

Geoff Forrest
FCC Environment
Pen y Bont Landfill
Chirk
Wrexham
LL14 5AR

1 April 2016

Dear Geoff,

Re. Pen y Bont Landfill – 2015 Capping Works CQA Validation Report

Thank you for providing the following document:

Stratus Environmental, February 2016, CQA Validation Report. 2015 Capping Works. Pen y-Bont Landfill. Report Ref: WR7251/5/7/001L

NRW has reviewed the report, and considered observations made during a site inspection on 27/10/15. The report is not accepted in its current form due to the reasons detailed below. Please amend the report and re-submit accordingly.

1. The handling and storage of materials would benefit further discussion. The on site storage area was not clean, had rocks weighing down free edges and neither benefited a smooth or protected base on which to store rolls of geosynthetics. [see picture over page]



Photograph reference 003, taken 27/10/2015

- 2.** Section 1.3 refers to a CQA Plan dated January 2015, whereas the CQA Plan for this site is dated October 2015. Please revise this reference accordingly as there appear a number of copy and paste anomalies.
- 3.** Section 3.3 states that the regulating layer was constructed from a non-cohesive material and therefore the engineer was unable to conduct hand shear vane compliance testing on it. Please revise this in view of Appendix 2 which clearly displays the results of shear strength testing on the regulating layer.
- 4.** Appendix 4 displays test results for destructive testing of extrusion welds. A failure of DSE EXT1, test specimen number 2 is noted, which has not achieved the specified shear strength ($<11\text{N/mm}$ at 10.76N/mm). Please provide a section on non-compliance with justification as to why the non-compliances were deemed acceptable within the design.
- 5.** Appendix 7 displays a pass or fail criteria of non-destructive testing of welds undertaken on site. It does not however include actual testing results for comparison i.e. air pressure

before and after 5 mins. Please provide the daily welding logs which should include this information or other supporting information.

6. There have been over forty patch repairs carried out [Appendix 7 and Appendix 8]. NRW would expect a section to be included within the validation report to discuss why these patch repairs were required (i.e. based on type of failure). A simple analysis of need for patch repair (APT or liner tear) may identify whether poor practice can be improved.

7. Daily records from the date 06/10/15, within Appendix 12 state that soil being used to form the regulating layer is being sourced from off site. This has not been detailed within the October CQA Plan. Please explain these contrasting statements or revise within the report accordingly.

8. The October CQA and Design Plan, requires the use of double textured LLDPE within the scope of construction works. Table 3 within the CQA Plan details the Geomembrane specification and requires an asperity height of more than 0.4mm. Section 4.6.1 and Appendix 4 identify that asperity height was not considered within conformance testing, both from manufacture certificates and within field testing. Please justify or revise this within the reporting accordingly.

9. It is unclear from section 5 and Appendices 3&4 of the report what conformance testing is required for the Geocomposite. It is unclear how the Geocomposite has been tested. Different samples have been tested for different properties and would require some further clarification in future reports.

If you have a queries then please do not hesitate to contact me.

Yours sincerely,



Stuart Ross
Regulatory Officer, Industry Regulation Team, Natural Resources Wales
Swyddog Rheoliadol, Tim Rheoliad Diwydiant, Cyfoeth Naturiol Cymru