk Rating				
Likelihood / Probability	Examples (Near-misses as well as actual events)	% chance of occurring					
Almost Certain	The unwanted event has occurred frequently; occurs in order of one or more times per year & is likely to reoccur within 1 year	>75% - 99%	5	10	15	21	25
Likely	The unwanted event has occurred infrequently; occurs in order of less than once per year & is likely to reoccur within 5 years	>50%-<74%	4	9	14	20	24
Possible	The unwanted event has happened in the business/industry at some time; or could happen within 10 years	>25%-<49%	3	8	13	18	23
Unlikely	The unwanted event has happened in the business/industry at some time; or could happen within 20 years	>11%-<24%	2	7	12	17	22
Rare	The unwanted event has never been known to occur in the business/industry; or it is highly unlikely that it will occur within 20 years	0- <10%	1	6	11	16	19

RESIDUAL RISK LEVEL:

Extreme NO WORK TO BE CONDUCTED

HIGH Requires Management Approval

MEDIUM Requires Further Review when on Site

LOW Monitor