

# Notice of variation with introductory note

Environmental Permitting (England & Wales) Regulations 2010

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Cory Environmental (Central) Limited

Hafod Quarry Landfill  
Bangor Road  
Johnstown  
Wrexham  
LL14 6ET

Variation application number  
EPR/PP3139GB/V006

Permit number  
EPR/PP3139GB

# **Hafod Quarry Landfill**

## **Permit number EPR/PP3139GB**

### **Introductory note**

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

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

The following changes have been made to the permit:

- A change in leachate head from 1m to 2m
- Inclusion of an additional groundwater monitoring borehole HA04(B)
- Continuation of quarterly monitoring of TPH in the groundwater monitoring boreholes
- An increase in chloride (Cl) trigger levels from 350mg/l to 450mg/l in groundwater monitoring boreholes HA12A(T), HA12A(M) and HA12B(B)
- A change to the monitoring frequency of particulate matter to monthly monitoring between April and September
- An increase in chloride (Cl) and electrical conductivity emission limits at the surface water monitoring points SW1A and SW2
- An increase in potassium, sodium and TOC emission limits at the surface water monitoring point SW1A
- A change to the monitoring frequency from monthly to quarterly of pH, temperature and electrical conductivity at the leachate monitoring points. Temperature is to remain as part of the leachate monitoring suite.

The schedules specify the changes made to the original permit.

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

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application reference BS8621 (EPR/BS8621/A001)	Duly made 26/11/02	Application for a non-hazardous waste landfill site
Request for further information	01/05/03	
Request for further information	25/07/03	
Permit determined	08/10/04	
Variation application TP3032LA (EPR/BS8621/V002)	Duly Made 09/10/06	
Variation determined TP3032LA (EPR/BS8621/V002)	28/02/07	
Transfer application PP3139GB (EPR/PP3139GB/T001)	Duly Made 26/09/08	
Transfer determined PP3139GB (EPR/PP3139GB/T001)	26/11/08	Permit transferred from Mersey Waste Holdings Limited to Cory Environmental (Central) Limited.
Variation application GP3034GM (EPR/PP3139GB/V003)	Duly Made 13/01/09	
Variation determined GP3034GM (EPRPP3139GB/V003)	27/03/09	
Variation application (PAS reference KP3933KM) EPR/PP3139GB/V004	Duly Made 01/04/09	
Additional information requested	26/05/09	
Variation determined EPR/PP3139GB	25/09/09	
Variation application EPR/PP3139GB/V005	Duly Made 26/04/10	
Variation determined EPR/PP3139GB	08/06/10	
Variation application EPR/PP3139GB/V006	Duly Made 11/11/11	Application to vary leachate heads, emission limits and monitoring points and requirements
Variation determined EPR/PP3139GB	07/02/2012	Permit variation issued.

End of introductory note

## Notice of variation

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

**Permit number**  
**EPR/PP3139GB**

**issued to:**  
**Cory Environmental (Central) Limited**

whose registered office is:

**2 Coldbath Square**  
**London**  
**EC1R 5HL**

company registration number 02773558

to operate an installation at:

**Hafod Quarry Landfill**  
**Bangor Road**  
**Johnstown**  
**Wrexham**  
**LL14 6ET**

to the extent set out in the schedules.

The notice shall take effect from 07/02/2012

Name

Date

**M Bischer**

**07/02/2012**

Authorised on behalf of the Environment Agency

## Schedule 1 – conditions to be deleted

None

## Schedule 2 – conditions to be amended

The following conditions are amended as a result of the application made by the operator:

Table S1.2 as referenced by condition 2.3.1 shall be amended to:

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Consolidated Application	The response to questions 1.1, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, in part B of the Application Form, excluding the section referred to in the Schedule 4 notice dated 01/05/2003 and letter from the Agency dated 25/07/2003.	08/08/2003
Letter from M W H Associates Ltd in response to Schedule 4 notice dated 01/05/2003.	Where comments in the M W H Associates Ltd letter dated 29/05/2003 are agreed in writing with the Agency.	29/05/2003
Letter from M W H Associates Ltd in response to Schedule 4 notice dated 25/07/2003.	Where comments in the M W H Associates Ltd letter dated 08/08/2003 are agreed in writing with the Agency.	08/08/2003
Compliance with Improvement condition - Habitats monitoring plan dated 14/09/2006	All	14/09/2004
Revised surface water management plan reference MW4553/3/RAC and addendum.	All	03/08/2006 and 18/08/2006 Agreed 21/08/2006
Letter dated 14/09/2006 regarding additional waste.	All	Letter agreeing waste dated 19/09/2006
Compliance with improvement condition – Gas monitoring plan dated 30/06/2006 and 23/10/2006 and drawing reference MW4557/2/01 Rev B	All	Agreed 25/10/2006
Landfill Gas Operating techniques outlined in the Variation application received on 1/04/09 (reference Cory Environmental Ltd, Landfill Gas Management Plan v1, March 2009) and request for further information (26/05/09)	All	01/04/09 and 15/07/09
Variation application EPR/PP3139GB/V006	Non-Technical Summary (dated October 2011), excluding proposed removal of temperature monitoring from the leachate monitoring requirements.	11/11/2011

Table S4.1 as referenced by condition 2.9.1 shall be amended to:

<b>Table S4.1 Leachate level limits and monitoring requirements</b>			
<b>Monitoring point reference/ Description</b>	<b>Limit</b>	<b>Monitoring frequency</b>	<b>Monitoring method</b>
Leachate monitoring points shown on drawing reference 2425/2/021	2m	Weekly	Dip meter or otherwise agreed with the Environment Agency

Table S4.3 as referenced by condition 3.1.1 shall be amended to:

**Table S4.3 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
SW1A, SW2 NGR SJ 3079 4593 and SJ 3117 4565 as shown on Figure 25	Visible oil	Site drainage from the surface water management system	None visible	Spot sample	Daily	As per LFTGN02 issued February 2003 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water'.  As per H1 Technical Annex to Annex J: vs 2.0 April 2010 'Hydrogeological Risk Assessments For Landfills and the Derivation of Groundwater Control Levels and Compliance Limits'.
SW1A, SW2 NGR SJ 3079 4593 and SJ 3117 4565 as shown on Figure 25	Suspended solids	Site drainage from the surface water management system	50 mg/l	Spot sample	Monthly	
	Ammoniacal nitrogen		1.6 mg/l			
	COD		67.9 mg/l			
SW1A NGR SJ 3079 4593 as shown on Figure 25	Chloride	Site drainage from the surface water management system	101 mg/l	Spot sample	Monthly	
	Electrical conductivity		1090 µS/cm			
SW2 NGR SJ 3117 4565 as shown on Figure 25	Chloride	Site drainage from the surface water management system	67 mg/l	Spot sample	Monthly	
	Electrical conductivity		1120 µS/cm			
SW1A, SW2 NGR SJ 3079 4593 and SJ 3117 4565 as shown on Figure 25	Alkalinity	Site drainage from the surface water management system	323 mg/l	Spot sample	Quarterly	
	BOD		14 mg/l			
	Cadmium		0.01 mg/l			
	Calcium		185 mg/l			
	Chromium		0.02 mg/l			
	Copper		0.13 mg/l			
	Iron		0.17 mg/l			
	Lead		0.06 mg/l			
	Magnesium		31.9 mg/l			
	Manganese		0.86 mg/l			
	Nickel		0.02 mg/l			
	Sulphate		224.3 mg/l			
	TON		2.9 mg/l			
	TDS		822 mg/l			
	Zinc		0.064 mg/l			
SW1A NGR SJ 3079 4593 as shown on Figure 25	Potassium	Site drainage from the surface water management system	15 mg/l	Spot sample	Quarterly	
	Sodium		94.8 mg/l			
	TOC		6.9 mg/l			
SW2 NGR SJ 3117	Potassium	Site drainage from the	10 mg/l	Spot sample	Quarterly	
	Sodium		56.8 mg/l			

<b>Table S4.3 Point source emissions to water (other than sewer) – emission limits and monitoring requirements</b>						
<b>Emission point Ref. &amp; Location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (incl unit)</b>	<b>Reference Period</b>	<b>Monitoring Frequency</b>	<b>Monitoring Standard or Method</b>
4565 as shown on Figure 25	TOC	surface water management system	4.8 mg/l			

Table S4.4 as referenced by condition 3.2.3 shall be amended to:



**Table S4.4 Trigger levels for emissions into groundwater and monitoring requirements**

Monitoring point reference	Parameter	Limit (including unit)	Reference Period	Monitoring frequency	Monitoring standard or method
HA01A(T), HA09A(T), HA11B(T), HA12A(T), HA12A(M), HA01B(B), HA09A(B), HA11A(B), HA12B(B)	Ammoniacal nitrogen	2 mg/l	Spot sample	Monthly	As per LFTGN02 issued February 2003 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water'. As per H1 Technical Annex to Annex J: vs 2.0 April 2010 'Hydrogeological Risk Assessments For Landfills and the Derivation of Groundwater Control Levels and Compliance Limits'.
	Chromium	0.05 mg/l		Quarterly	
	Copper	1 mg/l		Quarterly	
	Zinc	1 mg/l		Quarterly	
HA01B(M), HA09B(M)	Ammoniacal nitrogen	4 mg/l	Spot sample	Monthly	
	Chloride	200 mg/l		Monthly	
	Chromium	0.05 mg/l		Quarterly	
	Copper	1 mg/l		Quarterly	
	Lead	0.042 mg/l		Quarterly	
	Nickel	0.05 mg/l		Quarterly	
	Zinc	1 mg/l		Quarterly	
HA11B(M)	Ammoniacal nitrogen	4 mg/l	Spot sample	Monthly	
	Chloride	200 mg/l		Monthly	
	Chromium	0.05 mg/l		Quarterly	
	Copper	1 mg/l		Quarterly	
	Zinc	1 mg/l		Quarterly	
HA12A(T), HA12A(M), HA12B(B)	Chloride	450 mg/l	Spot sample	Monthly	
HA01A(T), HA09A(T), HA11B(T), HA01B(B), HA09A(B), HA11A(B)	Chloride	200 mg/l	Spot sample	Monthly	
HA01A(T), HA12A(T), HA12A(M), HA01B(B), HA09A(B), HA11A(B), HA12B(B)	Lead	0.042 mg/l	Spot sample	Quarterly	
	Nickel	0.05 mg/l		Quarterly	
HA09A(T), HA11B(T), HA11B(M)	Lead	0.15 mg/l	Spot sample	Quarterly	
HA09A(T)	Nickel	0.2 mg/l	Spot sample	Quarterly	
HA11B(T)		0.15 mg/l		Quarterly	
HA11B(M)		0.1 mg/l		Quarterly	

Table S4.8 as referenced by condition 3.6.1 shall be amended to:

<b>Table S4.8 Leachate– other monitoring requirements</b>				
<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
Leachate monitoring points shown on drawing reference 2425/2/021	pH, temperature, electrical conductivity, chloride, ammoniacal nitrogen, sulphate, total alkalinity, sodium, potassium, calcium, magnesium, COD, BOD, TON, TOC	Quarterly	In accordance with the application	None
Leachate monitoring points shown on drawing reference 2425/2/021	Manganese, iron, cadmium, chromium, copper, nickel, lead, zinc, mercury, suspended solids, total dissolved solids, PAH, TPH,	Annually	In accordance with the application	None
Representative sample from each cell	List 1 suite	Annually	In accordance with Appendix 6 of LFTGN01 Hydrogeological Risk Assessments for Landfills, Environment Agency, March 2003	None

Table S4.10 as referenced by condition 3.6.1 shall be amended to:

<b>Table S4.10 Groundwater – other monitoring requirements</b>				
<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
C1 Drift HA01A(T), HA02A(T), HA02A(M), HA04(B), HA05(T), HA06A(M), HA06B(T), HA09A(T), HA11B(T), HA12A(T), HA12A(M)  Upper Ruabon Marl HA01B(B), HA02B(B), HA05(B), HA06A(B), HA09A(B), HA11A(B), HA12B(B) URM Limestone HA01B(M), HA09B(M), HA11B(M)	Water level, pH, temperature, electrical conductivity, dissolved oxygen, ammoniacal nitrogen, chloride	Monthly	As per LFTGN02 issued February 2003 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water'.	None
	Suspended solids, TDS, alkalinity, TON, COD, TOC, sulphate, sodium, potassium, calcium, magnesium, iron, manganese, cadmium, chromium, copper, nickel, lead, zinc, mercury, phenols, ionic balance, PAH, TPH	Quarterly	As per H1 Technical Annex to Annex J: vs 2.0 April 2010 'Hydrogeological Risk Assessments For Landfills and the Derivation of Groundwater Control Levels and Compliance Limits'.	None

Table S4.11 as referenced by condition 3.6.1 shall be amended to:

<b>Table S4.11 Particulate matter in ambient air - limits and monitoring requirements</b>					
<b>Monitoring point reference/ Description</b>	<b>Parameter</b>	<b>Limit (Including Unit)</b>	<b>Reference Period</b>	<b>Monitoring Frequency</b>	<b>Monitoring Standard or Method</b>
NW boundary as described in section 2.10.8 of consolidated application	Deposited dust	200 mg/m <sup>2</sup> /day	Monthly average	Monthly (between April – September)	As per M17 issued March 2004 'Monitoring of Particulate Matter in ambient air around waste facilities'.
SE boundary as described in section 2.10.8 of consolidated application	Deposited dust	200 mg/m <sup>2</sup> /day	Monthly average	Monthly (between April – September)	

Table S5.1 as referenced by condition 4.2.2 shall be amended to:

<b>Table S5.1 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 3.6.1	Leachate monitoring points shown on drawing reference 2425/2/021	Monthly	08/10/2004
Emissions to air Parameters as required condition 3.6.1	Emission points specified in Schedule 4, Table S4.2	Annually	From date of installation of landfill gas engines and flare
Emissions to water Parameters as required condition 3.6.1	SW1A, SW2	Monthly for daily parameters Quarterly for other parameters	08/10/2004
Groundwater Parameters as required by condition 3.6.1	C1 Drift HA01A(T), HA02A(T), HA02A(M), HA04(B), HA05(T), HA06A(M), HA06B(T), HA09A(T), HA11B(T), HA12A(T), HA12A(M)  Upper Ruabon Marl HA01B(B), HA02B(B), HA05(B), HA06A(B), HA09A(B), HA11A(B), HA12B(B) URM Limestone HA01B(M), HA09B(M), HA11B(M)	Quarterly  Annually for annual parameters	08/10/2004
Landfill gas surface emissions Parameters as requested by condition 3.6.1	Temporarily and permanently capped surfaces	Annually	From completion of permanent or temporary
Particulate matter Parameters as requested by condition 3.6.1	NW and SE boundaries as described in section 2.10.08 of consolidated application	Quarterly (between April – September)	08/10/2004
Landfill gas lateral migration Parameters as requested by condition 3.6.1	HA06A(M), HA06A(B), HA06B(T), HA09A(T), HA09A(B), HA09B(M) HA01A(T), HA01B(M), HA01B(B), HA02A(T), HA02A(M) HA02B(B), HA04A(M), HA04A(T), HA04B(B), HA05(T), HA05(B), HA10(T), HA10(M), HA10(B), HA11A(B), HA11B(T), HA11B(M), HA12A(T), HA12A(M), HA12B(B), 1 to 9, G10 to G26	Monthly	08/10/2004

Other Landfill gas monitoring Parameters as required by condition 3.6.1	Leachate monitoring points as shown on drawing reference 2425/2/021 Active gas extraction wells as shown on drawing reference 2425/2/023 Representative sample	Monthly  Annually for annual parameters	08/10/2004
Other leachate monitoring Parameters as required by condition 3.6.1  Representative sample from each cell	Leachate monitoring points shown on drawing reference 2425/2/021  List I screen	Quarterly  Annually for annual parameters  Annually	08/10/2004

### **Schedule 3 – conditions to be added**

None