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Wales

## Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

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Cyngor Sir Ynys Mon County Council

Penhesgyn Gors Landfill (closed)

Llansadwrn

Menai Bridge

Anglesey

LL59 5RY

Variation application number

EPR/KP3994FG/V007

Consolidated permit number

EPR/KP3994FG

# **Penhesgyn Gors Landfill (closed)**

## **Consolidated permit number EPR/KP3994FG**

### **Introductory note**

**This introductory note does not form a part of the permit**

The main features of the permit are as follows:

The landfill site began operating in 1968 and is split into two distinct areas; Area 2 and Area 3. Area 2 is the original landfill which was developed on the dilute and disperse principle, this part of the site was closed and restored in 1999/2000. Area 3 consists of four engineered cells, Cells 1-3 and the Valley Cell, which bridges the gap between Area 2 and 3. Area 3 was capped in 2007. The site was licensed to receive domestic, commercial and industrial biodegradable and inert wastes including asbestos wastes. The site ceased accepting waste at the end of February 2007. The Site has been fully closed and restored since 2008. Key management activities that continue to be undertaken under this permit include:

- Operation and maintenance of landfill gas extraction system;
- Treatment and utilisation of extracted landfill gas;
- Operation and maintenance of leachate extraction system; extraction and tankering of excess leachate off site for treatment and disposal;
- Maintenance of landfill cap to ensure its integrity and to minimise fugitive emissions of landfill gas;
- Regular environmental monitoring of landfill gas, leachate, groundwater and surface water, and reporting.

The Closure Plan from May 2008 has been incorporated in this consolidated permit along with recently updated management plans such as: Leachate Management Plan, Hydrogeological Risk Assessment, , Landfill Gas Management Plan and Odour Management Plan.

The conditions of this permit reflect that the landfill site will now be operated and maintained in accordance with the agreed closure plan during the aftercare phase.

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

**Status log of the permit**

Description	Date	Comments
Variation application EPR/KP3994FG/V007	12/10/20	Variation to consolidate the permits for landfill Areas 3 (EPR/KP3994FG) and 2 (EPR/CP3694FW), incorporate the site closure plan and reduce monitoring frequencies
Permit determined	11/05/21	Permit issued to Cyngor Sir Ynys Mon County Council

End of introductory note

# Permit

The Environmental Permitting (England and Wales) Regulations 2016

**Permit number**  
**EPR/KP3994FG**

The Natural Resources Body for Wales (“Natural Resources Wales”) authorises,  
under regulation 13 of the Environmental Permitting (England and Wales)  
Regulations 2016

**Cyngor Sir Ynys Mon County Council** (“the operator”),

Of whose principal office is

**Council Offices**  
**Llangefni**  
**LL77 7TW**

to operate a regulated facility at

**Penhesgyn Gors Landfill (closed)**  
**Llansadwrn**  
**Menai Bridge**  
**Anglesey**  
**LL59 5RY**

to the extent authorised by and subject to the conditions of this permit.

Name	Date
<b>Huw Davies</b>	<b>11/05/2021</b>

Authorised on behalf of Natural Resources Wales

# Conditions

## 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 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 this permit shall have convenient access to a copy of it 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 Finance

- 1.2.1 The financial provision for meeting the obligations under this permit set out in the agreement made between the operator and the Environment Agency dated 30 October 2008 shall be maintained by the operator throughout the subsistence of this permit and the operator shall produce evidence of such provision whenever required by Natural Resources Wales.

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

- 1.3.1 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.
- 1.3.2 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 schedule 1 table S1.1 (the “activities”).

### **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 at schedule 7 to this permit.

### **2.3 Operating techniques**

- 2.3.1 (a) The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by Natural Resources Wales.
- (b) If notified by Natural Resources Wales that the activities are giving rise to pollution, the operator shall submit to Natural Resources Wales for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

### **2.4 Landfill Engineering**

- 2.4.1 No construction of landfill infrastructure shall commence until the operator has submitted relevant construction proposals or a written request to use previous construction proposals and Natural Resources Wales has confirmed that it is satisfied with the construction proposals.
- 2.4.2 The construction of the landfill infrastructure shall take place only in accordance with the approved construction proposals unless:
- (a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or
- (b) a change has otherwise been agreed in writing by Natural Resources Wales.
- 2.4.3 The operator shall submit a CQA Validation Report as soon as practicable following the construction of the relevant landfill infrastructure.
- 2.4.4 Where pollution controls are immediately necessary to prevent an incident or accident, then conditions 2.4.1 and 2.4.2 do not apply and the relevant landfill infrastructure may be constructed, provided that the construction proposals are submitted to Natural Resources Wales as soon as practicable.
- 2.4.5 For the purpose of condition 2.4.1, Natural Resources Wales shall be deemed to be satisfied where it has not, within the period of four weeks from the date of receipt of the relevant construction proposals or CQA Validation Report, either:
- (a) confirmed whether or not it is satisfied; or

(b) informed the operator that it requires further information.

2.4.6 Where Natural Resources Wales has required further information under condition 2.4.5(b), Natural Resources Wales shall be deemed to be satisfied where it has not, within the period of four weeks from the date of receipt of the further information, either:

(a) confirmed whether or not it is satisfied; or

(b) informed the operator that it requires further information.

## **2.5 Waste acceptance**

2.5.1 No waste shall be accepted for disposal within the facility

## **2.6 Leachate levels**

2.6.1 The limits for the level of leachate listed in schedule 3 table S3.1 shall not be exceeded.

## **2.7 Closure and aftercare**

2.7.1 The operator shall maintain a closure and aftercare management plan.

## **2.8 Landfill Gas Management**

2.8.1 The operator shall take appropriate measures, including, but not limited to, those specified in any approved landfill gas management plan, to:

(a) collect landfill gas; and

(b) control the migration of landfill gas.

2.8.2 The operator shall use the collected landfill gas to produce energy. If the collected landfill gas cannot be used to produce energy, the operator shall flare or otherwise treat the gas.

# **3 Emissions and monitoring**

## **3.1 Emissions to water, air or land**

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.2, S3.3 and S3.4.

3.1.2 The limits given in Table S3.2 shall not be exceeded, save that compliance with an emission limit in that table shall include incorporation of the uncertainty allowance stated in Environment Agency guidance LFTGN 05 and LFTGN 08.

3.1.3 There shall be no emission from the activities into groundwater of any hazardous substances contrary to the EP Regulations.

3.1.4 There shall be no emission from the activities into groundwater of any non-hazardous pollutants so as to cause pollution.

3.1.5 The trigger levels for emissions into groundwater for the parameter(s) and monitoring point(s) set out in schedule 3 table S3.5 shall not be exceeded.

3.1.6 The operator shall submit to Natural Resources Wales a review of the Hydrogeological Risk Assessment:

(a) between nine and six months prior to the sixth anniversary of the granting of the permit, and

- (b) between nine and six months prior to every subsequent six years after the sixth anniversary of the granting of the permit.
- 3.1.7 The limits for landfill gas arising from the facility set out in schedule 3, tables S3.6 shall not be exceeded.

## **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 condition 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 which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
  - (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.

## **3.4 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 Natural Resources Wales for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
  - (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 and any other actions specified in the following tables in schedule 3 to this permit:
- (a) Leachate specified in tables S3.1 and S3.8;
  - (b) Point source emissions specified in tables S3.2 and S3.3
  - (c) Groundwater specified in tables S3.5 and S3.10;
  - (d) Landfill gas specified in tables S3.6 and S3.7; and
  - (e) Surface water specified in table S3.9.
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 A topographical survey of the site referenced to ordnance datum shall be carried out:
- (a) annually, and
  - (b) following closure of the landfill or part of the landfill.
- The topographical survey shall be used to produce a plan of a scale adequate to show the surveyed features of the site.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.2 [S3.3 etc.] unless otherwise agreed in writing by Natural Resources Wales.

## 4 Information

### 4.1 Records

- 4.1.1 All records required to be made by this permit 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 in writing 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 the land and groundwater.
    - (iii) the results of groundwater monitoring;
    - (iv) sub-surface landfill gas monitoring;
    - (v) leachate levels, quality and quantities;
    - (vi) landfill gas generation and collection;
    - (vii) waste types and quantities;

- (viii) the location of hazardous waste deposits; and
- (ix) the specification and as built drawings of the basal, sidewall and capping engineering systems.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by Natural Resources Wales.

## 4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to Natural Resources Wales using the contact details supplied in writing by Natural Resources Wales.

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to Natural Resources Wales by 31 January (or other date agreed in writing by Natural Resources Wales) each year. The report(s) shall include as a minimum:

- (a) a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the risk assessments submitted in relation to this facility and any agreed amendments thereto;
- (b) the annual production/treatment set out in schedule 4 table S4.2;
- (c) the topographical surveys required by condition 3.5.3 other than those submitted as part of a CQA validation report;
- (d) an assessment of the settlement behaviour of the landfill body based on the difference between the most recent topographical survey and previous annual topographical survey for the areas of the landfill which did not receive waste between the surveys;

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by Natural Resources Wales, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
- (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.3; and
- (c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to Natural Resources Wales, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

## 4.3 Notifications

- 4.3.1 (a) In the event that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately:
- (i) inform Natural Resources Wales,
  - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and

- (iii) take the measures necessary to prevent further possible incidents or accidents;
  - (b) in the event of a breach of any permit condition the operator must immediately
    - (i) inform Natural Resources Wales, and
    - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
  - (c) in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.
- 4.3.2 Any information provided under condition 4.3.1 (b)(i) shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 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:
 

Where the operator is a registered company:

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

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

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

In any other case:

  - (a) the death of any of the named operators (where the operator consists of more than one named individual);
  - (b) any change in the operator's name(s) or address(es); and
  - (c) 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 of them being in a partnership, dissolving the partnership.
- 4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
  - (a) Natural Resources Wales shall be notified at least 14 days before making the change; and
  - (b) the notification shall contain a description of the proposed change in operation.

## **4.4 Interpretation**

- 4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.
- 4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made “without delay”, in which case it may be provided by telephone.

# Schedule 1 - Operations

**Table S1.1 activities**

Activity reference	Description of activities for waste operations	Limits of activities
A1	D1: Deposit into or onto land (e.g. landfill)	Management and monitoring of emissions from the closed landfill (e.g. leachate and landfill gas)
Including the utilisation and flaring of landfill gas		

**Table S1.2 Operating techniques**

Description	Parts	Date Received
Application	<ul style="list-style-type: none"> <li>- Penhesgyn Revised LFG Management Plan 250620 combined - Landfill Gas Risk Assessment and Management Plan</li> <li>- Penhesgyn Leachate Management Plan Final 300620 combined</li> <li>- Penhesgyn Landfill HRA review Final 180620 all parts excepts for sections: <ul style="list-style-type: none"> <li>• Table K: Proposed surface water monitoring schedule - Fequency</li> <li>• Table M: Proposed leachate control and trigger levels – Trigger Levels for Cell 2 and Cell 3</li> </ul> </li> </ul>	12/10/2020
Closure report dated 30/05/08	All parts exept for sections: Apendix D, Appendix E, Appendix F, Appendix G	
Request for additional information	- Penhesgyn LFS Odour Management Plan	24/03/2021

## **Schedule 2 - List of permitted wastes**

No waste shall be accepted for disposal or recovery

## Schedule 3 – Emissions and monitoring

**Table S3.1 Leachate level limits and monitoring requirements**

Monitoring point reference/ Description	Limit	Monitoring frequency	Monitoring method
Area 2 - L1, L4, L5, L6, L7  As identified on drawing 5379.SURV.D03	no limit	Annually	Unless otherwise agreed in writing with Natural Resources Wales, monitoring methods used shall be in accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02).
Area 3		Quarterly	
- Cell 1 (BHL14, BHL15)	2 m above cell base		
- Cell 2 (BHL13, L nr 38, L nr 122)	2 m above cell base		
- Cell 3 (BHL10, BHHM3A, BHHM3B)	2 m above cell base		
- Valley Cell (L16, L17)	2 m above cell base		
As identified on Figure 2 Monitoring locations, of the Hydrogeological Risk Assessment Review (Report fc37224, June 2020)			

**Table S3.2 Point source emissions to air – emission limits and monitoring requirements**

Emission point Ref. & Location	Source	Parameter	Limit (including unit)	Reference Period	Monitoring Frequency	Monitoring Standard or Method
Scania SG112 and SG113 combustion engines, as identified on drawing 6170.GA.D0 4 as 'Gas Landfill Compound'	Gas utilisation plant	Oxides of Nitrogen	None specified <sup>1</sup>	Hourly mean	Annually	Unless otherwise agreed in writing with Natural Resources Wales, monitoring methods used shall be in accordance with Environment Agency document 'Guidance for monitoring landfill gas engine emissions' (LFTGN08).
		CO	None specified <sup>1</sup>			
		Total VOCs	None specified <sup>1</sup>			

**Table S3.2 Point source emissions to air – emission limits and monitoring requirements**

Emission point Ref. & Location	Source	Parameter	Limit (including unit)	Reference Period	Monitoring Frequency	Monitoring Standard or Method
Fixed gas flare and mobile gas flare, as identified on drawing 6170.GA.D04 as 'Gas Landfill Compound'	Landfill Gas Flares	Oxides of Nitrogen	150 mg/m <sup>3</sup>	Hourly mean	Annually <sup>2</sup>	In accordance with Environment Agency document 'Guidance for monitoring enclosed landfill gas flares' LFTGN 05
		CO	50 mg/m <sup>3</sup>			
		Total VOCs	10 mg/m <sup>3</sup>			

Note (1): No specific emission limits are imposed on spark ignition engines (<250KWe), turbines and micro turbines other than the mass release of pollutants from these engines should not exceed the comparable mass release from an engine meeting the emission standards in Table 2.4 of LFTGN08.

Note (2): Annual monitoring of flares is only required when flare operates in excess of 10% of the time, taken on an annual assessment period.

**Table S3.3 Point source emissions to water (other than sewer) – emission limits and monitoring requirements**

Emission point Ref. & Location	Source	Parameter	Limit (incl unit)	Reference Period	Monitoring Frequency	Monitoring Standard or Method
SW9 as identified on Figure 2 Monitoring Surface water drainage locations, of the Hydrogeological Risk Assessment Review (Report fc37224, June 2020)	Surface water drainage	Chloride	64 mg/l	Spot sample	6 monthly	Unless otherwise agreed in writing with Natural Resources Wales, monitoring methods used shall be in accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02).
		Ammoniacal Nitrogen	1.3 mg/l	Spot sample		
SW10 as identified on Figure 2 Monitoring locations, of the Hydrogeological Risk Assessment Review (Report fc37224, June 2020).	Surface water drainage	Chloride	61 mg/l	Spot sample	6 monthly	
		Ammoniacal Nitrogen	0.53 mg/l	Spot sample		



**Table S3.4 Point source emissions to sewer, effluent treatment plant or by tankering or other transfer off-site– emission limits and monitoring requirements**

Emission point Ref. & Location	Source	Parameter	Limit (incl unit)	Reference Period	Monitoring Frequency	Monitoring Standard or Method
Leachate tanks, as identified on drawing EEL.7700.D01.001 as 'Bunded Leachate Tank Area'	Landfill leachate from Area 3	-	-	-	-	-

**Table S3.5 Trigger levels for emissions into groundwater and monitoring requirements**

Monitoring point reference	Parameter	Limit (including unit)	Reference Period	Monitoring frequency	Monitoring standard or method
BH2/88 as identified on Figure 2 Monitoring locations, of the Hydrogeological Risk Assessment Review (Report fc37224, June 2020)	Chloride	75 mg/l	Spot sample	Annually	Unless otherwise agreed in writing with Natural Resources Wales, monitoring methods used shall be in accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02).
	Ammoniacal Nitrogen	0.56 mg/l			
BH96B as identified on Figure 2 Monitoring locations, of the Hydrogeological Risk Assessment Review (Report fc37224, June 2020)	Chloride	34 mg/l	Spot sample	Annually	
	Ammoniacal Nitrogen	3.0 mg/l			

**Table S3.6 Landfill gas in external monitoring boreholes – limits and monitoring requirements**

Monitoring point Ref. /description	Parameter	Limit (including units) *	Action Limit (%v/v)	Monitoring frequency	Monitoring standard or method
All landfill gas monitoring boreholes as identified on Drawing 5739.SURV.D03	Methane	1 %v/v	-	Quarterly	In accordance with Environment Agency document "Guidance on Management of Landfill Gas" (LFTGN 03)
	Oxygen	no limit	-		
	Atmospheric pressure	no limit	-		
	Differential Pressure	no limit	-		
	Meteorological data	-	-		
PENBH01	Carbon dioxide	-	5.3	Quarterly	
PENBH02		-	5.7		
PENBH03		-	4.4		
PENBH04		-	3.9		

**Table S3.6 Landfill gas in external monitoring boreholes – limits and monitoring requirements**

Monitoring point Ref. /description	Parameter	Limit (including units) *	Action Limit (%v/v)	Monitoring frequency	Monitoring standard or method
PENBH05		-	14.2		
PENBH06		-	2.8		
PENBH07		-	7.6		
PENBH09		-	7.2		
PENBH10		-	5.4		
PENBH11		-	5.7		
PENBH12		-	4.2		
PENBH13		-	3.1		
PENBH14		-	8.3		
PENBH15		-	7.2		
PENBH15a		-	4.8		
PENBH16		-	5.4		
PENBH16a		-	5.9		
PENBH17		-	4.8		
PENBH18		-	7.0		
PENBH19		-	4.3		
PENBH20		-	10.4		

**Table S3.7 Landfill gas – other monitoring requirements**

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Gas collection system at well control valve and manifolds on gas system as shown on Drawing 6170.GA.D04	Methane	4 weekly	In accordance with Environment Agency document “Guidance on Management of Landfill Gas” (LFTGN 03)	Where the oxygen concentration exceeds 5% or the % balance gas is greater than 20% an assessment of air ingress into the system shall be undertaken. Where the concentration of carbon monoxide exceeds 100ppm then further investigation shall be undertaken.
	Carbon Dioxide			
	Oxygen			
	Carbon Monoxide			
	Hydrogen sulphide			
	Atmospheric pressure			
	Gas flow rate or suction			
	% Balance Gas (calculated as the difference between the sum of measured gases and 100%)			
	Meteorological Data			

**Table S3.7 Landfill gas – other monitoring requirements**

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Input to LFG Utilisation Compound as shown on Drawing 6170.GA.D04	Methane	4 weekly	In accordance with Environment Agency document "Guidance on Management of Landfill Gas" (LFTGN 03)	Where the oxygen concentration exceeds 5% or the % balance gas is greater than 20% an assessment of air ingress into the system shall be undertaken.
	Carbon Dioxide			
	Oxygen			
	Carbon Monoxide			
	Atmospheric pressure			
	Hydrogen sulphide			
	Gas flow rate or suction			
	% Balance Gas (calculated as the difference between the sum of measured gases and 100%).			

**Table S3.8 Leachate– other monitoring requirements**

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Area 2 - L1, L4, L5, L6, L7 As per identified on drawing 5379.SURV.D03	pH	Annually	In accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02).	
	electrical conductivity			
	chloride			
	ammoniacal nitrogen			
	COD			
	BOD			
	Depth to base of monitoring well			
Area 3 - Cell 1 (BHL13) - Cell 2 (BHL14) - Cell 3 (BHMH3A) - Valley Cell (BH60)  as identified on Figure 2 Monitoring locations, of the Hydrogeological Risk Assessment Review (Report fc37224, June 2020)	pH	Annually		
	electrical conductivity			
	chloride			
	ammoniacal nitrogen			
	COD			
	BOD			
	Depth to base of monitoring well	Quarterly		

**Table S3.8 Leachate– other monitoring requirements**

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications	
Area 3 - Cell 1 (BHL13) - Cell 2 (BHL14) - Cell 3 (BHHM3A) - Valley Cell (BH60)  as identified on Figure 2 Monitoring locations, of the Hydrogeological Risk Assessment Review (Report fc37224, June 2020)	Sulfates	6 monthly	In accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02).		
	alkalinity				
	TON				
	TOC				
	Sodium				
	Potassium				
	Calcium	6 monthly			
	Magnesium				
	Iron				
	Manganium				
	Cadmium				
	Chromium				
	Copper				
	Nickel				
	Lead				
	Zinc				
	List 1 substances identified in leachate	Annually			

**Table S3.9 Surface water – other monitoring requirements**

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
SW1 to SW10 as identified on Figure 2 Monitoring locations, of the Hydrogeological Risk Assessment Review (Report fc37224, June 2020)	pH,	Annually	In accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02).	-
	electrical conductivity			
	chloride			
	ammoniacal nitrogen			
	COD			
	BOD			
	dissolved oxygen			

**Table S3.10 Groundwater – other monitoring requirements**

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
BH01 to BH31, BH50 to BH54, BH1/88, BH2/88, BH96B as identified on Figure 2 Monitoring locations, of the Hydrogeological Risk Assessment Review (Report fc37224, June 2020)	Water level	Annually	In accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02).	-

**Table S3.10 Groundwater – other monitoring requirements**

<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
BH1/88, BH2/88, BH19, BH96B as identified on Figure 2 Monitoring locations, of the Hydrogeological Risk Assessment Review (Report fc37224, June 2020)	pH	Annually	In accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02).	-
	electrical conductivity			
	chloride			
	ammoniacal nitrogen			
	COD			
	BOD			
BH2/88, BH8/88, BH22 and BH96B (downgradient)	dissolved oxygen	6 monthly	In accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02).	
	Sulfates			
	alkalinity			
	TON			
	TOC			
	NO <sub>3</sub>			
	Sodium			
	Potassium			
	Calcium			
	Magnesium			
	Iron			
	Manganese			
	Cromium			
	Copper			
	Nickel			
	Lead			
	Zinc			
	List 1 substances identified in leachate	Annually		

## Schedule 4 - Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference		Period begins
Leachate levels As required by condition 3.5.1	Area 2 - L1, L4, L5, L6, L7 Area 3 - Cell 1 (BHL14, BHL15) - Cell 2 (BHL13, L nr 38, L nr 122) - Cell 3 (BHL10, BHHM3A, BHHM3B) - Valley Cell (L16, L17)	Every 12 months	1 January
Emissions to air Parameters as required by condition 3.5.1	Fixed gas flare, mobile gas flare, and Scania SG12 and SG13 combustion engines	Every 12 months	1 January
Emissions to water Parameters as required by condition 3.5.1	SW9 and SW10	Every 12 months	1 January
Groundwater Parameters as required by condition 3.5.1	BH01 to BH31, BH50 to BH54, BH1/88, BH2/88, BH96B	Every 12 months	1 January
Landfill gas lateral migration Parameters as required by condition 3.5.1	Landfill gas monitoring boreholes as identified on Drawing 5739.SURV.D03.	Every 3 months	1 January, 1 April, 1 July, 1 October
Other Landfill gas monitoring Parameters as required by condition 3.5.1	Gas collection system at well control valve and manifolds on gas system as shown on Drawing 6170.GA.D04  Input to LFG Utilisation Compound	Every 3 months	1 January, 1 April, 1 July, 1 October
Other leachate monitoring Parameters as required by condition 3.5.1	Area 2 - L1, L4, L5, L6, L7 Area 3 - Cell 1 (BHL13) - Cell 2 (BHL14) - Cell 3 (BHHM3A) - Valley Cell (BH60)	Every 12 months	1 January
Other surface water monitoring Parameters as required by condition 3.5.1	SW1 to SW10	Every 12 months	1 January

**Table S4.2: Annual production/treatment**

Leachate: Disposed of off site; Disposed of to any onsite effluent treatment plant; Recirculated into the waste mass.	Cubic metres/year
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Landfill gas: combustion in flares; combustion in gas engines; Other methods of gas utilisation.	Normalised cubic metres/year
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**Table S4.3 Reporting Forms**

Media/parameter	Reporting Format	Date of Form
Leachate	Form leachate 1 or other reporting format to be agreed in writing with Natural Resources Wales	
Air	Form Air 1 or other reporting format to be agreed in writing with Natural Resources Wales	
Controlled water	Form Water 1 or other reporting format to be agreed in writing with Natural Resources Wales	
Groundwater	Form Groundwater 1 or other reporting format to be agreed in writing with Natural Resources Wales	
Landfill gas	Form LFG 1 or other reporting format to be agreed in writing with Natural Resources Wales	
Waste Return	Waste Return Form RATS2E	
Landfill topographical surveys and interpretation	Reporting format to be agreed in writing with Natural Resources Wales	

## Schedule 5 - Notification

This page outlines the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

### Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

#### **(a) Notification requirements for any activity that gives rise to an incident or accident which significantly affects or may significantly affect the environment**

To be notified Immediately	
Date and Time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

#### **(b) Notification requirements for the breach of a permit condition**

To be notified immediately	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	



Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

<b>(c) In the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment:</b>	
<b>To be notified immediately</b>	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

### Part B to be supplied as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

<b>Name*</b>	
<b>Post</b>	
<b>Signature</b>	
<b>Date</b>	

\* authorised to sign on behalf of the operator

## Schedule 6 - Interpretation

*“accident”* means an accident that may result in pollution.

*“application”* means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

*“EP Regulations”* means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

*“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 schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.**

*“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.

*“year”* means calendar year ending 31 December.

*“annually”* means once every year.

*“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.

*“Background concentration”* means such concentration of that substance as is present in:

- For emissions to surface water, the surface water quality up-gradient of the site; or
- For emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge; or
- For emissions of landfill gas, the ground or air outside the site and not attributable to the site.

*“Construction Proposals”* means written information, at a level of detail appropriate to the complexity and pollution risk, on the design, specifications of materials selected, stability assessment (where relevant) and the construction quality assurance (CQA) programme in relation to the Landfill Infrastructure.

*“CQA Validation Report”* means the final “as built” construction and engineering details of the Landfill Infrastructure. It must provide a comprehensive record of the construction and must include, where relevant:

- The results of all testing required by the CQA programme - this must include the records of any failed tests with a written explanation, details of the remedial action taken, referenced to the appropriate secondary testing;
- Plans showing the location of all tests;
- “As-built” plans and sections of the works;
- Copies of the site engineer’s daily records;
- Records of any problems or non-compliances and the solution applied;
- Any other site specific information considered relevant to proving the integrity of the Landfill Infrastructure;

- Validation by a qualified person that all of the construction has been carried out in accordance with the Construction Proposals.

*“Landfill Infrastructure”* means any specified element of the:

- permanent capping;
- leachate abstraction systems;
- leachate transfer, treatment and storage systems;
- surface water drainage systems;
- leachate monitoring wells;
- groundwater monitoring boreholes;
- landfill gas monitoring boreholes;
- landfill gas management systems;

within the site.

*“Liquids”* means any liquid other than leachate within the engineered landfill containment system.

*“LFTGN 05”* means Environment Agency Guidance for monitoring enclosed landfill gas flares.

*“LFTGN 07”* means Environment Agency Guidance on monitoring landfill gas surface emissions.

*“LFTGN 08”* means Environment Agency Guidance for monitoring landfill gas engines.

*“No impact”* means that the change made to the construction process will not affect the agreed design criteria, specification or performance in a way that has a negative effect.

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

*“Review of the Hydrogeological Risk Assessment”* means a written review of the hydrogeological risk assessment included in the Application, together with any other parts of the Application that addressed the requirements of the EP Regulations. The review shall assess whether the activities of disposal or tipping for the purpose of disposal of waste authorised by the permit continue to meet the requirements of the EP Regulations.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means the standards included in Environment Agency Guidance for Monitoring Enclosed Landfill Gas Flares LFTGN 05 or Guidance for Monitoring Landfill Gas Engine Emissions LFTGN 08.

## Schedule 7 – Site plan



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END OF PERMIT

Permit Number:  
name]

AB1234CD

Operator:

[Operator

Facility:

[Facility name]

Form Number:

Air1 / DD/MM/YY

Reporting of emissions to air for the period from DD/MM/YYYY to DD/MM/YYYY

Emission Point	Substance / Parameter	Emission	Reference Period	Result <sup>[1]</sup>	Test Method <sup>[2]</sup>	Sample Date and Times <sup>[3]</sup>	Uncertainty <sup>[4]</sup>
		Limit Value					
A1	Particulate Matter	20 mg/m <sup>3</sup>	Continuous		BS EN 13284-1		
A1	Particulate Matter	20 mg/m <sup>3</sup>	1 hour period		BS EN 13284-1		
A1	VOC as Total Organic Carbon (TOC)	20 mg/m <sup>3</sup>	1 hour period		BS EN 12619		
A1	Hydrogen chloride	30 mg/m <sup>3</sup>	1 hour period		BS EN 1911		
A1	Hydrogen fluoride	2 mg/m <sup>3</sup>	1 hour period		ISO 15713		
A1	Carbon monoxide	100 mg/m <sup>3</sup>	(average of ½-hour averages) over minimum 4 hour period		BS EN 15058		
A1	Sulphur dioxide	200 mg/m <sup>3</sup>	(average of hourly averages) over minimum 4 hour period		BS EN 14791		
A1	Sulphur dioxide	150 mg/m <sup>3</sup>	Continuous		BS EN 15267-3		
A2	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	400 mg/m <sup>3</sup>	(average of ½-hour averages) over minimum 4 hour period		BS EN 14792		
A2	Cadmium & thallium and their compounds (total)	0.05 mg/m <sup>3</sup>	over minimum 30 minute, maximum 8 hour period		BS EN 14385		
A2	Mercury and its compounds	0.05 mg/m <sup>3</sup>	over minimum 30 minute, maximum 8 hour period		BS EN 13211		

Emission Point	Substance / Parameter	Emission	Reference Period	Result <sup>[1]</sup>	Test Method <sup>[2]</sup>	Sample Date and Times <sup>[3]</sup>	Uncertainty <sup>[4]</sup>
		Limit Value					
A2	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m <sup>3</sup>	over minimum 30 minute, maximum 8 hour period		BS EN 14385		

- [1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.
- [2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with Natural Resources Wales is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
- [3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.
- [4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed .....  
 (Authorised to sign as representative of Operator)

Date.....

Permit Number: AB1234CD

Operator: [Operator name]

Facility: [Facility name]

Form Number: Water1 / DD/MM/YY

Reporting of emissions to water (other than to sewer) and land for the period from DD/MM/YYYY to DD/MM/YYYY

Emission Point	Substance / Parameter	Emission		Reference Period	Result <sup>[1]</sup>	Test Method <sup>[2]</sup>	Sample Date and Times <sup>[3]</sup>	Uncertainty <sup>[4]</sup>
		Limit Value						
W1	Total suspended solids	30 mg/l		For 95% of all measured values of periodic samples taken over one month		BS EN 872		
W1	Mercury and its compounds, expressed as mercury (Total Hg)	0.005 mg/l		24-hour flow proportional sample		BS EN 135006		
W1	Cadmium and its compounds, expressed as cadmium (Total Cd)	0.01 mg/l		24-hour flow proportional sample		BS 6068-2.89		
W1	pH	6-10		Continuous		BS6068-2.50		
W1	BOD	25 mg/l		Periodic		BS EN 1899-1 (1998)		

[1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.

[2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with Natural Resources Wales is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.

[3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.

[4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed .....  
(Authorised to sign as representative of Operator)

Date.....

Permit Number: AB1234CD

Operator: [Operator name]

Facility:  
DD/MM/YY

[Facility name]

Form Number:

Leachate

1

/

Reporting of leachate monitoring for the period from DD/MM/YYYY to DD/MM/YYYY

Monito ring Point	Substan ce / Paramet er	Complia nce limit	Reference Period	Result <sup>[1]</sup>	Test Method <sup>[2]</sup>	Sample Date and Times <sup>[3]</sup>	Uncert ainty <sup>[4]</sup>
L1	leachate head	X m above cell base					

[1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.

[2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with Natural Resources Wales is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.

[3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.

[4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed .....  
(Authorised to sign as representative of Operator)

Date.....

Permit Number: AB1234CD

Operator: [Operator name]



Facility:  
DD/MM/YY

[Facility name]

Form Number:

Groundwater1

/

Reporting of groundwater monitoring for the period from DD/MM/YYYY to DD/MM/YYYY

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result <sup>[1]</sup>	Test Method <sup>[2]</sup>	Sample Date and Times <sup>[3]</sup>	Uncertainty <sup>[4]</sup>
GW1	Mercury and its compounds, expressed as mercury (Total Hg)	0.005 mg/l			BS EN 135006		
GW1	Cadmium and its compounds, expressed as cadmium (Total Cd)	0.01 mg/l			BS 6068-2.89		
GW1	pH	6-10			BS6068-2.50		
GW1	BOD	25 mg/l			BS EN 1899-1 (1998)		

[1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.

[2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with Natural Resources Wales is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.

[3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.

[4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed .....  
(Authorised to sign as representative of Operator)

Date.....

Permit Number: AB1234CD

Operator: [Operator name]

Facility: [Facility name]

Form Number: LFG1 / DD/MM/YY

**Reporting of landfill gas monitoring for the period from DD/MM/YYYY to DD/MM/YYYY**

Monitoring Point	Substance / Parameter	Compliance limit	Reference Period	Result <sup>[1]</sup>	Test Method <sup>[2]</sup>	Sample Date and Times <sup>[3]</sup>	Uncertainty <sup>[4]</sup>
LFG1	methane	1 % v/v					
LFG 1	carbon dioxide	1.5 % v/v					
LFG 1	oxygen	-					

- [1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.
- [2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with Natural Resources Wales is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
- [3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.
- [4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed .....  
(Authorised to sign as representative of Operator)

Date.....