

This form will report compliance with your permit as determined by an NRW officer

Site	Ffridd Rasmus Landfill Areas 1 and 3		Permit Ref	GP3330BY	
Operator/ Permit holder	Gwynedd Council				
Date	15/05/2013	Time in	10:00	Out	13:30
What parts of the permit were assessed	Landfill Gas Management				
Assessment	Audit	EPR Activity:	Installation	X	Waste Op
Recipient's name/position	Steven Edwards				
Officer's name	Stuart Ross	Date issued	06/06/2013		

**Section 1 - Compliance Assessment Summary**

This is based on the requirements of the permit under the Environmental Permitting Regulations. A detailed explanation and any action you may need to take are given in the "Detailed Assessment of Compliance" (section 3). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS scores can be consolidated or suspended, where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

**Permit Conditions and Compliance Summary**

**Condition(s) breached**

a) Permitted activities	1. Specified by permit	N	
b) Infrastructure	1. Engineering for prevention & control of pollution	A	
	2. Closure & decommissioning	N	
	3. Site drainage engineering (clean & foul)	N	
	4. Containment of stored materials	N	
	5. Plant and equipment	A	
c) General management	1. Staff competency/ training	N	
	2. Management system & operating procedures	N	
	3. Materials acceptance	N	
	4. Storage handling, labelling, segregation	N	
d) Incident management	1. Site security	N	
	2. Accident, emergency & incident planning	N	
e) Emissions	1. Air	N	
	2. Land & Groundwater	N	
	3. Surface water	N	
	4. Sewer	N	
	5. Waste	N	
f) Amenity	1. Odour	N	
	2. Noise	N	
	3. Dust/fibres/particulates	N	
	4. Pests, birds & scavengers	N	
	5. Deposits on road	N	
g) Monitoring and records, maintenance and reporting	1. Monitoring of emissions & environment	N	
	2. Records of activity, site diary, journal & events	N	
	3. Maintenance records	N	
	4. Reporting & notification	N	
h) Resource efficiency	1. Efficient use of raw materials	N	
	2. Energy	N	

KEY: C1, C2, C3, C4 = CCS breach category (\* suspended scores are marked with an asterisk),  
A = Assessed (no evidence of non-compliance), N = Not assessed, NA = Not Applicable

<b>Number of breaches recorded</b>	0	<b>Total compliance score</b> (see section 5 for scoring scheme)	0
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If the Total No Breaches is greater than zero, then please see Section 3 for details of our proposed enforcement response

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## Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- the part(s) of the permit that were assessed (e.g. maintenance, training, combustion plant, etc)
- where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- any non-compliances identified
- any non-compliances with directly applicable legislation
- details of any multiple non-compliances
- information on the compliance score accrued inc. details of suspended or consolidated scores.
- details of advice given
- any other areas of concern
- all actions requested
- any examples of good practice.
- a reference to photos taken

This report should be clear, comprehensive, unambiguous and completed within 14 days of an assessment.

This Compliance Assessment Report follows a landfill gas audit / review on 15th May 2013.

Please refer to the audit report and fugitive emissions survey report for audit findings and actions.



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Operator/ Permit	Gwynedd Council	Date	15/05/2013

**Section 3- Enforcement Response**

**Only one of the boxes below should be ticked**

You must take immediate action to rectify any non-compliance and prevent repetition.

Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

Other than the provision of advice and guidance, at present we do not intend to take further enforcement action in respect of the non-compliance identified above. This does not preclude us from taking enforcement action if further relevant information comes to light or advice isn't followed.

In respect of the above non-compliance you have been issued with a warning. At present we do not intend to take further enforcement action. This does not preclude us from taking additional enforcement action if further relevant information comes to light or offences continue.

We will now consider what enforcement action is appropriate and notify you, referencing this form.

**Section 4- Action(s)**

Where non-compliance has been detected and an enforcement response has been selected above, this section summarises the steps you need to take to return to compliance and also provides timescales for this to be done.

Criteria Ref.	CCS Category	Action Required/Advised	Due Date
See Section 1 above			

## Section 5 - Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- advise on corrective actions verbally or in writing
- require you to take specific actions in writing
- issue a notice
- require you to review your procedures or management system
- change some of the conditions of your permit
- decide to undertake a full review of your permit

Any breach of a permit condition is an offence and we may take legal action against you.

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and or suspension or revocation of the permit.

**See our Enforcement and Civil Sanctions guidance for further information**

This report does not relieve the site operator of the responsibility to

- ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- ensure you comply with other legislative provisions which may apply.

### Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance which could have a <b>major</b> environmental effect	60
C2	A non-compliance which could have a <b>significant</b> environmental effect	31
C3	A non-compliance which could have a <b>minor</b> environmental effect	4
C4	A non-compliance which has <b>no</b> potential environmental effect	0.1

**Operational Risk Appraisal (Opra)** - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

## Section 6 – General Information

### Data protection notice

The information on this form will be processed by the Natural Resources Wales (NRW) to fulfill its regulatory and monitoring functions and to maintain the relevant public register(s). The NRW may also use and/or disclose it in connection with:

- offering/providing you with its literature/services relating to environmental matters
- consulting with the public, public bodies and other organisations (e.g. Health and Safety Executive, local authorities) on environmental issues
- carrying out statistical analysis, research and development on environmental issues
- providing public register information to enquirers
- investigating possible breaches of environmental law and taking any resulting action
- preventing breaches of environmental law
- assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Information Regulations request.

The NRW may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

### Disclosure of information

The NRW will provide a copy of this report to the public register(s). However, if you consider that any information contained in this report should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within twenty working days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

### Customer charter

#### What can I do if I disagree with this compliance assessment report?

If you are unable to resolve the issue with your site officer, you should firstly discuss the matter with the officer's line managers. If you wish to raise your dispute further through our official Complaints and Commendations procedure, phone our general enquiry number 0300 065 3000 (Mon to Fri 08.00–18.00) and ask for the Customer Contact team or send an email to [enquiries@naturalresourceswales.gov.uk](mailto:enquiries@naturalresourceswales.gov.uk). If you are still dissatisfied you can make a complaint to the Public Services Ombudsman for Wales. For advice on how to complain to the Ombudsman phone their helpline on 0845 607 0987.



**Methane Emissions Survey Sheet – Ffridd Rasmus Landfill**

<b>Site</b>	Ffridd Rasmus Landfill: EPR Permit Nos: EAWML37004; GP3330BY	<b>Date</b>	15 <sup>th</sup> May 2013	<b>Time</b>	in:	10:00
					out:	13:30
<b>Instrument</b>	Gazomat Inspectra TDL (Serial No.: 1470311)	<b>Test gas reading</b>	-	<b>Time</b>	-	
<b>Next Calibration due</b>		<b>Background reading</b>	1.9ppm	<b>Time</b>	10:30	
<b>Weather conditions:</b>	Wind, gusts north easterly, with occasional light showers			<b>Atm. Press.</b>	1000mb	
<b>Survey Undertaken by:</b>	T Roberts / T Ward					

**General comments / observations**

This Technical Review is being carried out as a key part of Natural Resources Wales' strategy to reduce methane emissions from landfill sites in Wales. The objectives of the site review include being operated and maintained so as to maximise gas collection efficiency and minimise fugitive landfill gas emissions. Treating the gas in a manner that minimises point source emissions.

An ATEX certified, Gazomat Inspectra Laser Methane Analyser was used to perform emissions testing at the site. Surface capping, seams and structures on the site were randomly tested in order to establish potential sources of methane egress. Grid references were taken (using a Garmin satellite positioning system) at selected points where raised levels of methane were detected.

The survey results were recorded despite some high wind speeds which we would have expected to effect the detection of methane due to dilution and dispersion rates.

Officers were accompanied in part by Steven Edwards (Technical Manager) of Gwynedd County Council. Further technical advice can be obtained from Steve Hindle of CLP.

**Survey Results (only readings >10 ppm recorded)**

Point ref.	Time	Methane Reading	Feature and / or Grid Reference	Description / Comment
1	10:50	-	SH 57967 33849	Transect along venting trench, north east boundary Area2
2	11:05	7ppm	SH 57964 33815	Leachate well LW4A Area 2
3	11:25	-	BH18	Gas well Area 2 No apparent flow (NAF)
4	11:28	-	BH11	Gas well Area 2. NAF
5	11:30	-	BH20	Gas well Area 2. Minor flow. Settlement observed around the wellhead with associated reduction in mass shows this well produced high gas volumes in the past
6	11:32	-	BH19	Gas well Area 2 around well seal



7	11:33	-	BH18	Gas well Area 2 - inside well chamber
8	11:40	13.3ppm	BH10	Gas well Area 2 - boot detail minor leak
9	11:45	5.2ppm	Leachate extraction point	Leachate side riser Area 3 cell 3
10	11:50	3.1%vol	C36	Gas well Area 3 cell 1
11	12:00	12.5ppm	LCP1	Leachate well Area 3 cell1
12	12:20	3.2%vol	Leachate DB	Readings from 4.5ppm to 3.2%vol along transect of leachate drainage blanket, cell4a western perimeter
13	12:30	18.5%vol	Leachate extraction point	Leachate well Area3 cell 4a. Lid partially off with resultant fugitive emission (see photo)
14	12:45	125ppm	Operational area	Readings ranging from 25ppm to 125ppm, along a 50m transect of cell4a tipping platform. Values recorded despite high wind dispersion conditions. <b>Taking these results together, the cell is considered to be producing a high level of emissions.</b>
15	12:50	60ppm	LCP3	Leachate well Area 3 cell 3. Readings from temporary seal repairs

#### Findings/Recommendations








The table above demonstrates that there are fugitive methane emissions in some areas of the site, principally from the operational area and some leaks around gas / leachate well details.

Actions were discussed with the Technical Manager on the day of the survey to remedy these issues (see the main review document for details.)

## Ffridd Rasmus Landfill Site

### Surface Emissions Survey 15/05/2013

#### Key

-  0 - 50ppm
-  50 - 100ppm
-  101 - 500ppm
-  501 - 1000ppm
-  1001 - 5000ppm
-  5001 - 10000ppm
-  >1% v/v

## Natural Resources Wales - Technical Review Of Landfill Gas Management Systems

Steven Edwards  
Technical Manager  
Ffridd Rasus Landfill  
Morfa Road  
Harlech  
Gwynedd

EPR Permit No: *EAWML 37004 (Area 2) & GP3330BY (Area 3)*

**Ffridd Rasus Landfill, Morfa Road, Harlech, Gwynedd**

### Landfill Gas Review

Dear Steve,

Thank you for attending the meeting and inspection on 15<sup>th</sup> May 2013. Please find a summary of the main points and actions:-

#### AREA 2

1. We performed a brief survey on the venting trench using the TDL 500 Gazomat analyser. **No methane was detected across the sampling transect which included the middle section of the vent.**
2. The gas venting trench is overgrown with weeds and brush in areas and should be cleared to allow access for sampling and/or inspection. **This should be completed within 28 days of receipt of this report.**
3. Venting trenches can lose their efficiency over time and can become blinded so require regular maintenance. **Has the trench been fitted with a terram filter blanket? If so when was this last excavated and replaced or cleaned?**
4. We completed a short emissions survey in Area 2. There were limited emissions with the highest reading below 7ppm CH<sub>4</sub>. See attached Gazomat report.
5. The extraction pressures applied to the gas wells were very low and in most cases were between 0 and -0.8mb. This means that the system is under very low suction pressure. **We will undertake a careful analysis of the balancing**

**data which we will use to give a better understanding of the state of the gas field.**

6. Post capping the leachate levels appear to be very low which would leave us to presume that the waste is now relatively dry. Gas production levels from area 2 appear to reflect this. We will confirm these findings on submission of the balancing data. **Please submit a copy of the raw balancing data to NRW for the last year (in Excel format), within 14 days of receipt of this report.**
7. Many of the pipe runs on the site are excessively long and areas have undergone settlement. It is difficult to gauge the impact of pipe deformation on the efficacy of gas extraction at the site as the pipe-work is buried but the samples taken indicate high balance gas and oxygen levels throughout the system.
8. The well identification for manifold 2 on the new drawings 28587-S206 has the AOD data instead of the well identification numbers. **Please re-submit the drawing with the relevant amendments. A number of monitoring points are not shown on the drawing. Please could you include these points as part of the next survey?**

### **AREA 3**

1. Whilst approaching the operational phase from Area 2 a low grade fugitive emission was detected both from an odour standpoint and a small increase in the background methane reading on the TDL 500. This was directly upwind of the operational phase. **Uncontrolled emissions must be addressed and gas control installed in the operational phase as soon as possible.**
2. Manifold 4 connects 7 wells to the gas carrier main. Wells C11 and C14 were completely shut off. **Please investigate and report back. This implies reduced coverage in relatively new waste.**
3. Pipe falls across area 3 have been improved but condensate was noted in some pipes. Please ensure all pipe-work is laid to a fall of 1 in 50 with gas in the direction of water flow and 1 in 25 with gas opposing water flow. **Please complete this action within 28 days of receipt of this report.**
4. Please note: **all well head points on Area three should be retrofitted with Tefen valves to allow well head sampling. All future installation of gas wells should include this requirement.**

5. All future wells should have a gas control valve fitted at the well head, (which is recommended in the industry ICOP on landfill gas). Where possible any upgrades to existing wells should be considered.
6. An emission of 12ppm was noted on the capped area of cells 1 and 2. This could be due to gas extraction efficiency being reduced as a consequence of two wells being turned off. **This means that it is imperative that these wells are re-instated and/or replaced within 28 days of receipt of this report.**
7. A transect of the operational area was performed using the Gazomat TDL 500 methane analyser which showed significant emissions of methane from the operational area of cell 4a (see attached Gazomat emissions report). Emissions ranged from 25ppm – 125ppm across 10 sample points over approximately a 50m transect. **This equates to a significant methane emission across the operational phase and extraction wells and infrastructure should be installed as a matter of urgency. Please submit a proposal for installation of said infrastructure within 21 days of receipt of this report.**
8. A sampling transect of the western perimeter leachate drainage blanket was undertaken. Readings ranged from 4.5ppm – 32,000ppm despite very strong winds which will have diluted all samples taken on the day.
9. The lid on one of the leachate extraction sumps in cell 4A was disconnected causing methane emission of 18.5% volume. **Please confirm that this was sealed by the end of the working day.**
10. Leachate collection point 3 had an emission of 60ppm recorded from temporary seals. **This should be repaired within 7 working days of receipt this report.**
11. Several wells showed gas concentrations of 60:40 CH<sub>4</sub>:CO<sub>2</sub>. Gas control valves were fully open but there was little pressure drop at the well. This possibly indicates a lack of suction capacity at these wells. **Please confirm the booster rating and investigate the possibility of improving applied head in the gas main.**
12. Well C34 showed 278ppm and well C22 showed 134 ppm H<sub>2</sub>S. **These wells should be marked accordingly.**

#### **Landfill Gas Treatment Compound**

1. The sample valve on the inlet prior to the final external filter was seized.
2. **The booster appeared to have a continuous atypical vibration, please investigate as a matter of urgency.**

3. The inlet gas pressure was -7mb. Delivery pressure to the flare was +20mb. This means that the total lift for the booster as applied to the site is 27mb. There is a pressure loss of 2 mb between the compound and the gas main servicing area 3. This equates to almost a 30% pressure loss. **Please investigate the booster sizing and pressure delivery at Area 3 and report findings within 28 days of receipt of this report.**
4. Please provide the operational parameters of the Uniflare flare as this was burning within the correct temperature range but delivery pressure was only 20mb.
5. Please provide the latest service records for the flare and the booster.

Ty Ward/Tony Roberts/Neil Herbert  
16th May 2013

## GUP Readings and Comments

Monitor ID	Date Taken	CH4 %	CO2 %	O2 %	Balance	Diff mBar	CO ppm	H2S ppm	Comments
Compound Inlet	15/05/13	52.4	39.6	0.2					Flare on; temp 930 degrees C, setting 985 degrees C. Hours run 14,824 Flow 194m3/hr Delivery pressure +20mb
SCADA									
GA2000	15/05/13	48.8	34.9	0.7	15.6	-7.1	0	63	
BH17	15/05/13	21.6	14.4	4.5	59.6	-0.9	0	0	
No ID		20.6	13.4	1.3	64.7	-	0	0	
BH10		21.2	16.3	1.6	60.8	-0.8	0	0	
LW13									Leachate well
C36		56.4	40.1	0.9	2.6	-5	0	90	
Manifold 5						-5.1			
Manifold 4									
C11									OFF
C14									OFF
C13									50% open
C12									50% open
C35									Fully open
C25									Fully open
C24									50% open
C34		60.4	40.4	1.6	0	-4.7	17	278	
LM2/2		57.7	35.9	1.7	4.5	-0.3	0	39	Leachate monitoring point

