



## **Standard rules SR2009 No4 – Combustion of biogas in engines at a sewage treatment works**

### **Introductory note**

This introductory note does not form part of these standard rules.

When referred to in an environmental permit, these rules will allow the operator to use compression and spark ignition engines with a rated thermal input of less than 5 megawatts to burn biogas produced from the digestion of sewage sludge at a sewage treatment works at a specified location, provided that the permitted activities are not carried out within 500 metres of a European Site<sup>1</sup>, Ramsar site or a Site of Special Scientific Interest (SSSI) (excluding any SSSI designated solely for geological features). Furthermore, the permitted activities must not be carried out within a specified Air Quality Management Area (AQMA).<sup>2</sup> Gas engine stacks must be 3m in height or more. Gas engine stacks also have to be located 200 metres from any building used by the public including dwelling houses.

These rules apply to the engines and include boilers and auxiliary flares where they form part of the facility. The rules also apply to associated gas supply and storage systems but exclude sewage sludge digesters.

These rules do not allow any point source emission into surface waters or groundwater. However, under the emissions of substances not controlled by emission limits rule, biogas condensate may be discharged into a sealed drainage system.

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<sup>1</sup> A candidate or Special Area of Conservation (cSAC or SAC) and proposed or Special Protection Area (pSPA or SPA) in England and Wales.

<sup>2</sup> An Air Quality Management Area which has been designated due to concerns about nitrogen dioxide.

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# 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, non-conformances, 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 rule 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.

### 1.2 Avoidance, recovery and disposal of wastes produced by the activities

1.2.1 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.

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").

<b>Table 2.1 activities</b>	
<b>Description of activities</b>	<b>Limits of activities</b>
<b>R13:</b> Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced.	Permitted waste shall comprise biogas from sewage sludge digesters.
<b>R1:</b> Use principally as a fuel or other means to generate energy.	Gas cleaning by biological or chemical scrubbing.
<b>D10:</b> Incineration on land	Gas storage and drying.
	Except for the auxiliary flare, the aggregate rated thermal input of all appliances used to burn biogas shall be less than 5 megawatts.
	Auxiliary flare.

## 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) 500 metres of a European Site or a Site of Special Scientific Interest (excluding any SSSI designated solely for geological features);
  - (b) a specified AQMA.
- 2.2.3 The distance of gas engine stacks from any building used by the public including dwelling houses shall be 200m

## 2.2 Operating techniques

- 2.2.1 The activities shall be operated using the techniques and in the manner described in Table 2.3 below.

<b>Table 2.3 Operating techniques</b>
<ol style="list-style-type: none"> <li>1. Gas engine stack height shall be 3 metres or more</li> <li>2. All biogas condensate shall be discharged into a sealed drainage system or recirculated back into the digester.</li> <li>3. 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 associated with biogas storage) and the operation of the auxiliary flare shall be recorded.</li> </ol>

## 3 – Emissions and monitoring

### 3.1 Emissions to air, water or land

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 The limits given in table 3.1 shall not be exceeded.

<b>Table 3.1 Point source emissions to air - emission limits and monitoring requirements</b>			
<b>Emission Point and Source</b>	<b>Parameter</b>	<b>Limit (including units)</b>	<b>Monitoring Frequency and Standard or Method</b>
Stacks on engines commissioned before 31 December 1997	Oxides of Nitrogen Carbon monoxide	1500 mg/m <sup>3</sup> 1800 mg/m <sup>3</sup>	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).
Stacks on engines commissioned between 1 January 1998 and 31 December 2005	Oxides of Nitrogen Carbon monoxide	650 mg/m <sup>3</sup> 1500 mg/m <sup>3</sup>	
Stacks on engines commissioned after 31 December 2005	Oxides of Nitrogen Carbon monoxide	500 mg/m <sup>3</sup> 1400 mg/m <sup>3</sup>	
Exhausts from engines	Temperature OR Exit Velocity	To ensure effective plume breakaway, gas engine exhaust gas temperature where the exhaust leaves the engine shall be no less than 200 <sup>0</sup> C ; OR  Minimum stack exit velocity of 15 m/s or 12 m/s where stack volume flow is less than 0.5 m <sup>3</sup> /s.	
Stacks on boilers burning biogas	Oxides of Nitrogen Carbon monoxide	No limit set No limit set	None specified
Auxiliary flare	Oxides of Nitrogen Carbon monoxide	No limit set No limit set	Record of operating hours.
Pressure relief valves	Biogas	No limit set	Weekly visual or remote monitoring to ensure valves are correctly seated.

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## **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 the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency 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 the Environment Agency.

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

## **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 the Environment Agency, 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 the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment 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 the Environment Agency.

## **3.5 Monitoring**

3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, 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.

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## 4 – Information

### 4.1 Records

4.1.1 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 the Environment Agency, 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 the Environment Agency.

### 4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by these standard rules the Environment Agency using the contact details supplied in writing by the Environment Agency.

### 4.3 Notifications

4.3.1 The Environment Agency 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 the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency 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.

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- 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.

## 4.4 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.

*"authorised officer"* means any person authorised by the Environment Agency 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.

*"emissions to land"* include emissions to groundwater.

*"emissions of substances not controlled by emission limits"* means emissions of substances to air, water or land from the activities, either from 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 Special Area of Conservation or candidate Special Area of Conservation or Special Protection Area or proposed 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.

*"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.

*"MCERTS"* means the Environment Agency's Monitoring Certification Scheme

*"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.

*"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"* 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, all liquids entering the system are collected in a sealed sump.

*"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.

*"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).

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“*year*” means calendar year commencing on 1<sup>st</sup> January.

**End of standard rules**