

Standard rules SR2018 No10 On-farm anaerobic digestion facility using farm wastes only, including use of the resultant biogas

Introductory note

This introductory note does not form part of these standard rules

These rules are limited to premises used for agriculture and to wastes arising from on-farm, including dairies and are available to operators with an anaerobic digestion capacity of over 100 tonnes of waste or a combination of waste and non-waste – both solid and liquid - on any one day. For anaerobic digesters operating below this threshold, standard rules for waste recovery operations are available.

These Standard Rules cover the implementations of the Medium Combustion Plant Directive and Specified Generators Regulations for a new Medium Combustion Plant (MCP) and Tranche B Generator without secondary abatement.

When referred to in an environmental permit, these rules will allow the operator to carry out the anaerobic digestion of wastes and the combustion of the resultant biogas in gas engines with an aggregate rated thermal input of up to 5 megawatts. The rules also allow use of gas turbines, boilers, fuel cells and treatment and/or upgrading the biogas to biomethane.

Permitted wastes do not include hazardous wastes. The total quantity of waste or a combination of waste and non waste including both solid and liquids must not exceed 100,000 tonnes per year.

Any wastes controlled by the Animal By-Products Regulations must be treated and handled in accordance with any requirements imposed by those Regulations.

These standard rules do not allow any emission into surface waters or groundwater except clean water from roofs and parts of the site not used for waste activity including storage of wastes. However, under the emissions of substances not controlled by emission limits rule, biogas condensate, treated digestate and waste waters may be discharged to a sewer subject to a consent issued by the local water company.

These rules do not apply to installations with more than one operator.

End of Introductory Note

Rules

1 - Management

1.1 General management

- 1.1.1 The operator shall manage and operate the activities: (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, nonconformances closure and those drawn to the attention of the operator as a result of complaints; and (b) using sufficient competent persons and resources.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in these standard rules shall have convenient access to a copy of them kept at or near the place where those duties are carried out.
- 1.1.4 The operator shall comply with the requirements of an approved competence scheme.

1.2 Energy efficiency

- 1.2.1 The operator shall:
 - (a) take appropriate measures to ensure that energy is used efficiently in the activities;
 - (b) review and record at least every 4 years whether there are suitable opportunities to improve the energy efficiency of the activities; and
 - (c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

- 1.3.1 The operator shall:
 - (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
 - (b) maintain records of raw materials and water used in the activities;
 - (c) review and record at least every 4 years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
 - (d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

- 1.4.1 The operator shall take appropriate measures to ensure that:
 - (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 - Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in table 2.1 below ("the activities").

Table 2.1 Activities	
Description of activities	Limits of activities
<p>Section 5.4 Part A(1) (b) (i) and Section 6.8 Part A(1)(c) of the Environmental Permitting Regulations – Recovery of Waste</p> <p>R13: Storage of wastes pending the operations numbered R1 and R3 R3: Recycling or reclamation of organic substances that are not used as solvents</p> <p>R1: Use principally as a fuel or other means to generate energy</p> <p>D10: Incineration on land</p> <p>New Medium Combustion Plant and / or Specified Generator</p>	<p>All activities must be carried out on premises used for Agriculture</p> <p>Anaerobic digestion of waste and the following associated activities:</p> <ul style="list-style-type: none"> • Physical treatment of waste including shredding, sorting, screening, compaction, bailing, mixing and maceration • Waste pasteurisation and chemical addition • Gas cleaning and upgrading to biomethane • Gas storage and drying • Treatment of digestate including screening to remove plastic residues, centrifuge or pressing, addition of thickening agents (polymers) or drying (other than for the purpose of use as a fuel) • Maturation of digestate • The use of combustible gases produced as a by-product of the anaerobic digestion process as fuel • Burning of biogas in gas engines, gas turbines, boilers and use in fuel cells • Use of an auxiliary flare required only for short periods of breakdown or maintenance of the facility

	<ul style="list-style-type: none"> • Use of pressure release valves to protect the integrity of the plant. Such systems should not be used routinely to vent unburnt biogas <p>The total quantity of waste or a combination of waste and non-waste including solids and liquids accepted at the site shall not exceed 100,000 tonnes a year.</p> <p>Except for the auxiliary flare, the aggregate rated thermal input of all appliances used to burn biogas shall be less than 5 megawatts.</p> <p>The MCP and / or generator must not have secondary abatement</p> <p>The MCP and / or generator must not be mobile</p>
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2.1.2 All process plant and equipment shall be commissioned, operated and maintained, and shall be fully documented and recorded, in accordance with the manufacturers recommendations.

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan attached to the permit.

2.2.2 The activities shall not be carried out within:

(a) 10 metres of any watercourse;

(b) a groundwater source protection zone 1, or if a source protection zone has not been defined then within 50 metres of any well, spring or borehole used for the supply of water for human consumption.

2.2.3 The gas engine stack must be a minimum of 3 metres in height and must not be located within:

(a) 500 metres of a European Site or a Site of Special Scientific Interest (excluding any site designated solely for geological features);

(b) 200 metres from the nearest sensitive receptor in cases where the stack does not have an "effective" stack height of 3 metres or more, or the stack is less than 7 metres in height.

2.3 Waste acceptance

2.3.1 Waste shall only be accepted if:

- (a) it is of a type and quantity listed in tables 2.1 and 2.3 of these rules;
- (b) it conforms to the description in the documentation supplied by the producer and holder;
- (c) the waste is biodegradable; and
- (d) wastes that are animal by-products or contain animal by-products must be handled and processed in accordance with any requirements and restrictions imposed by the animal byproducts legislation

2.3.2 Records demonstrating compliance with rule 2.3.1 shall be maintained.

Table 2.3 Waste Types	
Waste codes	Description
02	WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, AND HUNTING, FISHING, FOOD PREPARATION AND PROCESSING
02 01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing
02 01 01	sludges from washing and cleaning – vegetables, fruit and other crops
02 01 03	plant tissue waste
02 01 06	animal faeces, urine, manure (including spoiled straw) only
02 05	wastes from the dairy products industry
02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from dairies effluent treatment

2.4 Operating techniques

2.4.1 The activities shall be operated using the techniques and in the manner described in Table 2.4 below.

Table 2.4 Operating Techniques
Description
<p>1) All waste solids, liquids and sludges shall be securely stored. In the event of a leak, spill or failure, material can be contained and recovered.</p> <p>2) All storage and process tanks shall be fit for purpose and shall be regularly inspected and maintained in accordance with rule 2.1.2. In the event of a leak, spill or failure, material can be contained and recovered.</p> <p>3) Digestate shall be stored within containers or lagoons and should be of a design and capacity fit for purpose. The lagoon shall have a free board of 750 mm.</p> <p>4) Gas engine stack height shall be no less than 3 metres.</p> <p>5) Periods of start-up and shut down of the MCP and generator must be kept as short as possible</p>

- 6) There is no persistent emission of 'dark smoke' as defined in section 3(1) of the Clean Air Act 1993.
- 7) The stack(s) must be vertical and unimpeded by cowls or caps
- 8) All biogas condensate shall be discharged into a sealed drainage system or recirculated back to the digester.
- 9) Emissions of unburned biogas and the operation of the auxiliary flare shall be minimised. Any significant emissions of unburned biogas (including the operation of the pressure relief valves) and the operation of the auxiliary flare shall be recorded.

3 Emissions and monitoring

3.1 Emissions to air, water or land

- 3.1.1 3.1.1 There shall be no point source emissions to air, water or land, except from the sources and emission points listed in table 3.1
- 3.1.2 3.1.2 The limits given in table 3.1 shall not be exceeded.
- 3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

Table 3.1 Point source emissions to air - emission limits and monitoring requirements			
Emission point and source	Parameter	Limit (including units)	Monitoring frequency and standard or method
Stacks on engines operational before 20 Dec 2018	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500 mg/m ³	Annual monitoring Monitoring equipment, techniques, personnel and organisations employed for the engine stack emissions monitoring programme (including the measurement of exhaust gas temperature) shall have either MCERTS certification or MCERTS accreditation (as appropriate) Emission levels at Normal Temperature and Pressure and 5%O ₂ , unless otherwise agreed in writing by Natural Resources Wales Uncertainty allowance as stated in EA guidance LFTGN08 v2 2010 To ensure effective plume breakaway, minimum stack gas exit velocity shall be no less than 15 m/s or 12 m/s where stack volume flow is less than 0.5 m ³ /s; OR The gas exit temperature shall be no less than 200oC
	Carbon monoxide	1400 mg/m ³	
	Sulphur dioxide	350 mg/m ³	
	Total volatile organic compounds including methane	1000 mg/m ³	

Stacks on new engines put in operation after 20 Dec 2018	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500 mg/m ³	<p>Annual monitoring</p> <p>Monitoring equipment, techniques, personnel and organisations employed for the engine stack emissions monitoring programme (including the measurement of exhaust gas temperature) shall have either MCERTS certification or MCERTS accreditation (as appropriate)</p> <p>All limits are defined at a temperature of 273.15 K, a pressure of 101.3 kPa and after correction for the water vapour content of the waste gases at a standardised O₂ content of 5%.</p> <p>Uncertainty allowance as stated in EA guidance LFTGN08 v2 2010</p> <p>To ensure effective plume breakaway, minimum stack gas exit velocity shall be no less than 15 m/s or 12 m/s where stack volume flow is less than 0.5 m³/s; OR The gas exit temperature shall be no less than 200°C</p>
	Carbon monoxide	1400 mg/m ³	
	Sulphur dioxide	107 mg/m ³	
	Total volatile organic compounds including methane	1000 mg/m ³	
	Dust	No limit set	
Stacks on boilers burning biogas	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	No limit set	None specified.
Stacks or vents on biogas upgrading plant	No parameter set	No limit set	None specified.
Stacks or vents on biofilter and/or scrubbing system	No parameter set	No limit set	Biofilter and/or scrubbing system shall be regularly checked and maintained to ensure that they remain effective
Auxiliary flare	Operating Hours	No limit set	None specified. (Record to be submitted annually)
Pressure relief valves	Biogas	No limit set	Weekly visual or remote monitoring to ensure valves are correctly seated.

3.2 Emissions of substances not controlled by emission limits

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this rule if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:

- (a) if notified by Natural Resources Wales that the activities are giving rise to pollution, submit to Natural Resources Wales for approval within the period specified, an emissions management plan;
- (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise leakage and spillage from the primary container.

3.3 Odour

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable, to minimise, the odour.

3.3.2 The operator shall:

- (a) maintain and implement an odour management plan;
- (b) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to odour, submit to Natural Resources Wales for approval within the specified period, a revised odour management plan;
- (c) implement any approved revised odour management plan from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3.4 Noise and vibration

3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan, to prevent or where that is not practicable, to minimise, the noise and vibration.

3.4.2 The operator shall:

- (a) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Agency for approval within the period specified, a noise and vibration management plan;
- (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by Natural Resources Wales, undertake the monitoring specified in table 3.1.

3.5.2 The operator shall maintain records of all monitoring required by these standard rules including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, test and surveys and any assessment or evaluation made on the basis of such data. These records shall be submitted to Natural Resources Wales annually in the form of a report.

4 Information

4.1 Records

All records required to be made by these standard rules shall:

- (a) be legible;
 - (b) be made as soon as reasonably practicable;
 - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible or are capable of retrieval; and
 - (d) be retained, unless otherwise agreed by Natural Resources Wales, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
 - (i) off-site environmental effects; and
 - (ii) matters which affect the condition of land and groundwater.
- 4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by these standard rules, unless otherwise agreed in writing by Natural Resources Wales.
- 4.1.3 The operator must maintain a record of the type and quantity of fuel used in the MCPs.
- 4.1.4 The operator must maintain a record of any events of non-compliance and the measures taken to ensure compliance is restored in the shortest possible time.

4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by these standard rules to Natural Resources Wales using the contact details supplied in writing by Natural Resources Wales.
- 4.2.2 Within one month of the end of each quarter, the operator shall submit to Natural Resources Wales using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.3 Notifications

- 4.3.1 Natural Resources Wales shall be notified without delay following the detection of:
- (a) any malfunction, breakdown or failure of equipment or techniques, accident or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;
 - (b) the breach of a limit specified in these standard rules; or
 - (c) any significant adverse environmental effects.
- 4.3.2 Written confirmation of actual or potential pollution incidents and breaches of emission limits shall be submitted within 24 hours.
- 4.3.3 Where Natural Resources Wales has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform Natural Resources Wales

when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to Natural Resources Wales at least 14 days before the date the monitoring is to be undertaken.

4.3.4 Natural Resources Wales shall be notified within 14 days of the occurrence of the following matters except where such disclosure is prohibited by Stock Exchange rules:

a) Where the operator is a registered company:

- any change in the operator's trading name, registered name or registered office address; and
- any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

b) Where the operator is a corporate body other than a registered company:

- any change in the operator's name or address; and
- any steps taken with a view to the dissolution of the operator.

c) In any other case:

- the death of any of the named operators (where the operator consists of more than one named individual);
- any change in the operator's name(s) or address(es); and
- any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case them being in a partnership, dissolving the partnership.

4.3.5 Without undue delay Natural Resources Wales shall be notified of planned change to the MCP which would affect the applicable ELV.

4.4 Interpretation

4.4.1 **In these standard rules the expressions listed below shall have the meaning given.**

4.4.2 In these standard rules references to reports and notifications mean written reports and notifications, except when reference is being made to notification being made "without delay", in which case it may be provided by telephone.

"accident" means an accident that may result in pollution.

"anaerobic digestion" means a process of controlled decomposition of biodegradable materials under managed conditions where free oxygen is absent, at temperatures suitable for naturally occurring mesophilic or thermophilic anaerobe and facultative anaerobe bacteria species, which convert the inputs to a methanerich biogas and whole digestate.

"agriculture" means as defined in The Agriculture Act 1947 including:-"horticulture, fruit growing, seed growing, dairy farming and livestock breeding and keeping, the use of land as grazing land, meadow land, osier land, market gardens and nursery grounds, and the use of land for woodlands where that use is ancillary to the farming of the land for other agricultural purposes, and 'agriculture' shall be constructed accordingly"

“animal by-products legislation” refers to animal by-products which are subject to the requirements and controls in Regulation (EC) 1069/2009 (as amended) and its corresponding implementing Regulation (EC) 142/2011 (as amended). These are enforced through The Animal By-Products (Enforcement) (England) Regulations 2011 and The Animal By-Products (Enforcement) (No2) (Wales) Regulations 2011. You will need to add NI and Scot legislation if QP covers the UK.

“animal by-products” are defined in Article 3 of Regulation (EC) 1069/2009 as ‘entire bodies or parts of animals, products of animal origin or other products obtained from animals that are not intended for human consumption’. This includes catering waste, used cooking oil, former foodstuffs, butcher and slaughterhouse waste, blood, feathers, wool, hides and skins, fallen stock, pet animals, zoo and circus animals, hunt trophies, manure, ova, embryos and semen not intended for breeding purposes.

“animal waste” means any waste consisting of animal matter that has not been processed into food for human consumption

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“authorised officer” means any person authorised by Natural Resources Wales under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in Section 108(4) of that Act.

“D” means a disposal operation provided for in Annex IIA to Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on Waste. “digestate” means material resulting from an anaerobic digestion process “domestic purposes” has the same meaning as in section 218 of the Water Industry Act 1991.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in these standard rules or from other localised or diffuse sources, which are not controlled by an emission limit.

“European Site” means candidate or Special Area of Conservation and proposed or Special Protection Area in England and Wales, within the meaning of Council Directives 79/409/EEC on the conservation of wild birds and 92/43/EEC on the conservation of natural habitats and of wild flora and fauna and the Conservation of Habitats and Species Regulations 2010. Internationally designated Ramsar sites are dealt with in the same way as European sites as a matter of government policy and for the purpose of these rules will be considered as a European Site.

“food production purposes” means the manufacturing, processing, preserving or marketing purposes with respect to food or drink for which water supplied to food production premises may be used, and for the purposes of this definition “food production purposes” means premises used for the purposes of a business of preparing food or drink for consumption otherwise than on the premises.

“Gas engine effective stack height” means:

- a) If away from buildings actual stack height is no less than 3 meters.
- b) If attached to or on top of a building the stack tip must be no less than 3 meters above roof ridge.
- c) If there are other buildings within a distance of 5L from the point of discharge, the top of the stack must be no less than 3 meters above the roof ridge of the highest building. L is the lesser of the two measurements of building height and maximum width of the building.

“generator” means any combustion plant which is used to generate electricity, excluding mobile, unless it is connected to the national grid or other apparatus, equipment or appliances at a site, and is performing a function could be performed by a generator that is not mobile.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“groundwater source protection zone” has the meaning given in the document titled “Groundwater protection: Principles and practice” published by the Environment Agency in 2012. “impermeable surface” means a surface or pavement constructed and maintained to a standard sufficient to prevent the transmission of liquids beyond the pavement surface, and should be read in conjunction with the term “sealed drainage system” (below).

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“medium combustion plant” means a combustion plant with a rated thermal input equal or greater than 1 megawatt but less than 50 megawatts. ‘Mobile Specified Generator’ or ‘Mobile MCP’ means one that is designed to move or be moved whether on roads or on land

“nearest sensitive receptor” means the nearest place to the permitted activities where people are likely to be for prolonged periods. This term would therefore apply to dwellings and associated gardens (including farmhouses) and to many types of workplaces. We would not normally regard a place where people are likely to be present for less than 6 hours at one time as being a sensitive receptor. The term does not apply to the operators of the permitted facility, their staff when they are at work or to visitors to the facility, as their health is covered by Health and Safety at Work legislation.

“new medium combustion plant” means one that is not existing i.e. which was put into operation after 20 December 2018

“pollution” means emissions as a result of human activity which may— (a) be harmful to human health or the quality of the environment, (b) cause offence to a human sense, (c) result in damage to material property, or (d) impair or interfere with amenities and other legitimate uses of the environment.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

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“R” means a recovery operation provided for in Annex IIB to Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on Waste.

“sealed drainage system” in relation to an impermeable surface, means a drainage system with impermeable components which does not leak and which will ensure that: (a) no liquid will run off the surface otherwise than via the system; (b) except where they may lawfully be discharged to foul sewer, all liquids entering the system are collected in a sealed sump.

“secure storage” means storage where waste cannot escape and members of the public do not have access to it.

“site” means the location where waste storage and treatment activities can take place.

“specified AQMA” means an air quality management area within the meaning of the Environment Act 1995 which has been designated due to concerns about oxides of nitrogen.

“specified generator” means a group of generators other than excluded between 1 and 50 megawatts or less than 50 megawatts as defined in Schedule 25B(2) of SI 2018 No.110 of the EPRs.

“SSSI” means Site of Special Scientific Interest within the meaning of the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000).

“year” means calendar year commencing on 1st January.

End of standard rules