Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

UK Waste Management Limited

Bromborough Dock North Landfill Site
Dock Road South
Bromborough
Merseyside
CH62 4SQ

Variation application number

EPR/EP3892CV/V002

Permit number

EPR/EP3892CV

Bromborough Dock North Landfill
Permit number EPR/EP3892CV

Introductory note

This introductory note does not form a part of the notice.

The following notice gives notice of the variation and consolidation of an environmental permit.

The site has ceased accepting wastes and is now closed. The variation is to change all conditions to those appropriate for a closed landfill in the aftercare phase. The permit specifies the monitoring that the Operator must continue to undertake.

The schedules specify the changes made to the permit.

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

Status log of the permit		
Description	**Date**	**Comments**
Waste Management Licence 335/05/MO1	Issued 05/06/92	
Licence modified	27/03/97	
Licence modified	11/11/97	
Application EPR/EP3892CV/V002 (variation and consolidation)	Duly made Not applicable	Application to vary and update the permit to modern conditions.
Variation determined EPR/EP3892CV	25/03/2013	Varied and consolidated permit issued in modern condition format.

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2010

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 varies and consolidates

permit number
EPR/EP3892CV

issued to
UK Waste Management Limited ("the operator")

whose registered office is
Accuary House
Coronation Road
Cressex
High Wycombe
Buckinghamshire
HP12 3TZ

company registration number **01362615**

to operate a regulated waste installation at

Bromborough Dock North Landfill Site
Dock Road South,
Bromborough,
Merseyside
CH62 4SQ

to the extent set out in the schedules.

The notice shall take effect from 25/03/2013

Name	Date
Clare Palmer Clark	25/03/2013

Authorised on behalf of the Environment Agency

Schedule 1

All conditions have been varied by the consolidated permit as a result of an Environment Agency initiated variation.

Schedule 2

Consolidated permit conditions

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number
EPR/EP3892CV

This is the consolidated permit referred to in the variation and consolidation notice for application insert application number authorising,

UK Waste Management Limited ("the operator"),

whose registered office is

Coronation Road
Cressex
High Wycombe
Buckinghamshire
HP12 3TZ

company registration number **01362615**

to operate a waste installation at

Bromborough Dock North Landfill
Dock Road South
Bromborough
Merseyside
CH62 4SQ

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

Name	Date
Clare Palmer Clark	25/03/2013

Authorised on behalf of the Environment Agency

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 Energy efficiency

1.2.1 The operator shall:

(a) Review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(b) Implement any 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 the Environment Agency.

(b) If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan specified in schedule 1, table S1.2 or otherwise required under this permit, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

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 the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Landfill Engineering

2.5.1 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 the Environment Agency has confirmed that it is satisfied with the construction proposals.

2.5.2 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 the Environment Agency.

2.5.3 The operator shall submit a CQA Validation Report as soon as practicable following the construction of the relevant landfill infrastructure.

2.5.4 Where pollution controls are immediately necessary to prevent an incident or accident, then conditions 2.6.1 and 2.6.2 do not apply and the relevant landfill infrastructure may be constructed, provided that the construction proposals are submitted to the Environment Agency as soon as practicable.

2.5.5 For the purpose of condition 2.6.1, the Environment Agency 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.

2.5.6 Where the Environment Agency has required further information under condition 2.5.5(b), the Environment Agency 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.

2.6 Waste acceptance

2.6.1 No waste shall be accepted for disposal within the facility

2.6.2 wastes shall only be accepted for recovery if:

(a) they are listed in Schedule 2 table S2.1,

(b) they are not liquid waste (including waste waters but excluding sludge [and excluding liquid waste accepted at a permitted leachate treatment activity]).

2.6.3 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.

2.6.4 The operator on accepting each delivery of waste shall provide a receipt to the person delivering it.

2.6.5 The total quantity of waste that shall be deposited in the landfill shall be limited by the pre-settlement levels shown on drawing ESID6

2.6.6 The quantity of waste that is deposited for restoration on the landfill in any year shall not exceed the limits in schedule 1 table S1.4.

2.6.7 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.

2.7 Leachate levels

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

2.8 Closure and aftercare

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

2.9 Landfill Gas Management

2.9.1 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.

2.9.2 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.

2.9.3 The operator shall:

(a) if notified by the Environment Agency, submit to the Environment Agency 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 the Environment Agency.

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 parameters and monitoring points set out in schedule 3 table S3.5 shall not be exceeded.

3.1.6 The operator shall submit to the Environment Agency 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 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 the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

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

3.3 Odour

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

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

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

3.4.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring and any other actions specified in the following tables in schedule 3 to this permit:

(a) Leachate specified in tables S3.1 and S3.9;

(b) Point source emissions specified in tables S3.2, S3.3 and S3.4;

(c) Groundwater specified in tables S3.5 and S3.11;

(d) Landfill gas specified in tables S3.6, S3.7 and S3.8;

(e) Surface water specified in table S3.10.

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 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.3.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.

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 S3.1, S3.2, S3.3, S3.4, S3.5, S3.6, S3.7, S3.8, S3.9,S3.10 and S3.11 unless otherwise agreed in writing by the Environment Agency.

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 the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects;

(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 the Environment Agency.

4.2 Reporting

4.2.1 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) 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.

4.2.2 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, 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.

4.2.3 Within one month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, 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 The Environment Agency shall be notified without delay following the detection of:

(a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;

(b) the breach of a limit specified in the permit; or

(c) any significant adverse environmental effects.

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

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

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) the Environment Agency 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		
	Description of activities for waste operations	**Limits of activities**
A1	**D5:** Specially engineered landfill	Management and monitoring of emissions from the closed landfill (leachate and leachate treatment plant 85m3 per day and landfill gas) No waste shall be accepted for disposal within the facility
A2	**R1:** Use principally as a fuel or other means to generate energy	Utilisation of landfill gas from the closed landfill for energy recovery in an appliance with a rated thermal input between 3 MW and 50 MW
A3	**R10** Land Treatment resulting in benefit to agriculture or ecological improvement. Landfill restoration	Deposit of waste for restoration above the cap. Waste types are limited to those in Schedule 2 Table S2.1. Annual limit of 9999 tonnes.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
The Closure Plan The Closure Plan Further Information Request dated October 2010	• Bromborough Dock North Landfill, Biffa Waste Services Limited, Closure Plan, dated May 2009, SLR Ref 407.0034.00245 • Bromborough Dock North Landfill, Wirral. Hydrogeological Review SLR Ref: 402-0034-00396, dated October 2010 • Bromborough Dock North Landfill, Wirral Bank, Merseyside. Landfill Gas Review, Biffa Waste Services Ltd, dated October 2010 • Bromborough Dock North Landfill, Wirral. Stability Risk Assessment SLR Ref: 402-0034-00396 , dated August 2010	October 2012
Additional information	• Proposed amendments to gas monitoring regime within email from Peter Lunt of Biffa titled “RE: Bromborough Dock – Gas Monitoring for Closure Plan”, dated 26 April 2012	26/04/2012
Additional information	• Pre settlement contour levels ESID 6 and annual tonnages for restoration 9999 tonnes within e mail from Graham Peacock dated 18/12/2012.	18/12/2012
Additional information	• Additional information, comprising correspondence from Biffa, enclosing “Bromborough Dock North Landfill, Landfill Site Closure Plan – Leachate Management Plan”, version 1.0, dated December 2011, and “Bromborough Dock North Landfill, Landfill Site Closure Plan – Landfill Gas Management Plan”, version 1.0, dated December 2011. • Additional information, e-mail from Biffa , responding to EA queries and also including amended drawings LFG1, CP2, HRA3, and a review of groundwater trigger levels.	8th December 2011 29th October 2012

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
1	Provide the Environment Agency with written proposals for undertaking gas monitoring of surface emissions in accordance with LFTGN07 v2 2010 “Guidance on Monitoring Landfill Gas Surface Emissions	Within 3 months of the date of this variation notice
2	The Operator shall submit to the Agency, for its agreement in writing, a revised Perimeter/Offsite Gas Risk Assessment which will include a review of the landfill gas monitoring data for all perimeter boreholes for carbon dioxide and proposed control and action limits for Carbon Dioxide. The review shall also include proposed control and action limits for Methane for Boreholes BH0041 and BH3701	Within 12 months of the date of this variation notice

Table S1.4 Annual waste input limits	
Category	**Limit Tonnes/ Year**
Waste for restoration	9999
Inert Waste for engineering landfill infrastructure	None

Schedule 2 - List of permitted wastes

Table S2.1 Permitted waste types and quantities for providing restoration soils	
Waste code	**Description**
01	**WASTE RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CEMICAL TREATMENT OF MINERALS.**
01 01	**Waste from mineral excavation**
01 01 02	Waste from mineral non-metalliferous excavation
01 04	**Waste from physical and chemical processing of non-metalliferous minerals.**
01 04 08	Waste gravel and crushed rocks other than those containing dangerous substances.
01 04 09	Waste sand and clays.
17	**CONSTRUCTION AND DEMOLITION WASTE (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES).**
17 01	**Concrete bricks, tiles and ceramics**
17 01 01	Concrete
17 01 02	Bricks
17 01 03	Tiles and Ceramics
17 01 07	Mixtures of concrete, bricks, tiles and ceramics
17 05	**Soil (including excavated soil from contaminated sites), stones and dredging spoil.**
17 05 04	Soil and stones (excluding soil and stones from contaminated sites)
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 02	**Garden and park wastes (including cemetery waste)**
20 02 02	Soil and stones (only from garden and parks waste)

Schedule 3 – Emissions and monitoring

Table S3.1 Leachate level limits and monitoring requirements			
Monitoring point reference/ Description	**Limit**	**Monitoring frequency**	**Monitoring method**
Phases 1 and 2 monitoring points Riser 1, Riser 2,2A Dip, 5C Dip, 3A Dip, 7C Dip as shown on drawing number HRA3, dated June 2010 and amended on October 2012	1.0 m above cell base	Monthly for operational cells and quarterly for non operational cells	As specified in Environment Agency guidance TGN02 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water' or as otherwise agreed with the Agency.
Phases 3, 4 and 5 monitoring points Riser 3, Riser 4, Riser 5 as shown on drawing number HRA3, dated June 2010 and amended on October 2012.	6.0 m above cell base		

Table S3.2 Point source emissions to air – emission limits and monitoring requirements						
Emission point Ref. & Location	**Parameter**	**Source**	**Limit (including unit)**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
LFGE 1 and 2 as shown on Plan LFG1	Oxides of Nitrogen	Gas utilisation plant	650 mg/m^3	Hourly mean	Annual	In accordance with Environment Agency guidance documents M2 'Monitoring of Stack Emissions to Air' and LFTGN 08 'Guidance for Monitoring Landfill Gas Engine Emissions'
	CO	Gas utilisation plant	1500 mg/m^3	Hourly mean		
	Total VOCs	Gas utilisation plant	1750 mg/m^3	Hourly mean		
Any subsequent replacement or additional gas engines commissioned after 31 December 2005	Oxides of Nitrogen	Gas utilisation plant	500mg/m^3	Hourly mean	Annual	
	CO	Gas utilisation plant	1400 mg/m^3	Hourly mean		
	Total VOCs	Gas utilisation plant	1000 mg/m^3	Hourly mean		
Flare 1 and 2 as shown on Plan LFG1	Oxides of Nitrogen	Landfill Gas Flares	150 mg/m^3	Hourly mean	Annual[i]	In accordance with Environment Agency guidance documents M2 'Monitoring of Stack Emissions to Air' and LFTGN 05 'Guidance for Monitoring Enclosed Landfill Gas Flares'
	CO	Landfill Gas Flares	100 mg/m^3	Hourly mean		
	Total VOCs	Landfill Gas Flares	10 mg/m^3	Hourly mean		
Any subsequent replacement or additional gas flares commissioned after 31 December 2005	Oxides of Nitrogen	Landfill Gas Flares	150 mg/m^3	Hourly mean	Annual[i]	
	CO	Landfill Gas Flares	50 mg/m^3	Hourly mean		
	Total VOCs	Landfill Gas Flares	10 mg/m^3	Hourly mean		

[i] Annual monitoring is only required when flares operate 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	**Parameter**	**Source**	**Limit (incl unit)**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
Ref point SWMH on Drawing CP2	Chloride Electrical Conductivity Nitrate Nitrite pH Phosphate Suspended solids. TON Visual oil and grease Ammoniacal Nitrogen	Surface water		Spot sample	Monthly	As specified in Environment Agency Guidance TGN02 Monitoring of Landfill Leachate, Groundwater and Surface Water and Horizontal Guidance Note H1- Environmental Risk Assessment for permits Annex J

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	**Parameter**	**Source**	**Limit (incl unit)**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
Effluent discharge sampling point as shown on drawing number HRA3, dated June 2010 and amended on October 2012	Ammoniacal nitrogen BOD Chromium Copper Lead Mercury Nickel Nitrate Nitrite TON Zinc Hazardous substances suite	Leachate treatment plant	No limits	Spot sample	Monthly	In accordance with Agency guidance LFTGN02 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water' or as otherwise agreed with the Agency.

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**
GW1, GW2, GW4, GW5 as shown on drawing number HRA3, dated June 2010 and amended on October 2012 GW1 GW2 GW4 GW5	Copper Nickel Phenol Cadmium Cyanide Cyanide Cyanide Cyanide	2 mg/l 0.07 mg/l 0.3 mg/l 0.007 mg/l 0.014 mg/l 0.015 mg/l 0.009 mg/l 0.255 mg/l	Spot Sample	Quarterly	In accordance with Agency guidance LFTGN02 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water' or as otherwise agreed with the Agency.
GW3 as shown on drawing number HRA3, dated June 2010 and amended on October 2012	Copper Nickel Phenol Cadmium Cyanide	2 mg/l 0.1 mg/l 0.3 mg/l 0.007 mg/l 0.009 mg/l	Spot Sample	Quarterly	

Table S3.6 Landfill gas in external monitoring boreholes – limits and monitoring requirements				
Monitoring point Ref. /description	**Parameter**	**Limit (including units) ***	**Monitoring frequency**	**Monitoring standard or method**
BH0101, BH0002, BH0302, BH0008, BH0901, BH1101, BH1901, BH3901, BH0041, BH0042, BH0043, BH5101, BH5102, BH5103, BH5501, BH5503, BH5901, BH5903, BH0060, BH6101, BH6103, BH6503, BH6703, BH0072	Methane	1 v/v	Quarterly	In accordance with Agency guidance LFTGN03 'Guidance on the Management of Landfill Gas'.
	Carbon Dioxide	1.5 v/v Action Limit		
	Oxygen	no limit		
	Atmospheric pressure	no limit		
	Differential Pressure	no limit		
	Temperature	no limit		
	Meteorological data			
BH0102, BH0020, BH2503, BH2701, BH2703, BH3301, BH3701, BH3903, BH0040, BH0044, BH0056, BH5701, BH5703, BH0058, BH0062, BH6301, BH6303, BH0064, BH6501, BH0066, BH6701, BH0068, BH6901, BH6903, BH0070, BH0071, BH0073, BH0074, BH0075, BH005A, BH006A, BH007A, BH07AA, BH008A, BH009A, BH010A, BH011A, BH012A, BH013A	Methane	1 v/v	Quarterly	In accordance with Agency guidance LFTGN03 'Guidance on the Management of Landfill Gas'.
	Carbon Dioxide	no limit		
	Oxygen	no limit		
	Atmospheric pressure	no limit		
	Differential Pressure	no limit		
	Temperature	no limit		
	Meteorological data			

Table S3.6 Landfill gas in external monitoring boreholes – limits and monitoring requirements				
Monitoring point Ref. /description	**Parameter**	**Limit (including units) ***	**Monitoring frequency**	**Monitoring standard or method**
BH0303, BH4901, BH4902, BH4903, BH0050	Methane	0.0v/v	Quarterly	In accordance with Agency guidance LFTGN03 'Guidance on the Management of Landfill Gas'.
	Carbon Dioxide	1.5 v/v Action Level		
	Oxygen	no limit		
	Atmospheric pressure	no limit		
	Differential Pressure	no limit		
	Temperature	no limit		
	Meteorological data			
BH0004, BH0501, BH0701, BH0702, BH0703, BH0902, BH0010, BH1103, BH0012, BH1701	Methane	1 %v/v	Quarterly	In accordance with Agency guidance LFTGN03 'Guidance on the Management of Landfill Gas'.
	Carbon Dioxide	no limit		
	Oxygen	no limit		
	Atmospheric pressure	no limit		
	Differential Pressure	no limit		
	Temperature	no limit		
	Meteorological data			
BH1501, BH0052	Methane	no limit	Quarterly	In accordance with Agency guidance LFTGN03 'Guidance on the Management of Landfill Gas'.
	Carbon Dioxide	1.5%v/v Action Level		
	Oxygen	no limit		
	Atmospheric pressure	no limit		
	Differential Pressure	no limit		
	Temperature	no limit		
	Meteorological data			
BH0024, BH0028, BH0030, BH0032, BH0036, BH0038	Differential Pressure	0.25(mb)	Quarterly	In accordance with Agency guidance LFTGN03 'Guidance on the Management of Landfill Gas'.
BH3701, BH3702, BH3703, BH0044	Differential Pressure	0.5(mb)	Quarterly	
BH0026	Differential Pressure	0.75(mb)	Quarterly	
BH5501, BH5503, BH5703	Differential Pressure	1(mb)	Quarterly	
BH0301, BH0503, BH0006, BH0903, BH1301, BH1303, BH0014, BH1502, BH1503, BH0016, BH1702, BH1703, BH0018, BH2101, BH2102, BH2103, BH0022, BH2301,	Methane	no limit	Quarterly	In accordance with Agency guidance LFTGN03 'Guidance on the Management of Landfill Gas'.
	Carbon Dioxide	no limit		
	Oxygen	no limit		
	Atmospheric pressure	no limit		
	Differential Pressure	no limit		
	Temperature	no limit		

Table S3.6 Landfill gas in external monitoring boreholes – limits and monitoring requirements				
Monitoring point Ref. /description	**Parameter**	**Limit (including units) ***	**Monitoring frequency**	**Monitoring standard or method**
BH2302, BH2303, BH0024, BH2501, BH2502, BH0026, BH2702, BH0028, BH2901, BH2903, BH0030, BH3101, BH3102, BH3103, BH0032, BH3302, BH3303, BH0034, BH3501, BH3502, BH3503, BH0036, BH3702, BH3703, BH0038, BH0045B, BH0046B, BH004A	Meteorological data			

Note for Table S3.6. The differential pressure triggers only apply where there is more than 1% methane

Table S3.7 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 and total methane emission	Average zone emission rate of 0.001 mg/m^2/second	Annually	In accordance with LFTGN 07 'Guidance on Monitoring Landfill Gas Surface Emissions' and in accordance with Table S1.3 REF 1
Temporarily capped zone	Average methane flux and total methane emission	Average zone emission rate of 0.1 mg/m^2/second	Annually	

Footnote * 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 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 and the values for average methane flux and total methane emissions measured in the previous year may be reported. A quantitative survey is not necessary. If the zone remains stable, the results of a detailed walkover survey will be acceptable for the annual report for a period of four years before a further quantitative survey is required.

Table S3.8 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**
All in waste monitoring boreholes identified on Plan LFG1	Methane Carbon Dioxide Oxygen Atmospheric pressure Differential pressure	Quarterly during gas utilisation Six monthly during gas flaring only	In accordance with Agency guidance LFTGN03 'Guidance on the Management of Landfill Gas'.	

Table S3.8 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**
Manifolds on gas system	Methane Carbon Dioxide Oxygen Atmospheric pressure Differential pressure % Balance Gas (calculated as the difference between the sum of measured gases and 100%)	At frequencies specified in table 5.4 of LFTGN 03 September 2004 Weekly during gas utilisation Monthly during gas flaring only		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.
Input to LFG Utilisation Compound	Trace gas analysis in accordance with LFTGN04	Annually	In accordance with Agency guidance LFTGN03 'Guidance on the Management of Landfill Gas'.	The concentration of trace gas components shall be assessed against the assumptions made in the Landfill gas risk assessment and dispersion modelling.
Input to LFG Utilisation Compound	Methane Carbon Dioxide Oxygen Gas flow rate % Balance Gas (calculated as the difference between the sum of measured gases and 100%)	Weekly	In accordance with Agency guidance LFTGN03 'Guidance on the Management of Landfill Gas'.	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.
Flare 1 and 2 Plan FLG1	Temperature	As per LFTGN05 'Guidance for Monitoring Enclosed Landfill Gas Flares'	In accordance with Environment Agency guidance documents M2 'Monitoring of Stack Emissions to Air'	

Table S3.9 Leachate– other monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Leachate extraction points Riser 1, Riser 2, Riser 3, Riser 4 and Riser 5 as shown on drawing number HRA3, dated June 2010 and amended October 2012.	Nitrate Nitrite Total alkalinity Ammoniacal nitrogen Aluminium Chloride Magnesium Phosphate Potassium Sulphate Calcium Sodium BOD COD TON Total hardness Iron Manganese Electrical conductivity pH	Quarterly for operational cells or phases. Annually for non operational cells or phases		
	Hazardous substances including Arsenic Boron Cadmium Chromium Copper Cyanide Lead Mercury Nickel Zinc Phenol	Annually for operational cells or phases. Once every four years for non operational cells or phases		
Leachate extraction points Riser 1, Riser 2, Riser 3, Riser 4 and Riser 5 Vertical Wells L2A, L5C and L3A as shown on drawing number HRA3, dated June 2010 and amended October 2012.	Depth to base of monitoring well	Annually for Vertical Wells. During maintenance for Risers or as otherwise specified in writing in agreement with the Environment Agency	None	None

Table S3.10 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**
SW3 & SW4 as shown on drawing number HRA3, dated June 2010 as amended October 2012	Alkalinity Calcium Magnesium Potassium Sulphate Iron Manganese Nitrate Nitrite Phosphate Chloride Ammoniacal Nitrogen Sodium Electrical conductivity Total hardness COD BOD TON pH	Quarterly	In accordance with Agency guidance LFTGN02 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water' or as otherwise agreed with the Agency.	None
SW3 & SW4 as shown on drawing number HRA3, dated June 2010 as amended October 2012	Arsenic Aluminium Cadmium Copper Cyanide Mercury Nickel Phenol Chromium Lead Zinc	Annually	In accordance with Agency guidance LFTGN02 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water' or as otherwise agreed with the Agency.	None

Table S3.11 Groundwater – other monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
GW1, GW2, GW3, GW4 and GW5, as shown on drawing number HRA3, dated June 2010 amended October 2012	Water level (mOD), Electrical conductivity EC, Chloride Cl, Ammoniacal nitrogen NH4-N, pH,	Quarterly	As specified in appendix 6 of Environment Agency 'Guidance TGN02 Monitoring of Landfill Leachate, Groundwater and Surface Water' and Horizontal Guidance Note H1-Environmental Risk Assessments for permits Annex J	None
	Full hazardous substances screen Alkalinity CaCO3, Aluminium Al, Total sulphates SO4, Calcium Ca, Sodium Na, Manganese Mn, Iron Fe, Copper Cu, Zinc Zn Nickel Ni, Chromium Cr, Magnesium Mg, Potassium K Lead Pb, Biological oxygen demand BOD, Chemical oxygen demand COD, Total oxidised nitrogen TON, Phenol, Cadmium Cd, Cyanide Cn, Arsenic As, Nitrate NO3-, Mercury Hg, Nitrite NO2- Phosphate, Total hardness	Annually	As per H1 Technical Annex J3, updated February 2012 'Additional guidance for hydrogeological risk assessments for landfills and the derivation of groundwater control levels and compliance limits'	

Table S3.11 Groundwater – other monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
		Up gradient monitoring Annually for first six years of operation or first six annual analysis suites **Down gradient monitoring** Hazardous substances that have been found in the leachate. Annually for first six years of operation or first six annual analysis suites then every four years		None
	Monitoring point base	Annually		
Siltwater (under drainage discharge point) as shown on Drawing CP3.	Chloride Cl, Electrical conductivity EC, Nitrate NO3-, Nitrite NO2-, pH, Phosphate, Suspended solids, Total oxidised nitrogen TON Ammoniacal nitrogen NH4-N	Quarterly		None

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	Reporting period	Period begins
Leachate levels As required by condition 3.5.1	As detailed in Table S3.1	Every 3 months	1 January, 1 April, 1 July, 1 October
Emissions to air Parameters as required by condition 3.5.1	As detailed in Table S3.2	Every 12 months	1 January
Emissions to water Parameters as required by condition 3.5.1	As detailed in Table S3.3	Every 12 months	1 January
Emissions to sewer	As detailed in Table S3.4	Every 3 months	1 January, 1 April, 1 July, 1 October
Groundwater Parameters as required by condition 3.5.1	As detailed in Tables S3.5 and S3.11 (excluding full hazardous substances screen and monitoring point base)	Every 3 Months	1 January, 1 April, 1 July, 1 October
Full hazardous substances screen and monitoring point base	As detailed in Table S3.11	Every 12 months	1 January
Landfill gas surface emissions Parameters as required by condition 3.5.1	As detailed in Table S3.7	Every 12 months	1 January
Landfill gas lateral migration Parameters as required by condition 3.5.1	As detailed in Table S3.6	Every 3 Months	1 January, 1 April, 1 July, 1 October
Other Landfill gas monitoring Parameters as required by condition 3.5.1	Manifolds on gas system and input to LFG Utilisation Compound (excluding trace gas analysis) as detailed in Table S3.8	Every 3 Months	1 January, 1 April, 1 July, 1 October
	Manifolds on gas system and input to LFG Utilisation Compound - trace gas analysis as detailed in Table S3.8	Every 12 months	1 January
Other leachate monitoring Parameters as required by condition 3.5.1	As detailed in Table S3.9, except for parameters with an annual monitoring frequency	Every 3 Months	1 January, 1 April, 1 July, 1 October
	Parameters with an annual monitoring frequency as detailed in Table S3.9	Every 12 months	1 January

Table S4.1 Reporting of monitoring data			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Other surface water monitoring Parameters as required by condition 3.5.1	As detailed in Table S3.10, except for parameters with an annual monitoring frequency	Every 3 Months	1 January, 1 April, 1 July, 1 October
	Parameters with an annual monitoring frequency as detailed in Table S3.10	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**
Surface water and/ or groundwater: **Disposed of off site;** **Disposed of to any onsite effluent treatment plant.**	**Cubic metres/year**
Landfill gas: **combustion in flares;** **combustion in gas engines;** **Other methods of gas utilisation.**	**Normalised cubic metres/year**

Table S4.4 Reporting Forms		
Media/parameter	**Reporting Format**	**Date of Form**
Leachate	Form leachate 1 or other reporting format to be agreed in writing with the Environment Agency	
Air	Form Air 1 or other reporting format to be agreed in writing with the Environment Agency	
Controlled water	Form Water 1 or other reporting format to be agreed in writing with the Environment Agency	
Groundwater	Form Groundwater 1 or other reporting format to be agreed in writing with the Environment Agency	
Sewer	Form Sewer 1 or other reporting format to be agreed in writing with the Environment Agency	
Landfill gas	Form LFG 1 or other reporting format to be agreed in writing with the Environment Agency	
Landfill topographical surveys and interpretation	Reporting format to be agreed in writing with the Environment Agency	

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 malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
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 limit	
To be notified within 24 hours of detection unless otherwise specified below	
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**

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
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.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 - Interpretation

"accident" means an accident that may result in pollution

"annually" means once every year.

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

"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.

"emissions to land" includes emissions to groundwater.

"emissions of substances not controlled by emission limits" means emissions of substances to air, water or land from the activities, either from 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..

"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

"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.

"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.

"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 sub grade 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.

"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.

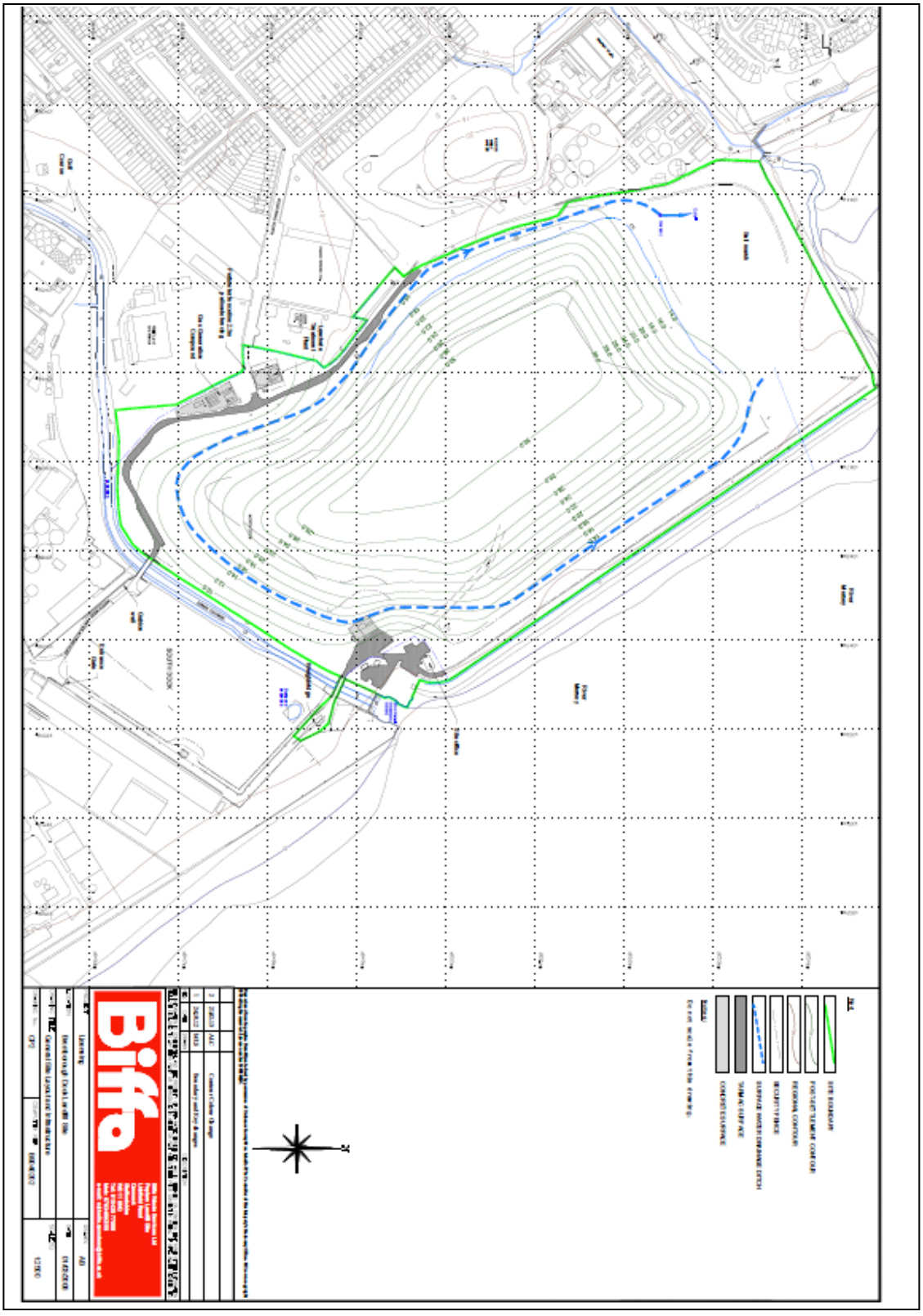
"Waste code" means the six digit code referable to a type of waste in accordance with the List of Wastes (England)Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

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

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



Permit Number: EPR/EP3892CV Operator: UK Waste Management Limited
Facility: Bromborough Landfill Form Number: Air1 / DD/MM/YY

Reporting of emissions to air for the period from/ DD/MM/YYto / DD/MM/YY
See Tables S3.2 Gas engines and Flares and Table S3.7 landfill gas from cap

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
LFGE 1 and 2 as shown on Plan LFG1	Oxides of Nitrogen	650 mg/m^3	Hourly mean		In accordance with Environment Agency guidance documents M2 'Monitoring of Stack Emissions to Air' and LFTGN 08 'Guidance for Monitoring Landfill Gas Engine Emissions'		
	CO	1500 mg/m^3	Hourly mean				
	Total VOCs	1750 mg/m^3	Hourly mean				
Any subsequent replacement or additional gas flares commissioned after 31 December 2005	Oxides of Nitrogen	Gas utilisation plant 500mg/m^3	Hourly mean				
	CO	Gas utilisation plant 1400 mg/m^3	Hourly mean				
	Total VOCs	Gas utilisation plant 1000 mg/m^3	Hourly mean				
	Oxides of Nitrogen	Landfill Gas Flares 150 mg/m^3	Hourly mean				
	CO	Landfill Gas Flares 100 mg/m^3	Hourly mean				
	Total VOCs	Landfill Gas Flares 10 mg/m^3	Hourly mean				
Any subsequent replacement or additional gas flares commission	Oxides of Nitrogen	Landfill Gas Flares 150 mg/m^3	Hourly mean				
	CO	Landfill Gas Flares 50 mg/m^3	Hourly mean				

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
ed after 31 December 2005	Total VOCs	Landfill Gas Flares 10 mg/m^3	Hourly mean				
Permanently capped zone	Average methane flux and total methane emission	Average zone emission rate of 0.001 mg/m^2/second			In accordance with LFTGN 07 'Guidance on Monitoring Landfill Gas Surface Emissions'.		
Temporarily capped zone	Average methane flux and total methane emission	Average zone emission rate of 0.1 mg/m^2/second					

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.
Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
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.
The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

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

Permit Number: EPR/EP3892CV Operator: UK Waste Management Limited
Facility: Bromborough Landfill Form Number: Water1 / DD/MM/YY

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

See Tables S3.5 and S3.11,

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
GW1, GW2, GW4, GW5 as shown on drawing number HRA3, dated June 2010 amended October 2012	Copper Nickel Phenol Cadmium	2 mg/l 0.07 mg/l 0.3 mg/l 0.007 mg/l	Spot Sample		In accordance with Agency guidance LFTGN02 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water' or as otherwise agreed with the Agency.		
GW1	Cyanide	0.014 mg/l	Spot Sample				
GW2	Cyanide	0.015 mg/l	Spot Sample				
GW4	Cyanide	0.009 mg/l	Spot Sample				
GW5	Cyanide	0.255 mg/l	Spot Sample				
GW3 as shown on drawing number HRA3, dated June 2010 amended October 2012	Copper Nickel Phenol Cadmium Cyanide	2 mg/l 0.1 mg/l 0.3 mg/l 0.007 mg/l 0.009 mg/l	Spot Sample				

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
GW1, GW2, GW3, GW4 and GW5, as shown on drawing number HRA3, dated June 2010 amended October 2012	Water level (mOD), Electrical conductivity EC, Chloride Cl, Ammoniacal nitrogen NH4-N, pH, Alkalinity CaCO3, Aluminium Al, Total sulphates SO4, Calcium Ca, Sodium Na, Biological oxygen demand BOD, Chemical oxygen demand COD, Total oxidised nitrogen TON, Manganese Mn, Iron Fe, Copper Cu, Lead Pb, Zinc Zn, Phenol, Nickel Ni, Cadmium Cd, Cyanide Cn, Arsenic As,				As per LFTGN02 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water'. As per H1 Technical Annex J3, updated February 2012 'Additional guidance for hydrogeological risk assessments for landfills and the derivation of groundwater control levels and compliance limits'		

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
	Nitrate NO3-, Mercury Hg, Nitrite NO2- Phosphate, Total hardness, Chromium Cr, Magnesium Mg, Potassium K						
	Full hazardous substances screen, Monitoring point base						

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.
Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
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.
The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

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

Permit Number: EPR/EP3892CV Operator: UK Waste Management Limited
Facility: Bromborough Landfill Form Number: Sewer1 / DD/MM/YY

Reporting of Leachate emissions to sewer for the period from DD/MM/YYYY **to** DD/MM/YYYY

See Table S3.4

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
Leachate Treatment Plant. Effluent discharge sampling point as shown on drawing number HRA3, dated June 2010 amended October 2012	Ammoniacal nitrogen BOD Chromium Copper Lead Mercury Nickel Nitrate Nitrite TON Zinc Hazardous substances suite	No limits	Spot Samples		In accordance with Agency guidance LFTGN02 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water' or as otherwise agreed with the Agency		

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.
Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
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.
The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.
Signed …… Date……..
(Authorised to sign as representative of Operator)

Permit Number: EPR/EP3892CV Operator: UK Waste Management Limited
Facility: Bromborough Landfill Form Number: Leachate 1 / DD/MM/YY

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

See Tables S3.1 and S3.9

Monitoring Point	Substance / Parameter	Compliance limit	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
Phases 1 and 2 monitoring points Riser 1, Riser 2, 2A Dip, 5C Dip, 3A Dip, 7C Dip as shown on drawing number HRA3, dated June 2010 amended October 2012	leachate head	1.0 m above cell base			In accordance with Agency guidance LFTGN02 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water' or as otherwise agreed with the Agency.		
Phases 3, 4 and 5 monitoring points Riser 3, Riser 4, Riser 5 as shown on drawing number HRA3, dated June 2010 amended October 2012	leachate head	6.0 m above cell base			In accordance with Agency guidance LFTGN02 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water' or as otherwise agreed with the Agency.		

Monitoring Point	Substance / Parameter	Compliance limit	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
Leachate abstraction points Riser 1, Riser 2, Riser 3, Riser 4 and Riser 5 as shown on drawing number HRA3, dated June 2010 amended October 2012	Nitrate Nitrite Total alkalinity Ammoniacal nitrogen Aluminium Chloride Magnesium Phosphate Potassium Sulphate Calcium Sodium BOD COD TON Total hardness Iron Manganese Electrical conductivity pH						

Monitoring Point	Substance / Parameter	Compliance limit	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
	Arsenic Boron Cadmium Chromium Copper Cyanide Lead Mercury Nickel Phenol Zinc						
Depth to base of monitoring well	Metres						

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.
Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
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.
The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

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

Permit Number: EPR/EP3892CV Operator: UK Waste Management Limited
Facility: Bromborough Landfill Form Number: Groundwater1 / DD/MM/YY

Reporting of emissions to surface water and land for the period from DD/MM/YYYY **to** DD/MM/YYYY

See Tables S3.3 and S3.10

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
Ref point SWMH on Drawing CP2	Chloride		Spot Samples				
	Electrical Conductivity						
	Nitrate						
	Nitrite						
	pH						
	Phosphate						
	Suspended solids.						
	TON						
	Ammoniacal Nitrogen						

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
SW3 & SW4 as shown on drawing number HRA3, dated June 2010 amended October 2012	Alkalinity Calcium Magnesium Potassium Sulphate Iron Manganese Nitrate Nitrite Phosphate Chloride Ammoniacal Nitrogen Sodium Electrical conductivity Total hardness COD BOD TON pH Arsenic Aluminium Cadmium Copper Cyanide Mercury Nickel Phenol Chromium Lead Zinc				In accordance with Agency guidance LFTGN02 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water' or as otherwise agreed with the Agency		

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]

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.
Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
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.
The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

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

Permit Number: EPR/EP3892CV Operator: UK Waste Management Limited
Facility: Bromborough Landfill Form Number: LFG1 / DD/MM/YY

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

See Tables S3.6 and S3.8

Monitoring Point	Substance / Parameter	Compliance limit	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
See Tables S3.6 and S3.8	methane	1 % v/v			In accordance with Agency guidance LFTGN03 'Guidance on the Management of Landfill Gas'.		
	carbon dioxide	1.5 % v/v					
	oxygen	-					
	Atmospheric pressure See Tables S3.6 and S3.8						
	Differential Pressure	0.25(mb) 0.5(mb) 0.75(mb) 1(mb)					
	Temperature *Meteorological data* *Trace gas analysis in accordance with LFTGN04* *% Balance Gas (calculated as the difference between the sum of measured gases and 100%)*						

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.
Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
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.
The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

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