

Risk Assessment Form – AD Plant Operation

Version 3 – 09/01/24



COMPANY:	GUY&WRIGHT	SITE:	GREEN TYE		
SITE LOCATION:	The Vineries, Green Tye, Much Hadham SG10 6JJ	COUNTY:	HERTFORDSHIRE	POST CODE:	SG10 6JJ
<i>*This form is to be completed by the person(s) undertaking the Risk Assessment and / or the supporting scope of works.</i>					
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:	Biogas Production				
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:	05/03/2025	DATE OF LAST ASSESSMENT:	05/03/2024	NEXT REVIEW DATE:	05/03/2026
SECTION 1 – SUMMARY OF THE KEY HAZARDS THAT WERE IDENTIFIED DURING THE ASSESSMENT:					
1.	Personal Exposure to Biogas				
2.	Explosive Atmospheres				
3.					
4.					
5.					
6.					
7.					

Identified Hazards	Uncontrolled Risk		Risk Rating	Current Controls	Controlled Risk		Residual Risk Rating	Further Controls required
	Likelihood	Consequences			Likelihood	Consequences		
Personal Exposure to Biogas	Almost Certain	Significant	25	<p>Release of biogas prevented and minimised through following: -Digester loading/feeding procedure. - Digester pressure is continually monitored and trended and feed rates adjusted accordingly. - Use of the gas flare when required or in times of emergency.</p> <p>Entry into DSEAR zones are controlled as follows: Zone 0: Prohibited Zone 1: Prohibited. Zone 2: Entry permitted by trained site personnel, with additional controls.</p> <p>Training is given to staff on the risks of biogas and likely areas biogas may collect.</p> <p>Gas Flare is available and ready to operate at all times in case of emergency, including planned maintenance of the CHP engines.</p> <p>Flare will be operated manually when gas level alarms are tripped on SCADA (visual and phone/text alarm).</p>	Possible	Moderate	13	<p>Personal Gas Detectors have been recently ordered. Training on use is to be provided and additional controls re-briefed when entering zone 2 areas.</p> <p>Checks on liquid levels in Pressure Relief Valves require personal gas alarm to be worn.</p> <p>Refresher training on DSEAR and biogas risks to be given to all site staff.</p> <p>Ensure servicing and calibration of CHP gas detectors.</p> <p>PPE review- Antistatic wear.</p>

				<p>CHP engines are regularly serviced to ensure that they remain operational.</p> <p>Generators provided on site in the event of power outage.</p> <p>For entry to confined spaces, the work is outsourced to suitably qualified, competent and experienced contractor. Confined space work will only be permitted under a full permit to work, with agreed RAMS.</p> <p>CHP rooms are fitted with methane detection alarms, which when activated will stop the gas supply to engine, and shut down the CHP.</p> <p>CHP room is ventilated, with automatic CHP shut down if ventilation fails.</p> <p>Antifoam used should foaming become a problem to prevent PVRVs becoming blocked leading to overpressure event in the tank.</p>				
Explosive Atmospheres	Almost Certain	Significant	25	<p>Electrical equipment within any DSEAR zones is ATEX*</p> <p>Mobile phones and non-ATEX portable electrical equipment is prohibited from the anaerobic digester compound.</p> <p>No smoking or vaping is permitted on site, other than the designated safe area.</p>	Unlikely	Moderate	12	<p>Lightening Conductors</p> <p>*where identified equipment as not ATEX, or further checks need to be made on suitability – see plan</p>

				<p>No hot works are to be carried out within DSEAR Zones.</p> <p>All maintenance work is pre-planned and RAMS are developed for each job.</p> <p>DSEAR Assessment performed and reviewed regularly, and Hazardous Area Classification Diagrams updated in line with assessment findings.</p> <p>Hot works are carried out in a designated area away from explosive atmospheres.</p> <p>DSEAR Zones clearly marked.</p> <p>Staff are given basic awareness training surrounding DSEAR zoning and controls.</p> <p>Digesters are fitted with and Pressure Vacuum Relief Valves should an overpressure event occur.</p> <p>Inspections of electrical and mechanical equipment is completed at required and/or appropriate inspection frequencies.</p> <p>Defective electrical or mechanical equipment which is at risk of causing spark will be isolated as soon as reasonably practicable</p>				<p>Check that Earth Bonding is in place for all electrical equipment to the required standard.</p> <p>Examine the risk of any fluid transfers and static – earthing and bonding requirements.</p> <p>Examine the risk of vitamin additions to process- check this is not combustible dust or creating a hybrid conditions.</p> <p>Non-sparking tools</p> <p>Improved Control on Hotworks (PTW)</p> <p>Review/ update DSEAR Assessment</p> <p>Confirm if the Gas flare has a flame arrestor.</p>
--	--	--	--	---	--	--	--	---

				<p>upon finding (through the use of competent and qualified electrician).</p> <p>CHP 1 & 2 are fitted with Methane detection alarms.</p> <p>Antifoam used should foaming become a problem to prevent PVRVs becoming blocked leading to overpressure event in the tank.</p>				

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

SIGN-OFF

PERSON COMPLETING RISK ASSESSMENT:	Sarah Perry	DATE:	05/03/2024
WISER PEER REVIEW & SIGN OFF:	Nick Gerrard	DATE:	05/03/2024
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