

# Anaerobic Digestion Certification Scheme

## Audit Sheet and Scheme Criteria



**ANAEROBIC  
DIGESTION  
CERTIFICATION  
SCHEME**

Version 2.0

March 2024



## **Document Control**

Any updates to this document will be posted on the scheme website; it is recommended that anyone using this document periodically checks for updates to ensure they are using the latest version.

If you have any feedback or questions about the document, please email [adcs@adbioresources.org](mailto:adcs@adbioresources.org).

Date	Version
26/05/2017	0.1 – Working Draft
05/07/2017	0.2 – Pilot document
01/12/2017	1.0 – Scheme document
14/03/2024	2.0 – Scheme revised document

### **Document Owner: Anaerobic Digestion and Bioresources Association**

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### **Disclaimer**

*This document and the Anaerobic Digestion Certification Scheme are for guidance only and are not intended to be a legal guide or a replacement for independent specialist advice. Those who use this document or participate in the ADCS should ensure that they take appropriate professional advice when using this document and participating in the ADCS. ADBA and its advisers accept no liability whatsoever for any expense, loss, claim or proceedings arising from reliance placed upon this document or any part of the ADCS. Users must always satisfy themselves as to the applicability of the relevant part(s) of any guidance within this document or the ADCS to their particular circumstances.*

*The scheme criteria have been devised by a steering group with engagement with industry and are intended to accommodate a wide range of types of AD projects, from small to large scale and across agricultural and waste plants. Some operators may go further than the criteria, which is to be encouraged. The scheme is designed to reflect current industry practices at the time of publication and should not be taken in any way as discouraging or negating the need for innovation, further improvements in practice or advances in technology over time. The scheme criteria will be reviewed periodically by ADBA in conjunction with the steering group and other stakeholders and may be updated from time to time.*

## **How the audit sheet works**

This document sets out the criteria for the Anaerobic Digestion Certification Scheme (ADCS), which is a voluntary scheme applicable in the UK. It will be used by the auditor to undertake the audit process but can also be a useful document for applicants to use themselves to review their readiness for the audit and identify gaps.

Some information is required about the operator, plant and auditor.

The audit is structured into the following sections:

- 1) Site information and understanding
- 2) Managing health and safety risks
- 3) Staff training
- 4) Process monitoring
- 5) Maintenance of plant, kit and infrastructure
- 6) Procuring services
- 7) Managing environmental risks
- 8) Animal By-Products Regulations Compliance
- 9) Digestate management
- 10) Biomethane process
- 11) Life cycle assessment

The process of achieving certification is explained in the Scheme Rules document and on the scheme website.

Upon the submission of the application, the auditor will contact the operator to arrange the audit, explain the audit process in detail and plan the audit.

All audits will involve some information-gathering for a desk-based review, a site visit and the compiling of an audit report.

During the audit, the auditor will work through the whole audit form to complete the required columns and gather records of the evidence used to demonstrate conformance with the scheme criteria.

The purpose of the ADCS is not only to recognise good performance but to identify areas for improvement and be a stimulus for that improvement.

The auditor will complete the final three columns of the audit tables, which involve:

- Indicating whether the criterion has been passed or failed.
- Noting the evidence that has been provided to justify this decision.
- If the criterion failed, the improvement needed to meet it.

The auditor will also note:

- Exemplary or innovative techniques observed.
- Recommendations for improvement.

Based on the evidence gathered through the audit, the auditor will make a recommendation for certification. The auditor will then submit the recommendation to their Certification Officer, who will review the submission and make a certification decision.

**The certification will have 3 possible outcomes.**

- **Not achieved ADCS and a list of improvements will be presented**
- **Achieve Intermediate ADCS**
- **Achieve Expert ADCS**

**The list of improvements will provide the operator with a chance to achieve any of the categories above.**

Anaerobic Digestion Certification Scheme		
<b>Auditor details</b>		
Auditor company		
Auditor name		
Date of audit		
<b>Operator details</b>		
Operator company name		
Operator contact name		
Email address		
Applicant's scheme number – assigned upon application		
Registered office		
Does the operator hold valid certification for any of the following (which cover the activities undertaken on the site in question) – this helps in the planning of the audit:	ISO14001 – Environmental Management Systems ISO9001 – Quality Management Systems BS OHSAS 18001 – Health and Safety Management Systems Biofertiliser Certification Scheme/PAS110 – Digestate ‘End of Waste’	
<b>Plant details</b>		
Site name		
Full site address (including postcode)		
Date of commissioning		
Feedstock type(s) – tick as many as apply	Food waste Energy crops (maize, sugar beet etc.) Crop residues Slurries or manures	On-site effluent/process wastes or residues Protein-rich feeds (such as meat or blood) Paper waste or pine sap Other (please specify)
Approximate typical feedstock mix percentage		
Annual throughput of AD plant (planning and permitting capacity, in tonnes per annum)		

Environmental Permit or Exemption reference (if applicable) <i>Note type of permit (i.e. Standard Rules, Bespoke)</i>	
Planning Permission reference	
<b>Is the audit for:</b>	
Type of audit	New plant (i.e. the plant hasn't been certified previously under the ADCS) Renewal (i.e. the plant has current, valid certification under the ADCS)

### Site Information

<b>Plant Construction, Warranties and Cost</b>	
Construction of tanks and length of warranty	<i>Construction date:</i> _____ <i>Length of warranty:</i> _____
Makes and models of engines and length of warranty	<i>Provide details:</i>
Who constructed the plant	<i>Name of company:</i>
<b>External Exposures and Security</b>	
Has the site any experience of flooding	<i>Yes/No – if yes, date and brief description</i>
Housekeeping	<i>Yes/No</i>
Details of perimeter protection – details any fence, tamper detection, perimeter beams, lighting etc.	<i>Provide details:</i>
Use of CCTV – where are the images relayed, are these images recorded	<i>Provide details:</i>

Criteria	Appropriate evidence	Any exceptions where criterion does not apply	To be completed by auditor		
			What evidence has been supplied?	Conformance assessment	If applicable, improvement needed to address nonconformances
<p><b>1. Site information and understanding</b>  <i>In order to run a plant effectively, an operator must have a clear understanding of the site layout, design and operation, and should have available plans and diagrams which are fundamental to ensuring this understanding.</i></p>					
<p>1.1 To clearly describe the AD process in full, explaining how each stage of the process works including details of the key components</p> <ul style="list-style-type: none"> <li>Mesophilic Digestion or</li> <li>Thermophilic Digestion</li> </ul> <p>1.2 To clearly describe the stages of operation</p> <ul style="list-style-type: none"> <li>Single or Multi or Batch</li> </ul> <p>1.3 To have available the following documents:</p> <ul style="list-style-type: none"> <li>Site layout drawing</li> <li>Site drainage plan and drainage philosophy/written explanation</li> <li>Sensitive receptors drawing (including identification of any critical infrastructure in the vicinity of the site)</li> <li>Drawing showing DSEAR zones</li> <li>Traffic movements</li> <li>Piping and Instrumentation Diagrams</li> <li>Pipe runs</li> <li>Cable runs</li> <li>Mass and energy balance</li> <li>Functional description or Process Control Philosophy</li> <li>Changes/adjustments to specified designed process</li> </ul>	<ul style="list-style-type: none"> <li>Inspection of all specified documents – note the date of last review.</li> <li>The documents may be verified through the site-based phase of the audit.</li> <li>View validation process &amp; procedures for system &amp; plant changes.</li> </ul>				

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<ul style="list-style-type: none"> <li>Changes/adjustments/additions/removals to original plant specifications</li> <li>Operation &amp; Maintenance manual</li> <li>Standard Operating Procedures</li> <li>Evacuation Maps</li> </ul>					
<ul style="list-style-type: none"> <li>Environmental Permit – permitted wastes lists (if applicable)</li> </ul>					
<b>2. Managing Health and Safety Risks</b> <i>Safeguarding the health and safety of site workers, visitors and the public should be of the highest priority for any business. At AD plants, along with generic risks such as slips and falls, there are risks arising from the nature of the process, for example the production and storage of flammable gas. The operator must ensure that there are procedures in place to manage these risks.</i>					
2.1 To have a site health and safety policy, identifying who has responsibility for day-to-day and overall health and safety.	<ul style="list-style-type: none"> <li>Inspection of policy.</li> <li>Evidence of current training &amp; qualification of responsible person (links with Section 3 ‘Staff Training’).</li> </ul>				
2.2 To have undertaken a ‘hazard and operability’ (HAZOP) study or equivalent risk assessment technique.	<ul style="list-style-type: none"> <li>Final report showing all actions been completed or have planned completion dates.</li> </ul>				



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<p>2.3 To produce and implement health and safety procedures, covering as a minimum:</p> <ul style="list-style-type: none"> <li>• Working in confined spaces</li> <li>• Working at height</li> <li>• ATEX/DSEAR</li> <li>• Slips, trips and falls</li> <li>• Lone working</li> <li>• Operation of machinery and plant</li> <li>• Driving</li> <li>• Manual handling</li> <li>• Tank filling (mitigation of gas-air mix) – applicable only during commissioning</li> <li>• H&amp;S signage and management for non-English speaking employees.</li> <li>• Smoking controls.</li> <li>• Gas detection controls.</li> <li>• Management of change procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Inspection of written procedures covering the specified areas. <i>Or</i></li> <li>• Valid certificate for BS OHSAS 18001<sup>1</sup> Occupational Health and Safety Management that covers the site activities (note the certificate reference number and expiry date).</li> <li>• Records of staff training in the procedures.</li> <li>• Suitable &amp; appropriate H&amp;S communications for all staff.</li> </ul>				
<p>2.4 Statutory Inspections of plant and equipment</p> <ul style="list-style-type: none"> <li>• IN excess of 250 bar- litres</li> <li>• Pressurized equipment</li> <li>• Lifting equipment</li> <li>• BA inspection</li> <li>• Gas monitors calibration</li> <li>• Pat testing</li> <li>• Maintenance certificates for critical equipment (Flare, PRV, Others)</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>				

<sup>1</sup> BS OHSAS is due to be replaced by ISO 45001 in 2018 (see the British Standards Institute website for the latest information)

Criteria	Appropriate evidence	Any exceptions where criterion does not apply	To be completed by auditor		
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<p>2.5 To produce and implement emergency response procedures, covering as a minimum:</p> <ul style="list-style-type: none"> <li>• Fire</li> <li>• Spillage</li> <li>• Pipe failure or tank breach</li> <li>• Flood</li> <li>• Explosion/Gas leaks</li> <li>• Major injury</li> <li>• Unsafe electrical system</li> <li>• Foaming</li> <li>• Loss of power supply</li> </ul> <p><i>These procedures should be tested through undertaking drills.</i></p>	<ul style="list-style-type: none"> <li>• Inspection of procedures covering the specified areas.</li> <li>• Records of staff training in the procedures. <b>Or</b> Valid certificate for BS OHSAS 18001</li> <li>• Occupational Health and Safety Management that covers the site activities (note the certificate reference number and expiry date).</li> </ul>				
<p>2.6 To have in place an emergency response plan for the breakdown of the site's Supervisory control and data acquisition (SCADA) system, including mechanism to contact the technology provider, the required response time of the technology provider (usually specified in the relevant contract) and staff training in the procedure.</p>	<ul style="list-style-type: none"> <li>• Written procedure and verbal explanation by operator.</li> <li>• Evidence of staff training on the SCADA (this may be covered in Section 3).</li> </ul>				
<p>2.7 To have an understanding of the risks associated with hacking of computer systems and explanation of measures in place for reducing the risk of this. This may include firewalls, log-ins for staff, control of access to relevant areas and testing.</p>	<ul style="list-style-type: none"> <li>• Verbal explanation and visual demonstration of log-in and site access processes.</li> </ul>				

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2.8 To ensure that all site staff and contractors are competent, and appropriately trained/qualified in the site health and safety procedures above.	<ul style="list-style-type: none"> <li>• Inspection of records of staff training in the procedures.</li> <li>• Permits to work in place and recorded.</li> <li>• Contractor site induction procedure. <b>Or</b> Valid certificate for BS OHSAS 18001 Occupational Health and Safety Management that covers the site activities (note the certificate reference number and expiry date).</li> </ul>				
2.9 To have a visitor site induction process and record all visitors upon sign-in and sign-out.  As a minimum, visitors should be briefed on: <ul style="list-style-type: none"> <li>• Which parts of the site are potentially hazardous;</li> <li>• Which parts of the site they cannot use their mobile phones;</li> <li>• The risks associated with gases and how to respond if gas detector sounds; and</li> <li>• Awareness of site traffic and machinery.</li> <li>• Use of 'Safety intrinsic equipment' (as a minimum of maintenance tools) &amp; PPE management.</li> </ul>	<ul style="list-style-type: none"> <li>• Inspection of written site induction procedure, equipment and visitor records.</li> <li>• Auditor to be given normal visitor induction. <b>Or</b> Valid certificate for BS OHSAS 18001 Occupational Health and Safety Management that covers the site activities (note the certificate reference number and expiry date).</li> </ul>				

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2.10 To have a mechanism for the reporting of incidents and near-misses, and ensure staff are briefed on it.	<ul style="list-style-type: none"> <li>• Inspection of written procedure for reporting near misses and incidents.</li> <li>• Evidence that staff have been briefed in the procedure.</li> <li>• Evidence of near miss and incident reports. <i>Or</i></li> <li>• Valid certificate for BS OHSAS 18001 Occupational Health and Safety Management that covers the site activities (note the certificate reference number and expiry date).</li> </ul>				
2.11 To comply with 'Reporting of Injuries, Diseases and Dangerous Occurrences Regulations' (RIDDOR) 2013.	<ul style="list-style-type: none"> <li>• Validate RIDDOR understanding and processes &amp; test awareness.</li> </ul>				
2.12 To have testing procedures for all safety devices, such as alarms and HS2 detectors.	<ul style="list-style-type: none"> <li>• Evidence of testing procedures and recorded tests.</li> </ul>				
2.13 To validate the operation of safety devices and safety systems as suitable and appropriate for the process requirements.	<ul style="list-style-type: none"> <li>• Ensure venting and relief mechanisms unload into a safe space.</li> </ul>				
2.14 To identify the requirement for further safety devices i.e. retrofit safety relief valves for foaming issues.	<ul style="list-style-type: none"> <li>• Ensure suitably designed systems, fit for purpose and tested.</li> </ul>				
2.15 To have testing procedures for all safety devices, such as alarms and HS2 detectors.	<ul style="list-style-type: none"> <li>• Evidence of testing procedures and recorded tests.</li> </ul>				

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<p>2.16 To have a fire prevention and response plan, including consideration of:</p> <ul style="list-style-type: none"> <li>• Water supply</li> <li>• Distance to nearest fire brigade</li> <li>• Fire hydrants</li> <li>• Fire walls/separation</li> <li>• Site supervision including remote monitoring</li> <li>• Appropriate Shutdown procedures</li> <li>• Details of Fire Detection and/or suppression in critical plant areas</li> <li>• Dust controls in place</li> <li>• Separation distances between key components if not 6 metres.</li> <li>• Confirmation non-combustible materials have been used in key buildings / component housing.</li> </ul>	<ul style="list-style-type: none"> <li>• Inspection of fire prevention and response plan.</li> <li>• Confirmation of fire detection/separation in place (through visual inspection).</li> <li>• If no separation in place then confirmation that 2 hour fire resistant walls in place. <ul style="list-style-type: none"> <li>• Fire risk assessment in place with yearly revision</li> </ul> </li> </ul>				
<p>2.17 To meet the requirements of DSEAR and ATEX, including classification of hazardous zones.</p>	<ul style="list-style-type: none"> <li>• Evidence of register of ATEX equipment.</li> <li>• Inventory of ATEX certificates for relevant items.</li> <li>• Operator able to show auditor the DSEAR zones on site, with appropriate signage.</li> <li>• Evidence of lightning and earthing report.</li> <li>• DSEAR Risk assessment within date (less than 1 year old)</li> <li>• Hazardous Area Classification Document including dangerous substances</li> </ul>				

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2.18 Lightning protection Risk assessment and consequent control measures in place.	<ul style="list-style-type: none"> <li>Compliance with BS EN BS EN 62305</li> <li>Evidence of regular review of bonding.</li> </ul>				
2.19 To also comply with Control of Substances Hazardous to Health (COSHH) legislation.	<ul style="list-style-type: none"> <li>Evidence COSHH compliance, through inspection and documentation records.</li> </ul>				
2.20 To have in place a procedure for identifying whether any maintenance or construction work (e.g. extensions) falls within the CDM regulations and to ensure compliance if so.	<ul style="list-style-type: none"> <li>Evidence that the management team has an awareness of the CDM regulations and process for assessing regulatory requirements for any work.</li> </ul>				
2.21 To ensure contractors are qualified for the task they are carrying out, have had their insurer or incumbent insurance broker complete a subcontractors questionnaire and have been briefed in health and safety procedures. Ensure contracts clearly defined liabilities.	<ul style="list-style-type: none"> <li>Evidence that Risk Assessment and Method Statements are in place.</li> <li>Evidence that operator checks permits to work and other qualifications are in place before allowing contractor to undertake task.</li> <li>Records of site inductions and health and safety briefings.</li> </ul> <p><i>This may be within existing site management systems.</i></p>	<p><b>Get guidance documentation from HSE – records of contractor competency and insurance.</b></p>			
2.22 To have emergency response packs available for emergency services who may respond to incidents, containing site layout plans, details of potentially explosive or hazardous materials, and contact details of the site manager.	<ul style="list-style-type: none"> <li>Inspection of emergency response packs (this can be electronic) or evidence of discussions with emergency services (such as the fire service).</li> </ul>				
2.23 To implement a site traffic plan and designated routes around the site for vehicles and pedestrians.	<ul style="list-style-type: none"> <li>Inspection of site pedestrian and traffic plan showing routes around the site and access points.</li> </ul>				

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2.24 All mobile plant vehicles should have suitable and sufficient spark arrestors fitted to their exhausts including appropriate and adequate safe electrical systems for their required duties – if they operate in hazardous areas.	<ul style="list-style-type: none"> <li>Evidence suitability and fire rating duty of vehicles and mobile plant – including contractor’s equipment.</li> </ul>				
2.25 To confirm all mobile plant have automatic or manual fire extinguishers in place.	<ul style="list-style-type: none"> <li>Evidence of extinguishers as per the criterion.</li> </ul>				
2.26 Confirm all mobile plant are not parked within 6 metres of critical component buildings or parked in buildings where critical components are housed.	<ul style="list-style-type: none"> <li>Evidence of suitable Mobile Plant parking.</li> </ul>				
2.27 To provide suitable welfare facilities for staff - including toilets, shower, and area for breaks.	<ul style="list-style-type: none"> <li>Inspection of facilities – auditor walk around site accompanied by site staff.</li> </ul>				
<b>3. Staff training and competence</b> <i>There are many tasks to undertake in the running of an AD plant, from practical tasks such as carrying out maintenance or operation of equipment, to admin and managerial tasks. To ensure that the plant is run effectively and safely, and achieves legal compliance, staff must be suitably trained to carry out their specific role.</i>					
3.1 To train all staff for their specific role and have an up to date staff training and competence plan and records showing that it has been implemented. The plan should identify the training requirements for each role, using the AD Competency and Skills Matrix <sup>2</sup> as a guide.	<ul style="list-style-type: none"> <li>Inspection of plan and records that meets specified requirements. <i>This may be documented within the site’s Environmental Management System.</i></li> </ul>				
3.2 To ensure written and verbal references are obtained for new employees.	<ul style="list-style-type: none"> <li>Evidence of reference gathering and recording process.</li> </ul>				

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3.3 To have a suitable 'Technically Competent Manager', if a regulated site (i.e. compliance with competence requirements of an Environmental Permit or Waste Management Licence as applicable in the part of the UK where the plant is based).	<ul style="list-style-type: none"> <li>Provision of Certificate of Technical Competence and continuing competence for named person(s). <i>This may be documented within the site's Environmental Management System.</i></li> </ul>	Non-regulated sites.			
3.4 To have a suitably competent site manager: <ul style="list-style-type: none"> <li>Previous experience of running an AD plant;</li> <li>Suitable training, including shadowing a site manager on an existing plant.</li> </ul>	<ul style="list-style-type: none"> <li>Evidence that site manager has previous experience, including written references, or evidence of suitable training. <i>This may be documented within the site's Environmental Management System.</i></li> </ul>				
3.5 To ensure all operational staff have disaster diversion training, including identification of trigger points for failures and how to respond to them.	<ul style="list-style-type: none"> <li>Evidence that disaster diversion training is included within staff training plan and records. <i>This may be documented within the site's Environmental Management System.</i></li> </ul>				
<b>4. Process monitoring</b> <i>Monitoring the biological health and stability of the digester, and the quality and quantity of outputs is essential to running an AD plant to its optimal potential, and therefore to give the best possible return on investment. Monitoring certain parameters can give an early indication of impending problems, poor efficiency or ineffective processes. Monitoring reduces the likelihood of environmental incidents, plant failure and contaminated digestate.</i>					
4.1 To check the quality of feedstock and have a procedure in place to reject feedstock if of unsuitable quality, including checking for contamination levels and rejecting loads where this exceeds specified levels.	<ul style="list-style-type: none"> <li>Evidence that quality checks have been undertaken and records kept of loads accepted and rejected.(NCR mechanisms in place)</li> </ul>				



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<p>4.2 To regularly analyse feedstock composition, including as a minimum the following parameters:</p> <ul style="list-style-type: none"> <li>Total solids (TS) / Dry matter (DM)</li> <li>Volatile solids (VS) / Organic dry matter (oDM)</li> <li>Chemical oxygen demand (COD) – when applicable (i.e. effluent feedstocks)</li> <li>Gas yield potential – theoretical or BMP</li> </ul> <p>With the following parameters being recommended but optional:</p> <ul style="list-style-type: none"> <li>Total Carbon</li> <li>Total Nitrogen</li> <li>Carbon: Nitrogen ratio</li> </ul>	<ul style="list-style-type: none"> <li>Evidence that these results are being collated and analysed and that the operator has an understanding of their meaning and any trends.</li> </ul>				
<p>4.3 To measure (for example measured by automatic feeding rate, or other volume estimates) on an ongoing basis the feed rate to the digester.</p>	<ul style="list-style-type: none"> <li>Records of weight or volume of inputs to the digester including feedstock and dilution liquids.</li> </ul>				
<p>4.4 To regularly (minimum weekly) calculate the organic loading rate based on the working volume and the organic matter fed to the digester.</p>	<ul style="list-style-type: none"> <li>Evidence of records of calculations.</li> </ul>				
<p>4.5 To measure the volume of biogas produced, and observe the quality of the gas and to assess according to the feedstock specification.</p> <p>The recommended parameters are:</p> <ul style="list-style-type: none"> <li>Volume of biogas produced (m<sup>3</sup> over given time)</li> <li>Methane (percentage)</li> <li>Hydrogen Sulphide (ppm)</li> </ul>	<ul style="list-style-type: none"> <li>Evidence that these results are being collated and analysed and that the operator has an understanding of their meaning and any trends.</li> </ul>				

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<p>4.6 The annual energy output(s) of the plant are &gt;80% of agreed output capacity.</p> <p><i>If this is not being achieved, the operator must have a plan in place to make improvements towards this figure and be able to provide evidence of action taken at the following audit.</i></p>	<ul style="list-style-type: none"> <li>Energy outputs: biogas production, electricity, biomethane injection, heat output data as a proportion of maximum capacity.</li> <li>Design/ business case energy outputs.</li> </ul>	<p><i>This does not need to be assessed if the plant is in its first year of operation, as it is expected that this will be lower during this period. However records should be kept.</i></p>			
<p>4.7 To measure the pH of material in the digester(s).</p> <p>Depending on feedstock, to also monitor total and partial alkalinity and ammonia.</p>	<ul style="list-style-type: none"> <li>Evidence of test results from samples taken from designed outlets to digestion tank(s).</li> </ul>				
<p>4.8 To measure the temperature in the digester (this is typically done through automatic monitoring systems). There should be an automatic controlled shut-off procedure.</p>	<ul style="list-style-type: none"> <li>Evidence that these results are being collated and analysed and that the operator has an understanding of their meaning and any trends.</li> </ul>				
<p>4.9 To monitor the Volatile Fatty Acid (VFA) concentration through suitable testing and analysis.</p>	<ul style="list-style-type: none"> <li>Evidence that these results are being collated and analysed and that the operator understands their meaning and any trends.</li> </ul>				
<p>4.10 To measure the quantity of digestate produced, either by direct weighing or a calculation.</p>	<ul style="list-style-type: none"> <li>Records of digestate produced, including any calculations.</li> </ul>				
<p>4.11 To visually inspect, sample and test the quality of digestate.</p>	<ul style="list-style-type: none"> <li>Evidence of compliance with PAS110. <b>Or</b></li> <li>Visual inspection records.</li> <li>Evidence that external testing is undertaken by accredited laboratories.</li> <li>Test results showing quality of digestate, including any contaminants.</li> </ul>				

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4.12 Additional Process monitoring requirements from Permitted conditions are followed and recorded.	<ul style="list-style-type: none"> <li>Refer to the process monitoring requirements raise on Permit</li> </ul>	Only to be considered for Plants where a permit is applicable			
<b>5. Maintenance of plant, kit and infrastructure</b> <i>Ensuring that plant, kit and site infrastructure is well-maintained helps ensure the plant runs efficiently and safely.</i>					
5.1 To have maintenance schedules for all items of plant and equipment and keep records of completed maintenance.  This should cover: <ul style="list-style-type: none"> <li>Frontline maintenance;</li> <li>Reactive maintenance;</li> <li>Planned maintenance; and</li> <li>Preventative maintenance.</li> <li>Written Schemes of Examination</li> <li>Risk Assessments</li> <li>Dynamic Risk Assessments</li> </ul> Integrity Inspection & Major Repairs should take into account: <ul style="list-style-type: none"> <li>Design &amp; Design Code</li> <li>Construction</li> </ul>	<ul style="list-style-type: none"> <li>Inspection of maintenance schedules and records – preferably these should be an electronic system but paper is acceptable.</li> <li>The schedules should be immediately accessible by those who need to and there should be some sort of overall control and document management.</li> </ul>				

Criteria	Appropriate evidence	Any exceptions where criterion does not apply	To be completed by auditor		
			What evidence has been supplied?	Conformance assessment	If applicable, improvement needed to address nonconformances
<ul style="list-style-type: none"> <li>Modification Control</li> <li>Suitability for future maintenance</li> <li>Reliability</li> <li>Special requirements i.e. for ageing or worn plant</li> <li>Misguided removal of process plant.</li> </ul>					
5.2 To ensure that all plant and equipment undergoes maintenance in accordance with the manufacturers guide.	<ul style="list-style-type: none"> <li>Inspection of maintenance schedules and records – preferably these should be an electronic system but paper is acceptable.</li> </ul>				
5.3 To keep copies of any contracts for maintenance and keep records of maintenance carried out.	<ul style="list-style-type: none"> <li>Inspection of maintenance schedules and records – preferably these should be an electronic system but paper is acceptable.</li> </ul>				
5.4 To keep records of expected lifetime of the item and of any operational decisions taken which could risk failure, or reduced expected lifetime. To undertake Electrical Thermography Inspection and Gas Leakage Detection at a suitable frequency for the age of the plant.	<ul style="list-style-type: none"> <li>Inspection of maintenance schedules and records – preferably these should be an electronic system but paper is acceptable.</li> </ul>				
5.5 To have a list of critical items and spare parts where necessary.	<ul style="list-style-type: none"> <li>Inspection of maintenance schedules and records – preferably these should be an electronic system but paper is acceptable.</li> </ul>				
5.6 To have a list of back up suppliers for all critical items and the expected replacement time. To ensure all replacement spares are proprietary manufacturer’s equipment.	<ul style="list-style-type: none"> <li>Inspection of maintenance schedules and records – preferably these should be an electronic system but paper is acceptable.</li> <li>Evidence records of suitability of parts.</li> </ul>				

Criteria	Appropriate evidence	Any exceptions where criterion does not apply	To be completed by auditor		
			What evidence has been supplied?	Conformance assessment	If applicable, improvement needed to address nonconformances
5.7 To have written specifications for each item of plant and equipment.	<ul style="list-style-type: none"> <li>Inspection of maintenance schedules and records – preferably these should be an electronic system but paper is acceptable.</li> </ul>				
5.8 To have a suitable workshop and tools for site staff to carry out maintenance.	<ul style="list-style-type: none"> <li>Visual inspection.</li> </ul>	If maintenance is contracted, workshop not be required.			
5.9 To be able to demonstrate that maintenance is actually undertaken in accordance with the schedule in a timely manner.	<ul style="list-style-type: none"> <li>Inspection of maintenance schedules and records – preferably these should be an electronic system but paper is acceptable.</li> </ul>				
5.10 LDAR testing annual records as minimum	<ul style="list-style-type: none"> <li>Testing report with evidence of resolving challenges presented</li> </ul>				
5.11 Evidence of Integrity checks on storage tanks	<ul style="list-style-type: none"> <li>Integrity checks inspection of the tank (maintenance) - as per manufacturer instruction. To be carried by a structural engineer.</li> </ul>				
<b>6. Procuring Services (for example, servicing and maintenance)</b> <i>Appointing suitable individuals and companies to carry out activities is a key part of delivering a successful AD project.</i>					
6.1 To provide a clear specification of the required services to service providers and contractors and have written contracts that clearly show the liabilities of each party.	<ul style="list-style-type: none"> <li>Inspection of procurement records to demonstrate due consideration of the specified criteria.</li> <li>Provision of copy of service agreement or record.</li> </ul>				

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			What evidence has been supplied?	Conformance assessment	If applicable, improvement needed to address nonconformances
6.2 To seek and keep on record references for the provider or other evidence that the supplier has a good reputation and successful track record.	<ul style="list-style-type: none"> <li>Inspection of procurement records to demonstrate due consideration of the specified criteria.</li> </ul>				
6.3 To ensure any individual or company providing services, such as maintenance, has the necessary qualifications and training to do so.	<ul style="list-style-type: none"> <li>Inspection of procurement records to demonstrate due consideration of the specified criteria.</li> </ul>				
6.4 To have a list of preferred suppliers and alternative suppliers as a back-up.	<ul style="list-style-type: none"> <li>Inspection of procurement records to demonstrate due consideration of the specified criteria.</li> </ul>				
6.5 To ensure all service providers have suitable insurance to carry out the activities.	<ul style="list-style-type: none"> <li>Inspection of procurement records to demonstrate due consideration of the specified criteria.</li> </ul>				
<b>7. Managing environmental risks</b> <i>AD provides many environmental benefits, including production of renewable fertiliser (digestate), the recovery of energy from waste and diversion of waste from landfill. However, like any construction or industrial type project, there are potential local environmental risks – an objective of the ADCS is to ensure that AD plants are designed, built and operated in such a way that safeguards the local environment from potential impacts.</i>					
7.1 To produce, keep and follow an Environmental Management System (EMS), which should be linked to an Odour Management Plan and Standard Operating Procedures.	<ul style="list-style-type: none"> <li>Discussion with site manager as to implementation of EMS, showing that it is understood and used.</li> <li>Have a copy of EMS available.</li> </ul> <p><b>Or</b></p> <ul style="list-style-type: none"> <li>Valid ISO14001 certificate that covers site activities (note certificate reference number and expiry date).</li> </ul>				
7.2 To produce and implement response procedures for environmental incidents, covering as a minimum: <ul style="list-style-type: none"> <li>Spills (for example, of oil)</li> <li>Loss of containment (for example, of digestate)</li> <li>Release of gas and Respond to complaints</li> </ul>	<ul style="list-style-type: none"> <li>Provision of response procedures for the specified environmental incidents.</li> </ul> <p><b>Or</b></p> <ul style="list-style-type: none"> <li>Valid ISO14001 certificate that covers site activities (note certificate reference number and expiry date).</li> </ul>				

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			What evidence has been supplied?	Conformance assessment	If applicable, improvement needed to address nonconformances
7.3 To obtain any required Environmental Permit (or Waste Management License) and comply with the conditions of that permit.	<ul style="list-style-type: none"> <li>• Copy of Environmental Permit.</li> <li>• Inspection of Compliance Assessment Reports (CAR) from environmental regulator for previous two years.</li> <li>• If there are any non-compliances, evidence of an action programme to rectify these to achieve compliance.</li> <li>• Evidence of internal procedures to ensure compliance with permit conditions, including permitted waste types, permitted waste volumes, technically competent person requirements etc. <i>(this may be within an Environmental Management System).</i></li> </ul>	Sites which do not fall within the relevant environmental permitting/waste management licensing regime.	<i>Get written confirmation from regulator that permit is not applicable.</i>		
7.4 If the site is registered under an exemption, compliance with the criteria of the exemption is required.	<ul style="list-style-type: none"> <li>• Evidence of internal procedures in place to ensure compliance with exemption criteria.</li> </ul>	Only applicable to sites with registered exemptions.	<i>Same as above</i>		
7.5 To have secondary containment appropriate to the site.	<ul style="list-style-type: none"> <li>• Details of design calculations.</li> <li>• Demonstrate risk-based approach to design, including identification of nearby sensitive receptors, as described in ADBA's secondary containment tool.</li> <li>• Drawing of secondary containment design.</li> <li>• Approval of secondary containment by environmental regulator.</li> <li>• Visual inspection of containment.</li> </ul>	Sites which do not fall within the relevant environmental permitting/waste management licensing regime. Site must comply with a <b>minimum of the SSAFO.</b>	<i>Get written confirmation from regulator that permit is not applicable.</i>		<i>If not available, what containment is available?</i>

Criteria	Appropriate evidence	Any exceptions where criterion does not apply	To be completed by auditor		
			What evidence has been supplied?	Conformance assessment	If applicable, improvement needed to address nonconformances
7.6 To ensure that any lagoons used to store digestate are of suitable design and construction and meet the relevant regulatory requirements.	<ul style="list-style-type: none"> <li>Lagoon design and built plans. <b>And</b></li> <li>Visual inspection of lagoon. <b>Or</b></li> <li>Construction Quality Assurance (CQA) report.</li> </ul>		<i>If lagoon is not in place points will be granted.</i>		
7.7 To undertake regular recorded inspections of secondary containment, for example concrete bunds.	<ul style="list-style-type: none"> <li>Maintenance schedule/plan.</li> <li>Maintenance records.</li> <li>Inspection record, including identification of any issues and how they were rectified.</li> </ul>	Sites which do not fall within the relevant environmental permitting/waste management licensing regime. Site must comply with a <b>minimum of the SSAFO.</b>	<i>Refer to 7.5</i>		
7.8 To produce and implement an Odour Management Plan.	<ul style="list-style-type: none"> <li>Provision of written Odour Management Plan and records of implementation.</li> </ul>	If an operator can justify through an Odour Risk Assessment that an Odour Management Plan is not necessary.			
7.9 Decommissioning plan in place	<ul style="list-style-type: none"> <li>Plan in place to provide clear guidance and procedures to safely decommission the plant from operations (from purging tanks to disposal routes)</li> <li>Focus on recycle and reuse as much points as possible. All waste to be disposed in accordance with Regulation applicable.</li> </ul>				



Criteria	Appropriate evidence	Any exceptions where criterion does not apply	To be completed by auditor		
			What evidence has been supplied?	Conformance assessment	If applicable, improvement needed to address nonconformances
<b>8. Animal By-Products Regulations Compliance</b> <i>Those AD plants which accept and treat animal by-products must ensure compliance with the ABPR in order to protect public and animal health.</i>					
8.1 To have undertaken a Hazard Analysis and Critical Control Points (HACCP) safety assessment and implement procedures that reflect the critical control points and critical limits identified in the HACCP plan.	<ul style="list-style-type: none"> <li>If a food waste plant, evidence of compliance with PAS110 for as this includes a requirement for HACCP plan.</li> <li><b>Or</b></li> <li>Inspection of APHA visit reports.</li> <li>Inspection of internal compliance procedures.</li> <li>Evidence of staff training in ABP requirements.</li> </ul>	Only plants that accept animal by-products must meet this criterion.			
8.2 Pest control in place	<ul style="list-style-type: none"> <li>Evidence of third-party contractors with appropriate certification.</li> </ul>				
<b>9. Digestate Management</b> <i>Managing the digestate produced at an AD plant is a minimum part of the operator's activities. Good quality digestate is an effective fertiliser and can reduce reliance on artificial fertiliser. It must be stored, handled and spread appropriately and in accordance with regulatory requirements.</i>					
9.1 To have management procedures/plans for the use of digestate produced, including an understanding of the predicted rate and volume of production, details of storage provisions, quality checks, the regulatory status of the digestate (waste or a product) and the outlet/customer. Should also include contingencies for extreme weather/incidents.	<ul style="list-style-type: none"> <li>Inspection of a digestate management procedures, which includes the specified information.</li> </ul>				
9.2 To provide all required information to the digestate user and to spreading contractor if a contractor is used.	<ul style="list-style-type: none"> <li>Provision of example of information provided to digestate user or spreading contractors.</li> </ul>				

Criteria	Appropriate evidence	Any exceptions where criterion does not apply	To be completed by auditor		
			What evidence has been supplied?	Conformance assessment	If applicable, improvement needed to address nonconformances
9.3 To ensure that any contractors used to spread digestate are reputable and comply with the regulatory requirements and good practice (see requirements of BP checklist on Operational Performance page 12).	<ul style="list-style-type: none"> <li>Evidence that appointed contractor follows assured contractors scheme (provided by National Association of Agricultural Contractors).</li> </ul>				
9.4 To ensure that the required regulatory arrangements are in place for the storage and spreading of digestate while it is within the control/responsibility of the operator. <i>Note that operators will have different approaches to digestate management and this scheme only covers the aspects that the operator is in direct control of.</i>	<ul style="list-style-type: none"> <li>Evidence of compliance with PAS110.</li> <li><b>Or</b></li> <li>Evidence of land spreading permit or other suitable permit.</li> <li>Evidence of deployments to match the volumes of digestate being produced/stored per annum for non PAS110 sites.</li> </ul>				
<b>10. Biomethane Process</b> <i>This module is only for AD plants upgrading biomethane for injection to the gas grid. Understanding the function and safety requirements of the grid entry unit (GEU) and preventing ROV closure is essential for the safe, stable and profitable operation of a gas to grid facility.</i>					
10.1 To train all staff, have an up-to-date training and competence plan and records showing that it has been implemented. Training should cover a minimum of: <ul style="list-style-type: none"> <li>GEU System awareness</li> <li>High pressure systems</li> <li>Upgrading plant (GUU)</li> <li>Station for Vehicle</li> <li>Propane injection systems</li> <li>Propane/LPG storage and pipework systems</li> <li>Odorant dosing system</li> <li>Gas Safety Management Regulations (GS(M)R)</li> <li>Contents of the Network Entry Agreement (NEA)</li> <li>Flow weighted average calorific value (FWACV) functionality</li> </ul>	<ul style="list-style-type: none"> <li>Evidence of certification and training records from external training courses.</li> <li>Evidence of internal training records including training material and a suitably competent and experienced instructor.</li> </ul>				

Criteria	Appropriate evidence	Any exceptions where criterion does not apply	To be completed by auditor		
			What evidence has been supplied?	Conformance assessment	If applicable, improvement needed to address nonconformances
<ul style="list-style-type: none"> <li>• Communication (telemetry) systems</li> <li>• Remote Operating Valve (ROV)</li> <li>• GEU tech provider training</li> <li>• GUU tech provider training</li> </ul>					
10.2 To have completed and be available a HAZOP study for the biomethane upgrade network entry/ vehicle station facility.	<ul style="list-style-type: none"> <li>• Evidence of an up-to-date HAZOP and confirmation site operators are familiar with it.</li> </ul>				
10.3 To have a Safe System of Work with clear Standard operational procedures in place for the changing of odorant bottles, calibration bottles and others applicable.	<ul style="list-style-type: none"> <li>• Evidence of a written SSOW cover the bottle change procedure</li> <li>• Confirmation operators have been suitably trained to carry out the SSOW procedure</li> </ul>				
10.4 To meet the requirements of PSSR Regulations 2000	<ul style="list-style-type: none"> <li>• Evidence of written schemes of examination for pressure vessels</li> <li>• Evidence of staff training and competency</li> </ul>				
10.5 To meet the standards for pressure regulation. IGEM/TD applicable to site. Minimum IGEM/TD/13 - pressure Regulation IGEM/TD/16 and IGEM/TD/17 - pipework and Equipment	<ul style="list-style-type: none"> <li>• Evidence that standards have been met in the design, construction and operation of pressure regulating installations (PRIs) and biomethane injection</li> <li>• Others IGEM/TD could be applicable</li> <li>• <b>Evidence of approval from network provider</b></li> </ul>				
10.6 Prove of the SAT annually	<ul style="list-style-type: none"> <li>• Statutory annual testing</li> </ul>				
10.7 ME/2 Validation annually	<ul style="list-style-type: none"> <li>• Metering validations ensure that the instruments used for the calculation of mass, volume or energy flowrate are functioning correctly.</li> </ul>				

Criteria	Appropriate evidence	Any exceptions where criterion does not apply	To be completed by auditor		
			What evidence has been supplied?	Conformance assessment	If applicable, improvement needed to address nonconformances
10.8 To have the following documents: <ul style="list-style-type: none"> <li>Pipework and Instrumentation diagram for GEU</li> <li>Network Entry Agreement (NEA)</li> <li>Minimum requirements for telemetry data</li> <li>Connection pipeline diagram</li> </ul>	<ul style="list-style-type: none"> <li>Evidence of relevant documents and awareness of their contents by site operators.</li> </ul>				
10.9 To have procedures for the acceptance of propane deliveries. Including Safe System of Work, safety measures and emergency response plans.	<ul style="list-style-type: none"> <li>Evidence of written procedures/ SSOW for taking delivery of propane</li> <li>Evidence of risk assessments and safety precautions</li> <li>Evidence of an emergency response plan</li> </ul>				
10.10 Gas analyser testing and calibration	<ul style="list-style-type: none"> <li>ISO 10723:2012 in place</li> </ul>				
10.11 CO2 capture in place	<ul style="list-style-type: none"> <li>Suitable and approved technology in place.</li> </ul>	Key point to be expert. If biomethane production is applicable			
10.12 Vehicle CNG Standards UP/6 & 20	<ul style="list-style-type: none"> <li>In event of virtual pipeline or vehicle</li> </ul>				
<b>11. Life cycle assessment</b>					
<i>Life Cycle Assessment (LCA) is a methodology to estimate the environmental impacts and resources of a product or a process throughout its life cycle (from extraction of raw materials to product disposal at the end of use) and it is sometimes referred to as cradle-to-grave analysis. In this module evidence from regulated bodies is required to support the LCA.</i>					
11.1 Annual sustainability audit in place	<ul style="list-style-type: none"> <li>Evidence of sustainability audit carried with the previous 12 months.</li> <li>ISCC certification</li> <li>GHG calculations</li> <li>GGCS data validation statement.</li> </ul>				

## CONCLUSIONS

Certification Recommendation		
Certification recommendation (pass/improvements/failure): <ul style="list-style-type: none"> <li>Failure on achieve ADCS</li> <li>Achieve Intermediate ADCS</li> <li>Achieve Expert ADCS</li> </ul>	<h3>Failure ADCS</h3> <p>Guidance and recommendations provided to achieve certification scheme</p>	
	<h3>Intermediate ADCS</h3> <p>Achieve all criteria requirements (Points that are not relevant to the site to be determined by inspector) apart from</p> <p><b>2.18 (LPS) 5.5(LDAR) 7.9(Decommissioning Plan) 10.11 (CO2 capture in place) 11.1 (sustainability)</b></p>	
	<h3>Expert ADCS</h3> <p>Achieve all criteria requirements (Points that are not relevant to the site to be determined by inspector)</p>	
Additional notes		
Exemplary/innovative techniques observed:		
Recommendations for improvement:		