

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

Site	Hafod Quarry Landfill		Permit Ref	PP3139GB		
Operator/ Permit holder	Cory Environmental (Central) Ltd					
Date	24/06/2015		Time in	09:30	Out	13:00
What parts of the permit were assessed	Site visit and update meeting, Q2 monitoring returns and Cell 4 development and proposed engineering works.					
Assessment	Report/data review	EPR Activity:	Installation	X	Waste Op	Water Discharge
Recipient's name/position	Ian Craven - Site Manager					
Officer's name	Ian Oakes		Date issued	03/08/2015		

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

Permit Conditions and Compliance Summary	Condition(s) breached
a) Permitted activities	
1. Specified by permit	A
b) Infrastructure	
1. Engineering for prevention & control of pollution	*C3
2. Closure & decommissioning	N
3. Site drainage engineering (clean & foul)	N
4. Containment of stored materials	N
5. Plant and equipment	N
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	*C3
2. Land & Groundwater	*C3
3. Surface water	C4
4. Sewer	N
5. Waste	N
f) Amenity	
1. Odour	A
2. Noise	A
3. Dust/fibres/particulates	A
4. Pests, birds & scavengers	A
5. Deposits on road	A
g) Monitoring and records, maintenance and reporting	
1. Monitoring of emissions & environment	A
2. Records of activity, site diary, journal & events	N
3. Maintenance records	N
4. Reporting & notification	A
h) Resource efficiency	
1. Efficient use of raw materials	A
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, O = Ongoing non-compliance – not scored

Number of breaches recorded	4	Total compliance score (see section 5 for scoring scheme)	0.1
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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

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 normally completed within 14 days of an assessment.

1 - Compliance Q2 (April - June) 2015 - Monitoring data review

a). CCS3 Suspended - Engineering to prevent emissions C2.9.1, S4.1

Operator having problems accessing and monitoring leachate wells due to displacement in LC1 and LC2 (HAF102 v4, v5 and v6). Replacement wells LMP1a gave 2.8 m, 2.4.m and pump stuck (see below) and LMP2a < 2 m (foam) vs 2 m limit (with LC3 compliant). Leachate monthly figures of 1151, 2180 and 967 m3.

On the 27 May attempts to remove the pneumatic pump from LMP1a failed. On 13 th July a high vacuum suction tanker found that the 250 mm pipework had collapsed at a depth of 11 m, which was confirmed by a camera survey. Cory to obtain price and availability to re-drill the well and replace in steel casing at the earliest opportunity.

Cells 2 & 3 compliant, Cell 1 score suspended with improvements subject to the Leachate Management Plan v2.1 submitted in April.

b). CCS3 Suspended - Emissions to air C3.3.5, S4.5

Various perimeter gas well exceedences April - June (HAF108, 110 and 112) with methane ranging 0 - 34 % vs 1% and / or carbon dioxide ranging 1 - 19 % vs 1.5%. Subject to the actions arising from NRW gas audits November 2014 and February 2015 (reference CAR PP3139GB/0236913 issued 8 April 15) with the next NRW gas audit planned for 20/21 August 2015.

c). CCS3 Suspended - Emissions to land and groundwater C3.2.3, S4.4

Groundwater borehole HA12B(B) chloride levels April - June (HAF111 and 113) at 1100, 1100 and 1000 vs 450 mg/l trigger level. Borehole + 300 m away on the slip road of A483 has historically high chloride levels (with ammonia at < 0.2 vs 2 mg/l). Proposed by Cory to be representative of background concentrations from mineral evaporites. Cory to consider options to re-drill away from the A483 south bound access and subject to the next Hydrological Risk Assessment 2015/16.

d). CCS4 Emissions to surface water C3.1.2, S4.3

Surface water discharge marginal exceedence at SW2 (HAF109) in April of alkalinity 370 vs 323 mg/l.

2. Site meeting discussions 24 June 2015

a). Gas well improvements year to date include ten 6m wells in Cell 3, seven pin wells in the eastern flank of Cells 2/3 and intermediate cover and another 5 pin wells in the southern boundary of Cell 1. Increased gas field monitoring / balancing from biweekly to weekly using Cory central resource.

b). Cell 3 upper sidewall extension has been approved. Tipping consistently moving along the western flank to the north leaving void space for slightly windier conditions (to cease as required). Stratus CQA for completion of Cell 3 western sidewall to the northern boundary (to what will be Cell 4) is on-going at around 2500 m2. Cory are having to add water to the clay and interfacial layers.

c). Groundwater borehole HA12B(B) chloride levels. Cory to investigate options to relocate to the other side of the Aber Derfyn away from the A483 south bound ramp (safer access). To put a proposal together by the end of September 2015.

d). Specifications for the new leachate tank (13 m diameter by 6 m high), bunding, abatement and telemetry are

being determined.

3. Cell 4, Phase 1 Works approvals

We have examined the CQA Plan and other submissions made by Cory Environmental Ltd in advance of the engineering works in the proposed Cell 4 at Hafod Landfill. A series of documents have been presented Geotechnology Ltd directly by Cory:

- Hafod Quarry Landfill, Cell 4, Phase 1 Works – CQA Plan v1.0 Cory Environmental, June 2015 (2 copies have been received though we have disregarded the first as requested by Cory as it contained details that have been superseded),
- Standard Drainage Net Geocomposites, Product Information Sheet, Issue 4, Terram, July 2013,
- Hafod, Groundwater Extraction Riser and Sump Details, Drawing No Haf123, Cory Environmental, 29 June 2015,
- Hafod Cell 4 Construction, Formation and Top of ASL Surface Water Control and Construction Sections, Drawing No 7879a-4, June 2015,
- Hafod Cell 3, Perforated Pipework Deflection Calculations for 160mm and 180mm OD HDPE, Frank GmbH, July 2010,
- Hafod Quarry Landfill Site, Construction Quality Assurance Data, Phase 3 Lower Cell Construction, Egniol, undated,

The engineering proposals comprise the development of a new cell at the base of the landfill adjacent to Cell 3; together with slope reprofiling of the northern, eastern and western sideslopes (the southern slope comprises the existing waste mass over the footprint of Cell 3). In 2008 to 2010 the northern slope of the quarry void was subject to detailed analysis after a significant slope failure in the thick made ground deposit. This analysis resulted in slope reprofiling and drainage to bring the slope back to a stable configuration. As this current proposal requires lining over this reprofiled northern slope we felt that it was essential that the stability of this slope was brought into the assessment of the CQA Plan. Accordingly, we requested that Cory forward to Geotechnology Ltd the relevant assessments and also provide plans and sections to show the relationship between the proposed liner, the existing reprofiled slope and the slope prior to and after failure. Cory has obliged, and has forwarded Geotechnology Ltd the following additional documents:

- Hafod Landfill Site, Cross Sections, Drawing 3621.DS.04, Egniol, Sept 2009,
- Hafod Landfill Site, Conceptual Model of Site Prior to Failure, Drawing 3621.GI.01, Egniol, Apr 2010,
- Hafod Landfill Site, Observations from 25/03/2010 Ground Investigation, Drawing 3621.GI.02, Egniol, Apr 2010,
- Back Analysis, believed to be Egniol, undated,
- Hafod Landfill Site, Post Slippage and Regrade, believed to be Egniol, undated,
- Hafod Landfill Site, Marlhead Contours, South Staffs Surveys, June 2008,
- Hafod Landfill Site, Sections thro Northern Batter of Cell 4, Drawing 7879b-2, July 2015,
- Cell 4 Photos, July 2015 (one photo of excavation on corner of eastern and northern slope at mid level),
- Letter to Geotechnology Ltd from Egniol, Ref 3621, dated 29 April 2010, Regarding Hafod Landfill Site, Northern Slope Slippage,

We were also party to discussions during the site development about an area of instability at the top of the eastern batter. An area of ground had previously moved and a set of monitoring pegs had been installed. It was decided at the time that as the engineering of the sideslope would eventually cut through this area that any remedial works were deferred providing that the pegs showed no ongoing movement. As the proposals received from Cory approach this area we also asked Cory to provide Geotechnology Ltd with assurance that this approach could continue. In response to this Cory has provided the following drawing, together with some data in an e-mail Hafod Landfill Site, Survey Control Stations, Drawing 7879-STN, StafSurv, June 2015.

The CQA Plan presented for this next phase of construction is actually a combination of a design report and a CQA Plan. Design elements are justified in simple terms and then the CQA procedures for the construction of this design are specified. There is a long history of landfill phases being constructed at Hafod from the materials described and the CQA details are similar to many that have been approved for previous works. The significant difference with this particular cell is that it will be engineered at a low elevation, in part over in-situ marl and in part over backfill materials, some of which have slipped in the past. The submissions failed to convince us that this rather complex set of ground conditions had been considered in sufficient detail to meet available guidance, particularly in respect of stability.

We identified 3 critical issues in the documents and one minor issue and accordingly these have been reported to Cory. This has resulted in an exchange of correspondence as well as a revision to both the drawing of the works and the CQA Plan. We now have before us version 2 of the CQA Plan, revised to address the issues identified.

Slope Stability Northern Batter

The northern slope was remediated after a major slip and Cory was required to undertake detailed slope stability modelling to identify the root cause of the movement and to verify that the slope would remain stable in the future. This work was carried out by Egniol and their report was accepted after various iterations. The final report stated that the reprofiled slopes should be maintained at a profile of 1:3 in order to preserve stability. Version 1 of the CQA Plan and the drawings showed the northern slope would be formed at a gradient of 1:2.7, steeper than the recommendation of the SRA. Having identified this issue Cory has withdrawn the original CQA Plan and has replaced it with a Plan and a Drawing indicating a slope profile of 1 in 3. This issue is therefore resolved.

Slope Stability Eastern Batter

Cory has produced a drawing and email correspondence that provides evidence that the localised area of instability at the crest of the eastern batter continues to be monitored and shows no ongoing movement. We are satisfied that this addresses our concerns with the eastern batter.

Artificially Established Geological Barrier

The original design concept for this site included the provision of an AEGB where the underlying geology was unable to be considered an in-situ Geological Barrier. The proposals to line over the reprofiled northern batter seem to meet this criterion yet the first version of the Plan indicated that the slope was to be lined only with the 1m thick mineral liner without an underlying AEGB. Cory has now accepted that where the formation is not in-situ Ruabon Marl a 1m thick AEGB will also be constructed. We are now satisfied with this modification.

Terram 1B1 Testing Method

The approved groundwater under drainage system comprises a layer of Terram 1B1 geocomposite. The manufacturer's datasheets now show that the in-plane hydraulic performance of the material can be measured either with soft plattens or with hard plattens. As the requirement of the CQA testing is to verify that the material meets the manufacturers stated values it is appropriate to use either of these measures during the CQA works. The Plan now reflects this.

CQA Plan General Comments

The CQA arrangements proposed in the Plan follow closely those proposed for previous phases of work. The materials to be used have a long history of use at the site and are well understood by the site staff. The Plan reflects relaxations from the standard mineral testing frequencies previously accepted due to the very large database of performance data already gathered at the site. We are satisfied with the plan and thus Version 2 is accepted.

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Operator/ Permit	Cory Environmental (Central) Ltd	Date	24/06/2015

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.	X
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			
B1	C3	Action plan in place	N/A
E1	C3	Action plan in place	N/A
E2	C3	Action plan in place	N/A
E3	C4	No action specified	N/A

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 major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no 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. 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.