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Wales

## **Permit with introductory note**

The Environmental Permitting (England & Wales) Regulations 2016

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FCC Waste Services (UK) Limited

Chirk Landfill Site  
Pen-y-Bont Works  
Chirk  
Wrexham  
LL14 5AR

Permit number  
EPR/GP3830BG

# Chirk Landfill Site

## Permit number EPR/GP3830BG

### Introductory note

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

The main features of the permit are as follows.

This landfill site was first permitted in 1994 and accepted non hazardous waste into contained and engineered waste cells. Following the cessation of the acceptance of waste for disposal, the operators have produced a closure plan detailing closure, restoration and long term aftercare for the site.

This variation and consolidation of the permit takes account of the details set out in the closure plan and associated supporting documents and updates the limitations and environmental monitoring and reporting requirements accordingly.

Ongoing activities at the site will consist of:

Flaring of landfill gas

Burning of landfill gas in engines

Pumping of leachate

Removal of leachate

Deposition of limited quantities of restoration materials

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
Application – GP3830BG	Received 09/11/04	
Schedule 4 information requests in relation to Landfill Gas Risk Assessment, Stability Risk Assessment and Hydrogeological Risk Assessment	Requested 27/04/05	Response received 09/07/05
Request for further information in relation to schedule 4 served on 27/04/05	Requested 13/09/05	Response received in 2 sections ENCIA response 26/09/05 Golders response 27/09/05
Permit determined GP3830BG	09/11/05	
Permit varied PP3032LN	29/06/07	
Application for variation BP3031XH	Received 10/10/07	
Permit varied BP3031XH	30/05/08	

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application for admin variation EPR/GP3830BG/V004	20/01/11	
Application determined EPR/GP3830BG/V004	24/02/11	
Administrative variation EPR/GP3830BG/V005	Received 03/12/12	Change of company name and update of the wording of the financial provision condition
Administrative variation EPR/GP3830BG/V005 issued	17/12/12	Change of company name and update of the wording of the financial provision condition
Agency variation determined EPR/GP3830BG/V006	12/06/13	Agency variation to implement the changes introduced by IED
Application for variation EPR/GP3830BG/V007	24/04/14	
Variation Determined	03/11/14	
Application for variation and closure EPR/GP3830BG/V008	Duly Made on 12/11/2018	
Request for additional information	10/12/18	Deposit of waste for recovery plan, site drainage and depths of soils on the cap
Request for additional information	18/01/2019	Specific questions relating to Hydrogeological Risk assessment and other aspects of the application
Additional Information received	15/02/2019	Additional landfill closure supporting documents
Additional Information received	02/05/2019	Details of surface water management
Variation determined EPR/GP3830BG/V008	5/12/2019	Varied and consolidated permit for landfill closure issued

End of introductory note

# Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number  
**EPR/GP3830BG**

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/GP3830BG/V008 authorising,

**FCC Waste Services (UK) Limited** (“the operator”),  
whose registered office is

**Ground Floor West  
900 Pavilion Drive  
Northampton Business Park  
Northampton  
NN4 7RG**

**company registration number 988844**

**to operate a regulated facility at**

**Chirk Landfill Site  
Pen-y-Bont Works  
Chirk  
Wrexham  
LL14 5AR**

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

Signed

Date

<b>Holly Noble</b>	<b>5 December 2019</b>
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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 shall be as set out in the Agreement between the operator and Natural Resources Wales dated 17 October 2007 or other subsequent agreement agreed in writing with Natural Resources Wales 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 Energy efficiency

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

### 1.4 Efficient use of raw materials

- 1.4.1 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 four 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.

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

1.5.1 The operator shall:

- (a) take appropriate measures to ensure that waste produced by the activities is avoided or reduced, or where waste is produced it is recovered wherever practicable or otherwise disposed of in a manner which minimises its impact on the environment;
- (b) review and record at least every four years whether changes to those measures should be made; and
- (c) 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 Red on the site plan at schedule 7 to this permit.

### **2.3 Operating techniques**

2.3.1 Operating techniques to be adhered to by the operator are as follows:

- 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.

2.3.2 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

- (a) the nature of the process producing the waste;
- (b) the composition of the waste;
- (c) the handling requirements of the waste;
- (d) the hazardous property associated with the waste, if applicable; and
- (e) the waste code of the waste.

## **2.4 Improvement programme**

- 2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by Natural Resources Wales.
- 2.4.2 Except in the case of an improvement which consists only of a submission to Natural Resources Wales, the operator shall notify Natural Resources Wales within 14 days of completion of each improvement.

## **2.5 Pre-operational conditions**

- 2.5.2 The operations specified in schedule 1 table S1.4 shall not commence until the measures specified in that table have been completed.

## **2.6 Landfill Engineering**

- 2.6.1 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.
- 2.6.2 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.
- 2.6.3 The operator shall submit a CQA Validation Report as soon as practicable following the construction of the relevant landfill infrastructure.
- 2.6.4 Where pollution controls are immediately necessary to prevent an incident or accident, then conditions 2.5.1 and 2.5.2 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.
- 2.6.5 For the purpose of condition 2.5.1 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.
- 2.6.6 Where Natural Resources Wales has required further information under condition 2.5.5(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.

## **2.7 Waste acceptance**

- 2.7.1 No waste shall be accepted for disposal within the site.

- 2.7.2 Wastes shall only be accepted for recovery if:
- (a) they are accepted in accordance with a waste recovery plan which has been approved in writing by Natural Resources Wales, as detailed in Table S1.4.
- 2.7.3 The operator shall visually inspect:
- (a) without unloading it, waste that is not in an enclosed container or enclosed vehicle on arrival at the landfill; and
  - (b) waste at the point of deposit;
- and shall satisfy itself that it conforms to the basic characterisation documentation submitted by the holder.
- 2.7.4 The operator on accepting each delivery of waste shall provide a receipt to the person delivering it.
- 2.7.5 The total quantity of waste that shall be deposited in the landfill shall be limited by the pre-settlement levels shown on drawing WR7350/5/04.
- 2.7.6 The quantity of waste that is deposited in the landfill in any year shall not exceed the limits in schedule 1 table S1.5.
- 2.7.7 The operator shall maintain and implement a system which ensures that a record is made of the quantity, characteristics, date of delivery and, where practicable, origin of any waste that is received for recovery and of the identity of the producer. Any information regarded by the operator as commercially confidential shall be clearly identified in the record.

## **2.8 Leachate levels**

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

## **2.9 Closure and aftercare**

- 2.9.1 The operator shall maintain a closure and aftercare management plan.

## **2.10 Landfill gas management**

- 2.10.1 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.
- 2.10.2 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 the gas.
- 2.10.3 The operator shall:
- (b) if notified by Natural Resources Wales, submit to Natural Resources Wales for approval within the period specified, a revised landfill gas management plan;
  - (b) implement the revised landfill gas management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.



## **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 and S3.3.
- 3.1.2 The limits given in Table S3.2 shall not be exceeded.
- 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 S3.4 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 installation set out in schedule 3, tables S3.5, S3.6 and S3.7 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.
- 3.3.2 The operator shall:
- (a) 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 period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
  - (b) implement the approved 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 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 S3.4 and S3.10;
  - (d) Landfill gas specified in tables S3.5, 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 every five years until the end of aftercare.
- 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 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by Natural Resources Wales.
- 3.5.5 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 S3.2 and S3.3 unless otherwise agreed in writing by Natural Resources Wales.

## **3.6 Pests**

- 3.6.1 The activities shall not give rise to the presence of pests which are likely to cause pollution, hazard or annoyance outside the boundary of the site. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved pests management plan, have been taken to prevent or where that is not practicable, to minimise the presence of pests on the site.
- 3.6.2 The operator shall:
- (a) if notified by Natural Resources Wales, submit to Natural Resources Wales for approval within the period specified, a pests management plan which identifies and minimises risks of pollution, hazard or annoyance from pests;
  - (b) implement the pests management plan, from the date of approval, 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) the results of groundwater monitoring;
- (ii) the results of surface water monitoring;
- (iii) sub-surface landfill gas monitoring;
- (iv) leachate levels, quality and quantities;
- (v) landfill gas generation and collection;
- (vi) waste types and quantities;
- (vii) topographical surveys; and
- (viii) 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 installation and any agreed amendments thereto;
- (b) the energy consumed at the site, reported in the format set out in schedule 4 table S4.3
- (c) the annual production/treatment set out in schedule 4 table S4.2;
- (d) the topographical surveys required by condition 3.5.3 other than those submitted as part of a CQA validation report;
- (e) the volumetric difference (reported in cubic metres) between the most recent topographical survey and the previous annual topographical survey i.e. the additional volume of the landfill void that is occupied by waste;
- (f) an assessment of the settlement behavior 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 S4.4; 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(a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, 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.

4.3.6 Natural Resources Wales shall be given at least 14 days notice before implementation of any part of the site closure plan.

## **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 Specified Activities		
Activity under Schedule 1 of the EP Regulations/ Associated Activity	Description of specified activity and WFD Annex I and II operations	Limits of specified activity
Section 5.2 Part A(1)(a) The disposal of waste in a landfill.	<b>D5:</b> Landfill for non-hazardous waste	Landfill aftercare only, with no waste to be deposited for disposal.
Deposit of waste for recovery	<p><b>R13:</b> Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)</p> <p><b>R5:</b> Recycling/ reclamation of other inorganic compounds</p> <p><b>R10:</b> Land treatment resulting in benefit to agriculture or ecological improvement</p>	<p>Receipt, handling, storage and recovery of non-hazardous wastes, consisting of the types and quantities specified in condition 2.6 . This waste operation shall consist of the permanent deposit of waste on or in land for the purpose of recovery only. This activity is subject to the specifications set out in the pre-operational condition in table S1.4.</p> <p>In any event the total quantity of waste used shall not exceed the amount needed to complete the recovery operation to the final levels in the approved waste recovery plan.</p> <p>Topsoil and peat shall only be used for the the R10 activity in the final 0.5m thick layer to achieve the restoration profile required.</p>
Directly Associated Activities		
Burning of waste as a fuel	Combustion of landfill gas for the purpose of electricity generation	Landfill gas arising from the permitted landfill site.
Landfill Gas Flaring	Flaring of landfill gas for disposal in an appliance.	Landfill gas arising from the permitted landfill site site.
Leachate management	Storage and handling of leachate prior to removal from site.	Leachate arising from the permitted landfill site site.
Water discharges to controlled waters	Controlled discharge of site drainage from the permitted landfill site site.	From surface water management system to point of entry to controlled waters.
Fuel storage	Storage of fuel for operation of plant and equipment	Fuel storage tank

**Table S1.2 Operating techniques**

<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application	The response to questions, 2.1, 2.2, 2.3, 2.4, 2.5, 2.7, 2.8 and 2.9 of part B of the Application Form.	9 November 2004
Schedule 4 Notice response from WRG Waste Services Ltd	All Parts	Received 9 July 2005
Response from WRG Waste Services Ltd to Agency letter requesting further information dated 13 September 2005	All Parts	Received in two sections dated 26 & 27 September 2005
Revised version of drawing reference WR44461ESID6A	Doc Ref - 0552552.250 ESID6A	December 05
The location, design, installation and monitoring of additional groundwater monitoring points to be located between the site and the River Dee,	Document Ref 05529525.250 - Golders Associates (UK) Ltd.	7 February 2006
	Document Ref 05529525.250 - Associates (UK) Ltd.	Amended 29 <sup>th</sup> Sept 2006
Review of the groundwater monitoring data for all existing boreholes individually including submission of revised borehole specific control and trigger levels derived in accordance with Agency guidance document LFTGNOI 'Hydrogeological risk assessment for landfills',	Document Ref 05529525.250 - Golders Associates (UK) Ltd.	7 February 2006
	Document Ref 05529525.250 - Golders Associates (UK) Ltd.	Amended 29 <sup>th</sup> Sept 2006
Detailed leachate management plan.	Leachate management Plan Version 3 Letter - PYB GF03 - GP3830BG	10 <sup>th</sup> September 2006
The location, design, installation and monitoring of additional off-site groundwater monitoring points to be located between the site and the River Dee.	Document reference Ref 05529525.500 - Golder Associates (UK) Ltd	February 2007
Revised conceptual model from the review of all the information gathered from existing and new groundwater monitoring boreholes	Document reference Ref 05529525.500 - Golder Associates (UK) Ltd	February 2007
Air impact assessment report incorporating detailed air dispersion modelling	Document Reference: Ref 06529200.500 Golder Associates (UK) Ltd	Submitted 7 July 06
	Document Reference : Ref 06529200.500 Golder Associates (UK) Ltd	Amended 19 Feb 07
Slope Monitoring Plan	Slope Monitoring Plan - Document reference - AS 5916/PYB/rac/01	February 06
Landfill Gas Management Plan	Document Reference: Ref 05529525.501/A.2 Golders Associates	November 2006
Groundwater Control and Trigger levels at TIO and BH7 - 14	Project No. 10514290011.250 Golders Associates	1 <sup>st</sup> December 2010
Variation Application EPR/GP3830BGIV007	The response to section 3 of part C3 of the application and the referenced documents including Letter dated 17 April 2014.	24/04/14
Closure and Variation Application EPR/GP3830BGIV008	Closure application and referenced documentation	1/10/2018



**Table S1.3 Improvement programme requirements**

Reference	Requirement	Date
1	<p>The Operator shall submit to the Agency borehole specific groundwater control and trigger levels using the first 12 months data obtained from borehole T10. Trigger and control levels shall be derived in accordance with Agency guidance document LFTGN01 'Hydrogeological Risk Assessment for Landfills'.</p> <p>The proposed trigger levels shall be implemented by the operator from the date of approval in writing by the Agency</p>	Completed
2	<p>The Operator shall submit to the Agency for approval, proposed timescales for reducing the leachate head to 1m as required by Table S4.1.</p> <p>The proposed timescales shall be implemented by the operator from the date of approval in writing by the Agency</p>	Completed

**Table S1.4 Pre-operational measures for future development**

Reference	Operation	Pre-operational measures
1	Deposit of waste for recovery	<p>The operator shall submit to Natural Resources Wales a waste recovery plan, and shall have approval in writing from Natural Resources Wales before undertaking this activity.</p> <p>This plan shall specify:</p> <ul style="list-style-type: none"> <li>• A description of the proposed work, including proposed contours/ final levels;</li> <li>• The obligation to carry out the work;</li> <li>• The purpose of depositing the waste;</li> <li>• The proposed waste types;</li> <li>• Explanation for how the waste is fit for the intended purpose;</li> <li>• Waste quantities to be deposited,</li> <li>• Justification for waste quantities;</li> <li>• Explanation of how wastes will replace need for non-waste materials;</li> <li>• Demonstrate that consideration has been given to depositing smaller quantity of waste;</li> <li>• Demonstrate that the waste will not cause environmental problems such as pollution;</li> <li>• Waste acceptance procedures;</li> <li>• If waste is to be stored prior to use, give details of maximum storage times.</li> </ul>

**Table S1.5 Annual waste input limits**

Category	Limit Tonnes/ Year
Deposit of waste for recovery	To be agreed in writing with Natural Resources Wales

## Schedule 2 - List of permitted wastes

**Table S2.1 Permitted waste types for recovery**

As agreed in writing by Natural Resources Wales in accordance with pre-operational condition 1 in table S1.4.

## Schedule 3 – Emissions and monitoring

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

Monitoring point reference/ Description	Limit (metres above Ordnance Datum)	Monitoring frequency	Monitoring method
LC01D, LM05B, LC05B, LC04B, LM04B, LM06B and LM07B as shown on plan referenced WR7350/5/03(Rev1)	43	Monthly	As detailed in LFTGN02 issued February 2003 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water', or such other subsequent guidance as may be agreed in writing with Natural Resources Wales

**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
A1 flare stack as shown on plan referenced WR7350/5/03(Rev1)	Flare for landfill gas collected from the landfill site	Nitrogen Oxides (NO <sub>x</sub> )	150 mg/m <sup>3</sup>	Hourly mean	Annual	As detailed in per M2 version 12 issued August 2017 'Monitoring of stack emissions to air' or such other guidance as may be agreed in writing with Natural Resources Wales
		Carbon monoxide (CO)	50 mg/m3			
		Total Volatile Organic Compounds (VOCs)	10 mg/m <sup>3</sup>			
		Temperature	None set	None set	Weekly (when flare is operational) unless otherwise agreed in writing with Natural Resources Wales.	
For Engines Commissioned before 31st December 2005						
A2 Engine Exhausts as shown on plan referenced WR7350/5/03(Rev1)	Landfill gas engine for landfill gas collected from the Landfill site	Nitrogen Oxides (NO <sub>x</sub> )	650 mg/m3	Hourly mean	Annual	As detailed in M2 version 12 issued August 2017 'Monitoring of stack emissions to air' or such other guidance as may be agreed in writing with Natural Resources Wales
		Carbon monoxide (CO)	1500 mg/m3			
		Total Volatile Organic Compounds (VOCs)	1750 mg/m3			
		For Engines Commissioned After 31st December 2005				
A2 Engine Exhausts as shown on plan referenced WR7350/5/03(Rev1)	Landfill gas engine for landfill gas collected from the Landfill site	Nitrogen Oxides (NO <sub>x</sub> )	500 mg/m3	Hourly mean	Annual	As detailed in M2 version 12 issued August 2017 'Monitoring of stack emissions to air' or such other guidance as may be agreed in writing with Natural Resources Wales
		Carbon monoxide (CO)	1400 mg/m3			
		Total Volatile Organic Compounds (VOCs)	1000 mg/m3			

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

<b>Emission point Ref. &amp; Location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (incl unit)</b>	<b>Reference Period</b>	<b>Monitoring Frequency</b>	<b>Monitoring Standard or Method</b>
Surface water settlement lagoon 1 as shown on plan referenced WR7350/5/0 3(Rev1)	Site drainage from the surface water management system	Ammonical Nitrogen	3 mg/l	Spot sample	Quarterly for the first year and then six monthly	As detailed in LFTGN02 issued February 2003 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water', or such other guidance as may be agreed in writing with Natural Resources Wales
		Chloride	250 mg/l	Spot sample		
		Oil or grease	None visible	Spot sample		
Surface water settlement lagoon 2 as shown on plan referenced WR7350/5/0 3(Rev1)	Site drainage from the surface water management system	Ammonical Nitrogen	3 mg/l	Spot sample	Quarterly for the first year and then six monthly	
		Chloride	250 mg/l	Spot sample		
		Oil or grease	None visible	Spot sample		
Surface water settlement lagoon 3 as shown on plan referenced WR7350/5/0 3(Rev1)	Site drainage from the surface water management system	Ammonical Nitrogen	3 mg/l	Spot sample	Quarterly for the first year and then six monthly	
		Chloride	250 mg/l	Spot sample		
		Oil or grease	None visible	Spot sample		
Surface water discharge points WP5 to the River Dee and WP4 at the grass plots as shown on plan referenced WR7350/5/0 3(Rev1)	Site drainage from the surface water management system	Ammonical Nitrogen	3 mg/l	Spot sample	6 monthly if discharge operational within this time period	
		Chloride	250 mg/l	Spot sample		
		Oil or grease	None visible	Spot sample		
		Suspended Solids	100 mg/l	Spot sample	Daily if operational	
		Volume	5616m <sup>3</sup> per day	Continuous		

**Table S3.4 Groundwater – emission limits and monitoring requirements**

Monitoring point reference	Parameter	Limit (including unit)	Reference Period	Monitoring frequency	Monitoring standard or method
BH4, T2, T4, T6 and T13 as shown on drawing WR7350/5/03 (Rev 1)	Chloride	250 mg/l	Spot Sample	Quarterly	As specified in Environment Agency Guidance LFTGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), or such other guidance as may be agreed in writing with Natural Resources Wales
	Chromium	0.05 mg/l	Spot Sample	6 monthly	
	Nickel	0.02 mg/l	Spot Sample	Annually	
	Lead	0.025 mg/l	Spot Sample	6 monthly	
	Cadmium	0.001 mg/l	Spot Sample	Annually	
	Mecoprop	0.1 µg/l	Spot Sample	Annually	
BH4	Napthalene	1 µg/l	Spot Sample	Annually	
	Ammoniacal Nitrogen	3 mg/l	Spot Sample	Quarterly	
	Manganese	7.7 mg/l	Spot Sample	Annually	
T13	Zinc	0.014 mg/l	Spot Sample	Annually	
	Ammoniacal Nitrogen	2.5 mg/l	Spot Sample	Quarterly	
	Manganese	2.1 mg/l	Spot Sample	Annually	
BH7, BH8, BH9, BH10, BH12, BH13 and BH14 as shown on plan referenced WR7350/5/03 (Rev1)	Zinc	0.031 mg/l	Spot Sample	Annually	
	Chromium	0.05 mg/l	Spot Sample	6 monthly	
	Lead	0.025 mg/l	Spot Sample	6 monthly	
	Napthalene	1 µg/l	Spot Sample	Annually	
	Mecoprop	0.1 µg/l	Spot Sample	Annually	
BH7	Cadmium	0.001 mg/l	Spot Sample	Annually	
	Ammoniacal Nitrogen	1.3 mg/l	Spot Sample	Quarterly	
	Chloride	250 mg/l	Spot Sample	Quarterly	
	Zinc	0.02 mg/l	Spot Sample	Annually	
	Manganese	0.05 mg/l	Spot Sample	Annually	
BH8	Nickel	0.02 mg/l	Spot Sample	Annually	
	Ammoniacal Nitrogen	1.2 mg/l	Spot Sample	Quarterly	
	Chloride	250 mg/l	Spot Sample	Quarterly	
	Zinc	0.25 mg/l	Spot Sample	Annually	
	Manganese	0.3 mg/l	Spot Sample	Annually	
BH9	Nickel	0.05 mg/l	Spot Sample	Annually	
	Ammoniacal Nitrogen	0.5 mg/l	Spot Sample	Quarterly	
	Chloride	250 mg/l	Spot Sample	Quarterly	
	Zinc	0.02 mg/l	Spot Sample	Annually	
	Manganese	0.2 mg/l	Spot Sample	Annually	
BH10	Nickel	0.02 mg/l	Spot Sample	Annually	
	Ammoniacal Nitrogen	1.0 mg/l	Spot Sample	Quarterly	
	Chloride	250 mg/l	Spot Sample	Quarterly	
	Zinc	0.02 mg/l	Spot Sample	Annually	
	Manganese	0.7 mg/l	Spot Sample	Annually	
BH12	Nickel	0.02 mg/l	Spot Sample	Annually	
	Ammoniacal Nitrogen	3.5 mg/l	Spot Sample	Quarterly	

**Table S3.4 Groundwater – emission limits and monitoring requirements**

Monitoring point reference	Parameter	Limit (including unit)	Reference Period	Monitoring frequency	Monitoring standard or method
	Chloride	460 mg/l	Spot Sample	Quarterly	
	Zinc	0.02 mg/l	Spot Sample	Annually	
	Manganese	10.2 mg/l	Spot Sample	Annually	
	Nickel	0.04 mg/l	Spot Sample	Annually	
BH13	Ammoniacal Nitrogen	0.92 mg/l	Spot Sample	Quarterly	
	Chloride	320 mg/l	Spot Sample	Quarterly	
	Zinc	0.02 mg/l	Spot Sample	Annually	
	Manganese	3.3 mg/l	Spot Sample	Annually	
BH14	Nickel	0.02 mg/l	Spot Sample	Annually	
	Ammoniacal Nitrogen	1.9 mg/l	Spot Sample	Quarterly	
	Chloride	340 mg/l	Spot Sample	Quarterly	
	Zinc	0.02 mg/l	Spot Sample	Annually	
T12 as shown on plan referenced WR7350/5/03(Rev1)	Manganese	2.6 mg/l	Spot Sample	Annually	
	Nickel	0.02 mg/l	Spot Sample	Annually	
	Ammoniacal Nitrogen	0.5 mg/l	Spot Sample	Quarterly	
	Manganese	12.0 mg/l	Spot Sample	Annually	
	Zinc	0.251 mg/l	Spot Sample	Annually	
	Chloride	250 mg/l	Spot Sample	Quarterly	
	Chromium	0.05 mg/l	Spot Sample	6 monthly	
	Nickel	1.4 mg/l	Spot Sample	Annually	
	Lead	0.025 mg/l	Spot Sample	Annually	
	Cadmium	0.006 mg/l	Spot Sample	Annually	
	Mecoprop	0.04 µg/l	Spot Sample	Annually	
	Napthalene	1 µg/l	Spot Sample	Annually	

**Table S3.5 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
G1, G2, G3, G4, G5, G6, G7, G8, G9, G10, G11, G12, G13, G14, G15, G16, G17 as shown on plan referenced WR7350/5/03(Rev1)	Oxygen	None set	None set	Monthly	As specified in LFTGN 03 issued September 2004 'Guidance on the management of landfill gas', or such other guidance as may be agreed in writing with Natural Resources Wales
	Atmospheric Pressure and Meteorological Conditions	None set	None set	Monthly	
	Methane	1% v/v	N/A	Monthly	
T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T12, T13. as shown on plan referenced WR7350/5/03(Rev1)	Oxygen	None set	None set	Quarterly	
	Atmospheric Pressure and Meteorological Conditions	None set	None set	Quarterly	
	Methane	1% v/v	N/A	Quarterly	
G1	Carbon Dioxide		3.22	Monthly	
G2	Carbon Dioxide		3.21	Monthly	
G3	Carbon Dioxide		2.91	Monthly	
G4	Carbon Dioxide		2.57	Monthly	
G5	Carbon Dioxide		2.53	Monthly	
G6	Carbon Dioxide		2.77	Monthly	
G7	Carbon Dioxide		3.36	Monthly	
G8	Carbon Dioxide		3.62	Monthly	
G9	Carbon Dioxide		3.48	Monthly	
G10	Carbon Dioxide		2.76	Monthly	
G11	Carbon Dioxide		2.72	Monthly	
G12	Carbon Dioxide		3.33	Monthly	
G13	Carbon Dioxide		2.28	Monthly	
G14	Carbon Dioxide		2.82	Monthly	
G15	Carbon Dioxide		2.27	Monthly	
G16	Carbon Dioxide		2.18	Monthly	
G17	Carbon Dioxide		3.19	Monthly	
T1	Carbon Dioxide		2.86	Quarterly	
T2	Carbon Dioxide		2.90	Quarterly	



T3	Carbon Dioxide	3.49	Quarterly
T4	Carbon Dioxide	4.99	Quarterly
T5	Carbon Dioxide	3.85	Quarterly
T6	Carbon Dioxide	3.69	Quarterly
T7	Carbon Dioxide	2.91	Quarterly
T8	Carbon Dioxide	3.50	Quarterly
T9	Carbon Dioxide	3.90	Quarterly
T10	Carbon Dioxide	2.40	Quarterly
T12	Carbon Dioxide	2.71	Quarterly
T13	Carbon Dioxide	2.96	Quarterly

**Table S3.6 Landfill gas from capped surfaces – limits and monitoring requirements**

Monitoring point Ref. /description	Parameter	Limit (including unit)	Monitoring frequency	Monitoring Standard or method
Permanently capped zone	Average Methane flux <sup>2</sup>	Where a rate of 0.001 mg/m <sup>2</sup> /second is exceeded appropriate measures must be taken to reduce the rate <sup>2</sup> .	Annually	Flame ionisation detector walkover, flux box or as otherwise agreed in writing with Natural Resources Wales <sup>1</sup> .

**Note 1** If a cap has previously been shown compliant and there have been no significant physical changes in the gas management during the year, a detailed walkover survey with an FID can be used to demonstrate that the surface emissions are under control. If this survey shows no change in the pattern of methane emission, it may be used as the annual survey. The values for flux and total methane emissions measured in the previous year may be reported and a fresh flux box survey is not necessary.

**Note 2:** An alternative method of monitoring landfill gas emissions from capped area can also be agreed in writing with Natural Resources Wales. For example the operator can use methane surface concentrations surveys, although separate limits will need to be agreed (e.g. methane concentration in ppm).

**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
In waste landfill gas monitoring points as specified on drawing reference 6167/1 in Landfill Gas Management Plan 9 Jun 06. Ref 05529525.501/A.2 updated by ESID14	Oxygen	Monthly	As specified in LFTGN 03 issued September 2004 'Guidance on the management of landfill gas', or such other guidance as may be agreed in writing with Natural Resources Wales	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	Monthly		
	Methane	Monthly		
	Atmospheric pressure	Monthly		
In waste landfill gas monitoring points as specified on drawing reference 6167/1 in Landfill Gas Management Plan 9 Jun 06. Ref 05529525.501/A.2 updated by ESID14	Trace gas analysis in accordance with LFTGN04.	Annually	Trace gas analysis in accordance with LFTGN04 (version 3 dated 2010) or other method as may be agreed in writing with Natural Resources Wales.	The concentration of trace gas components shall be assessed against the assumptions made in the Landfill gas risk assessment and dispersion modelling.

**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
LC01D as shown on plan WR7350/5/03 (Rev 1), LC04B, LC05B and LM07B as shown on drawing WR7350/5/03 (Rev 1)	pH, electrical conductivity, ammoniacal nitrogen, Chloride, COD and BOD.	6 monthly	As specified in Environment Agency Guidance LFTGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), or such other guidance as may be agreed in writing with Natural Resources Wales

**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
LC01D as shown on plan WR7350/5/03 (Rev 1), LC04B, LC05B and LM07B as shown on drawing WR7350/5/03 (Rev 1)	Temperature, Sulphate, Total Alkalinity (CaCO <sub>3</sub> ), Total Phenols, TOC, TON, Sodium, Potassium, Calcium, chromium, copper, Iron, lead, Magnesium, Manganese, Cadmium, Mecoprop, Naphthalene, Nickel, Zinc, Mercury, Total Cyanide,  Hazardous substances (List 1)	Annually	As specified in Environment Agency Guidance LFTGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), or such other guidance as may be agreed in writing with Natural Resources Wales

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

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Reference period	Monitoring standard or method
WP1, WP2, WP3, WP4 and WP5 as identified drawing WR7350/5/03 (Rev 1)	pH, electrical conductivity, ammoniacal nitrogen, chloride, COD, suspended solids	Quarterly	Spot sample	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003) or such other guidance as may be agreed in writing with Natural Resources Wales.
WP1, WP2, WP3, WP4 and WP5 as identified on drawing WR7350/5/03 (Rev 1)	dissolved oxygen, Sulphate, total alkalinity, Total Oxidised Nitrogen, Total Organic Carbon, sodium, potassium, calcium, magnesium, iron, manganese, cadmium, chromium, copper, nickel, lead, zinc, Phosphate.	Every 6 months	Spot sample	As detailed in LFTGN02 issued February 2003 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water', or such other guidance as may be agreed in writing with Natural Resources Wales

**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>
BH4, BH7, BH8, BH9, BH10, BH12, BH13, BH14, T2, T4, T6, T12 and T13. As shown on drawing WR7350/5/03 (Rev 1)	Groundwater level, Temperature, pH, Chloride, electrical conductivity, ammoniacal nitrogen, Dissolved Oxygen, COD, BOD, Suspended Solids	Quarterly	As specified in Environment Agency Guidance LFTGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), or such other guidance as may be agreed in writing with Natural Resources Wales
	Total alkalinity, magnesium, potassium, total sulphates, calcium, chromium, lead, Total Oxidised Nitrogen, Total Organic Carbon,	Six monthly	
	Copper, Iron, Manganese, Zinc, Toluene, Orthophosphate, Nickel, Mecoprop, Cadmium, Napthalene, TPH, Total Phenols, Mercury	Annually	
	Priority Hazardous substances identified within the leachate	Every 2 years	

## Schedule 4 - Reporting

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

<b>Table S4.1 Reporting of monitoring data</b>			
<b>Parameter</b>	<b>Emission or monitoring point/reference</b>	<b>Reporting period</b>	<b>Period begins</b>
Leachate levels As required by condition 3.5.1	Leachate monitoring points	Quarterly	1 January 1 April 1 July 1 October
Emissions to air Parameters as required by condition 3.5.1	Landfill gas flare and engines	Quarterly for temperature and annually for other parameters	1 January 1 April 1 July 1 October
Emissions to water Parameters as required by condition 3.5.1	WP4 and WP5	Annually	1 January
Groundwater Parameters as required by condition 3.5.1	All groundwater monitoring points listed in Table S3.4	Annually	1 January
Landfill gas lateral migration Parameters as required by condition 3.5.1	All landfill gas monitoring points listed in Table S3.5	Quarterly	1 January 1 April 1 July 1 October
Landfill gas surface emissions Parameters as required by condition 3.5.1	All monitoring undertaken in accordance with table S3.6	Annually	1 January
Other Landfill gas monitoring Parameters as required by condition 3.5.1	All monitoring undertaken in accordance with table S3.7	Quarterly	1 January 1 April 1 July 1 October
Other leachate monitoring Parameters as required by condition 3.5.1	All monitoring undertaken in accordance with table S3.8	Annually	1 January
Other surface water monitoring Parameters as required by condition 3.5.1	All monitoring undertaken in accordance with table S3.9	Annually	1 January
Other groundwater monitoring Parameters as required by condition 3.5.1	All monitoring undertaken in accordance with table S3.10	Annually	1 January

<b>Table S4.2: Annual production/treatment</b>	
Leachate:	Cubic metres/year
Disposed of off site;	
Recirculated into the waste mass.	

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

Surface water and/ or groundwater:	Cubic metres/year
Disposed of off site;	
Disposed of to any onsite effluent treatment plant.	
Landfill gas:	Normalised cubic metres/year
combustion in flares;	
combustion in gas engines;	

**Table S4.3 Performance Parameters**

Parameter	Frequency of assessment	Unit
Energy used (including for leachate treatment)	Annually	MWh of electricity

**Table S4.4 Reporting Forms**

Media/parameter	Reporting Format
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
Energy	Form Energy 1 or other reporting format to be agreed in writing with Natural Resources Wales
Leachate	Form leachate 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
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	

<b>(a) Notification requirements for any activity that gives rise to an incident or accident which significantly affects or may significantly affect the environment</b>	
<b>To be notified Immediately</b>	
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>(b) Notification requirements for the breach of a permit condition</b>	
<b>To be notified immediately</b>	
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.

*“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.

*“Cell layout drawing”* means:

(a) A drawing or drawings of the proposed new cell that illustrate(s) in sufficient detail:

- i. the location of the new cell on the site;
- ii. the proposed level (Above Ordnance Datum) of the base of the excavation;
- iii. the proposed finished levels of all containment and leachate drainage layers;
- iv. the positions of leachate management infrastructure; and
- v. the positions of landfill gas infrastructure (if appropriate).

(b) A detailed written explanation of any minor design changes from the most recently approved cell that result from the new cell layout. This would include, for example:

- i. changes to slope length and gradient within the cell;
- ii. new leachate or landfill gas infrastructure construction design;
- iii. slope stability issues such as new basal excavation level; and/or
- iv. depth of waste.

*“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 New Cell or Landfill Infrastructure.

*“CQA Validation Report”* means the final “as built” construction and engineering details of the New Cell or 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 New Cell or Landfill Infrastructure;
- Validation by a qualified person that all of the construction has been carried out in accordance with the Construction Proposals.
- “*emissions to land*” includes emissions to groundwater.
- “*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.
- “*hazardous property*” has the meaning in Annex III of the Waste Framework Directive
- “*hazardous waste*” has the meaning given in the Hazardous Waste (Wales) Regulations 2005 (as amended)
- “*hazardous substance*” means a substance classified as hazardous as a consequence of fulfilling the criteria laid down in parts 2 to 5 of Annex I to Regulation (EC) No 1272/2008

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

- permanent capping;
- temporary capping (i.e. engineered temporary caps not cover materials);
- 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;
- lining within the installation.

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.

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

“*Medicinal product*” means any medicine licensed by the Medicines and Healthcare products Regulatory Agency (MHRA) of their predecessors under the Medicines Act 1968, section 130.

“*M2*” means Environment Agency Guidance Monitoring of stack emissions to air.

“*New Cell*” means any new cell, part of a cell or other similar new area of the site where waste deposit is

to commence after issue of this permit and can comprise:

- groundwater under-drainage system;
- permanent geophysical leak location system;
- leak detection layer;
- sub-grade;
- barriers;
- liners;
- leachate collection system;
- leachate abstraction system;
- separation bund/layer;
- cell or area surface water drainage system;
- side wall subgrade and containment systems;

for the New Cell.

*“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.

*“Pests”* means Birds, Vermin and Insects.

*“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.

*“Waste code”* means the six digit code referable to a type of waste in accordance with the list of wastes established by Commission Decision 2000/532/EC as amended from time to time (the ‘List of Wastes Decision’) and in relation to hazardous waste, includes the asterisk.

*Waste Framework Directive” or “WFD”* means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

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

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: GP3830BG

Operator: FCC Waste Services (UK) Limited

Facility: Chirk Landfill Site

Form Number: Air1

**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	Nitrogen Oxides (NO <sub>x</sub> )	150 mg/m <sup>3</sup>	Hourly mean					
	Carbon monoxide (CO)	50 mg/m <sup>3</sup>	Hourly mean					
	Total Volatile Organic Compounds (VOCs)	10 mg/m <sup>3</sup>	Hourly mean					
	Temperature							
A2	Nitrogen Oxides (NO <sub>x</sub> )	mg/m <sup>3</sup>	Hourly mean					
	Carbon monoxide (CO)	mg/m <sup>3</sup>	Hourly mean					
	Total Volatile Organic Compounds (VOCs)	mg/m <sup>3</sup>	Hourly mean					

[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: GP3830BG

Operator: FCC Waste Services (UK) Limited

Facility: Chirk Landfill Site

Form Number: Water 1

**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						
Surface water settlement lagoon 1	Ammonical Nitrogen	3 mg/l	Spot Sample					
	Chloride	250 mg/l	Spot Sample					
	Oil or grease	None visible	Spot Sample					
Surface water settlement lagoon 2	Ammonical Nitrogen	3 mg/l	Spot Sample					
	Chloride	250 mg/l	Spot Sample					
	Oil or grease	None visible	Spot Sample					
Surface water settlement lagoon 3	Ammonical Nitrogen	3 mg/l	Spot Sample					
	Chloride	250 mg/l	Spot Sample					
	Oil or grease	None visible	Spot Sample					
WP4 and WP5	Ammonical Nitrogen	3 mg/l	Spot Sample					
	Chloride	250 mg/l	Spot Sample					
	Oil or grease	None visible	Spot Sample					
	Suspended Solids	100 mg/l	Spot Sample					

Emission Point	Substance / Parameter	Emission		Result <sup>[1]</sup>	Test Method <sup>[2]</sup>	Sample Date and Times <sup>[3]</sup>	Uncertainty <sup>[4]</sup>
		Limit Value	Reference Period				
	Volume	5616 m <sup>3</sup>	continuous				

- [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: GP3830BG

Operator: FCC Waste Services (UK) Limited

Facility: Chirk Landfill Site

Form Number: Energy 1

### Reporting of Energy Usage for the year

Energy Source	Energy Usage		
	Quantity	Primary Energy (MWh)	Specific Usage (MWh/unit output)
Electricity *	MWh		
TOTAL	-		

\* Conversion factor for delivered electricity to primary energy = 2.4

Operator's comments :

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

Date.....

Permit Number:	GP3830BG	Operator:	FCC Waste Services (UK) Limited
Facility:	Chirk Landfill Site	Form Number:	Leachate 1

Reporting of leachate 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>
LC01D LM05B, LC05B, LC04B, LM04B, LM06B and LM07B	leachate head	43m above ordnance datum					

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>
LC01D, LC04B, LC05B and LM07B	pH, Temperature, electrical conductivity, ammonical nitrogen, Chloride, COD and BOD. Sulphate, Total Alkalinity (CaCO <sub>3</sub> ), Total Phenols, TOC, TON, Sodium, Potassium, Calcium, chromium, copper, Iron, lead, Magnesium, Manganese, Cadmium, Mecoprop, Naphthalene, Nickel, Zinc, Mercury, Total Cyanide,  Hazardous substances (List 1)						

- [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: GP3830BG

Operator: FCC Waste Services (UK) Limited

Facility: Chirk Landfill Site

Form Number: Groundwater 1

**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>
BH4, T2, T4, T6, T12, T13, BH7, BH8, BH9, BH10, BH12, BH13 and BH14.	Ammoniacal Nitrogen						
	Manganese						
	Zinc						
	Chloride						
	Chromium						
	Nickel						
	Lead						
	Cadmium						
	Mecoprop						
	Napthalene						

- [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: GP3830BG

Operator: FCC Waste Services (UK) Limited

Facility: Chirk Landfill Site

Form Number: LFG 1

**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>
G1, G2, G3, G4, G5, G6, G7, G8, G9, G10, G11, G12, G13, G14, G15, G16, G17, T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T12, T13.	Methane						
	Carbon Dioxide						
	Oxygen						
	Atmospheric Pressure						
	Meteorological and ground condition data						
In waste landfill gas monitoring points as specified on drawing reference 6167/1 in Landfill Gas Management Plan 9 Jun 06. Ref 05529525.501/A.2 updated by ESID14	Methane						
	Carbon Dioxide						
	Oxygen						
	Atmospheric Pressure						
	Trace gas analysis						

[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.....