

Environment Agency Wales

ENGINEERING AUDIT

Sidewall Lining

On

29th June 2009

By

David Griffiths (PPC Compliance Officer – Environment Agency)
Ewan Thomas (Consultant – Geo Technology)





Name of site: Trecatti Landfill Site Operator/Permit holder: Biffa Waste Services Ltd Permit ref no: RP3733PC

Officer: David Griffiths, Ewan Thomas - Geo Technology Date: 29/06/2009 Area/office: Wales (SE) - Abacus House

Activity: Landfill Time in/out: 10:00 / 16:15 Event type: Routine Incident response Other

Assessment type: Site inspection Audit Check monitoring/sampling Report / data review Procedure review

Site life status: Operational Pre-operational Post-operational

Which part(s) of the permit were assessed? Sidewall Engineering

Compliance assessment summary

Key to completion: A = Assessed/Assessed in part (no evidence of non-compliance) ATL = Approach to limit
 NA = Not Applicable 1, 2, 3, 4 = CCS cat 1-4 breach N = Not assessed

	1	2	3	4	5	Conditions breached
a) Permitted activities	1 A					
b) Infrastructure	1 C3	2 NA	3 N	4 N	5 N	1.6.1.3;
c) General management	1 N	2 N	3 N	4 N		
d) Incident management	1 N	2 N				
e) Emissions	1 N	2 N	3 N	4 N	5 N	
f) Amenity	1 N	2 N	3 N	4 N	5 N	
g) Monitoring and records, maintenance and reporting	1 N	2 N	3 N	4 N		
h) Resources efficiency	1 N	2 N				

The breaches indicated above may constitute one or more offences. You should take immediate action to rectify each breach and return to compliance. You should prevent any repetition of the breaches. Breaches of conditions as indicated above can result in criminal prosecutions and/or suspension or revocation of a permit.

NB. IF THERE IS A BREACH, ONLY ONE OF THE FOLLOWING WILL HAVE AN 'X' PLACED IN THE BOX

At present we do not intend to prosecute you for the above offences however you are warned that this may change if further information comes to light. THIS IS A SITE WARNING

We will now consider what Enforcement action is appropriate.

Review of Directly Applicable Legislation : Key: A = Assessed, N = Not assessed, NA = Not Applicable, C1, C2, C3, C4 = CCS cat 1-4 breach. C3

Report delivery method: copy left on site posted emailed faxed Date 17/07/2009

Visit report/comments

Refer to attached Audit

Recipient's name or position within company: Mr Tim Stamber - Site Manager

CCS record number: 133449

Notes to the recipient

This compliance report form may highlight non-compliance with your permit or directly applicable legislation as observed by the Environment Agency officer. This does not relieve the site operator of their responsibility to ensure that they comply with the permit and to prevent pollution of the environment. You are also reminded that:

- you should comply with the conditions of the permit at all times
- compliance with the permit does not remove your obligation to comply with other legislative provisions which may apply.

Understanding the Compliance Assessment Summary

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

The term 'permit' for the purposes of this form includes: licences, authorisations and consents.

Understanding your non-compliance scores

Non-compliance findings are classified using our published Compliance Classification Scheme, (CCS).

This scheme categorises breaches of permit conditions based on their potential for environmental impact as shown below. If you wish to discuss further any comments made by the officer on this form, contact your local area office or for more details of the CCS scheme, see the Environment Agency's website or contact your local office.

CCS category	Description
1	A non-compliance which has a potentially major environmental effect
2	A non-compliance which has a potentially significant environmental effect
3	A non-compliance which has a potentially minor environmental effect
4	A non-compliance which has no potential environmental effect

Corrective action

We have various options to ensure that you correct actual or potential non-compliance:

- We may advise on corrective actions, verbally or in writing
- We may require you to take specific actions, by letter or by issuing a notice
- We may require you to review your procedures or management systems
- We may change some of the conditions of your permit
- We may decide to undertake a full review of your permit

Any breach of a permit is an offence, and we may take legal action:

- We may serve a warning on site or by letter. The officer may complete the site warning declaration on this form. A warning is our minimum enforcement response, however, it does not preclude us taking additional enforcement action including the issue of a formal caution, taking a prosecution and/or the service of a notice.
- Depending on the offence, the penalties imposed by a Court on prosecution can include substantial fines and even imprisonment.

We have published our Enforcement and Prosecution Policy which seeks to achieve a consistent approach to enforcement across all our regulated activities.

Environment Protection Operator and Pollution Risk Appraisal (EP OPRA)

Compliance assessment findings may affect your EP OPRA score. This score determines your charge and affects the allocation of our resources to check your compliance with the permit.

Data protection notice

The Environment Agency is responsible for regulating environmental protection, flood defence, water resources and fisheries. It has a duty to discharge its functions to protect and enhance the environment and to promote conservation and recreation. The information provided will be processed by the Environment Agency to fulfil its regulatory and monitoring functions, and to maintain the relevant public register(s). The Environment Agency 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, emergency services) 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 Environment Agency 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 Environment Agency 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 the assessment 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 the 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 manager, Area Environment Manager or Area Manager. If you wish to raise your dispute further, this can be done through our official Complaints and Commendations procedure phone our general enquiry number 08708 506506 (Mon to Fri 08.00–18.00) and ask for the Customer Contact team, alternatively you can send an email to enquiries@environment-agency.gov.uk. If, after following our Complaints and Commendations procedure, you are still dissatisfied, you can make a complaint to the Ombudsman. For advice on how to complain to the Parliamentary Ombudsman phone their helpline on 0845 015 4033.

Part one- Audit reference information

Permit number	RP3733PC	Site name	Trecatti Landfill Site
Date(s) of audit	29 th June 2009	CAR ID No.	I/090629/RP3733PC
Lead auditor	David Griffiths	Other auditors	Ewan Thomas – Geo Technology

Part two - Scope of audit

Biffa Waste Services Ltd (Trecatti Landfill Site) is undertaking significant engineering this year in progressing the sidewall lining system. The Agency, as part of this year's 2009/10 compliance Plan is focusing on these works.

The Audit's aim was to examine the sites compliance with pre-operational conditions of Section 1.6 of the Permit. We are satisfied that 1.6.1.1 has been complied with as Encia has submitted a written CQA Plan, Design and Specification on the 13th March 2009.

As the works are now underway (including Phase 7 sidewall construction and the remainder of Phase 6), Encia is providing independent CQA validation to comply with Permit Condition 1.6.1.3.

A site inspection was carried out on the 29th June 2009 to Audit compliance with the submitted and approved CQA Plan.

Part three - Permit conditions

The table below summarises what permit conditions were audited, areas of non-compliance and suggested corrective action. (note: some fields have examples provided)

Permit condition	CAR sub-criteria	Comments and suggested corrective action	Proposed date for completion	CCS score 4 – 1	Environment Agency proposed response
1.6.1.1	b1	Submitted a CQA plan for sidewall lining Phase 6 and 7	N/A	Compliant	No Further Action
1.6.1.3	b1	Lining / support layer has not been constructed as per agreed CQA Plan. Further evidence required.	ASAP	3	Site Warning

Part four - Observations

At the time of inspection formation levels had been established beneath most of the proposed works. The groundwater drainage blanket had been placed over the prepared formation and the liner support layer was progressing eastwards across the batter in discreet lifts. Geogrids were seen at the base of the support layer and above the first lift. A protective fabric was seen beneath the leading edge of the geomembrane panels that had been laid over the support layer.



The sidewall geomembrane panels had been tied-in to previous phases of works along the western edge (by fusion welding) and along the toe (by extrusion welding). During the visit one welding crew were on site working on the extrusion tie-in.

Prior to inspecting the site works the CQA Engineer, the Contractor and Biffa Site Management were available for discussion. A meeting was held at the site offices to discuss CQA details with the supervising engineer. A copy of the CQA method statement and subsequent amendments were available during the meeting for reference.

The CQA record keeping was discussed at length in order to determine whether the procedures being used on site were those approved by EAW. Whilst EAW is largely satisfied that the site procedures are those approved some issues were identified.

1. Surveying is being undertaken by the contractor staff. Ideally independent surveying either by the engineer or an independent survey contract company would provide truly third party validation.
2. Thickness of Support Layer – The CQA Engineer confirmed that the support layer has been placed in 2 x 300mm lifts. This is not in accordance with the approved CQA Plan. The CQA Plan states a maximum layer thickness of 275mm which accords with the Specification for Highway Works (Method 2 compaction for Class 2c material). SHW permits a maximum lift thickness of 275mm, therefore this discrepancy is disappointing as it shows that the site engineering has not been carried out in strict accordance with the agreed plan. The Significance of the over-thick layers cannot be determined by EAW as there is no data available on the degree of compaction achieved at the base of the two layers.
3. Geogrid lab tests – the absence of Geogrid laboratory tests is due to the selection of the UKAS Accredited laboratory. Whilst EAW appreciates the efforts to secure lab testing that meets the CQA Plan there is a concern that a large amount of placed engineering is now at risk.
4. Membrane lab tests – whilst manufactures data is all in compliance with the specification, the conformance test results are not yet available. The selection of testing laboratory was discussed in some detail and EAW reiterated the need for UKAS accreditation.

5. Defects – The walkover survey revealed the presence of several defects in the lining system. Whilst several of these lay outside the area of this phase of works we would expect to see them marked up and repaired. The records of these repairs should be included in the CQA Validation report.



6. Air Pressure Tests – The lack of air testing equipment on site has resulted in the non-destructive testing of seams falling way behind the lining process. The CQA Engineer accepted that this was not good practice and that the failure of any of these seams could result in complex remedial works.
7. Extrusion Welding – Parts of the tie in extrusion weld are neatly and effectively welded, where as parts of the weld are ragged and show clear evidence of fish mouths between adjacent sheets. The validation of the seams by vacuum box methods is critical along the seam and the CQA Engineer's notes of this will be examined carefully during EAW assessment of the Validation Report.



8. Health and Safety – During the site inspection the leading edge of the geomembrane was temporarily surcharged with an unused roll of geomembrane. The roll was secured on the edge of the membrane using a large tyre which proved inadequate to fix it into position. The roll moved down slope with the tyre some 15m before coming to rest on a wrinkle in the membrane.
At the time, staff from the contractor, consultant, Biffa and EAW were all inspecting works beneath the roll. It is clearly inappropriate to secure the leading edge on a steep slope

with a roll of membrane. This must be recorded as a near miss and should be investigated appropriately.

Furthermore, the grinding wheel used to prepare extrusion weld seams was seen to have the earth wire broken. A lightweight generator placed on the membrane had an electrical flex immersed in water and the earthing rod connection was unused.



Part five – Actions/recommendations

1. Surveying – For the next Phase of Engineering please consider the appointment of an independent survey company to carry out third-party validation.
2. Support layer – Please supply evidence that the lower parts of both lifts have achieved an acceptable degree of compaction. This information is to be provided within the Validation Report.
3. Geogrid lab tests – Ensure that an appropriate laboratory is identified and carries out the tests as a matter of urgency.
4. Membrane lab tests – As Action 3.
5. Defects – Identify, mark, repair and record all defects within the current phase of works and the adjacent areas of the exposed liner.
6. Air pressure Tests – Mobilise air testing equipment to site as a matter of urgency and test all seams in accordance with the CQA Plan.
7. Extrusion Welding – Carefully and meticulously carry out Vacuum Box testing along the extrusion tie in weld and supplement the weld test record sheet with photographs and/or notes made at each Vacuum Box increment.
8. Health and Safety – Carry out internal investigation and pass on findings to all site staff and EAW for information. Furthermore carry out a review of electrical safety when using welding equipment and generators on site.

Part six - Report approval

Lead auditor	David Griffiths	Signed		Date	17/7/2009
Report authorised by	Tony Leakey	Signed		Date	22/7/2009