LLANDDULAS LANDFILL SITE

PPC PERMIT BU0800IZ

QUARTERLY ENVIRONMENTAL MONITORING REPORT

1st May – 31st July 2017

August 2017

FCC Environment
Llanddulas Landfill Site
Llanddulas
Conwy
LL22 8HP

1.0 Introduction

This report has been produced in accordance with the requirements of the PPC permit (BU0800IZ) and subsequent variation notices (BP3734XX) issued on the 25th July 2008 and EPRBU0800IZ/V011 issued on 10th June 2016 and outlines the results of environmental monitoring undertaken between the 1st April 2017 and 31st July 2017 at Llanddulas Landfill Site.

2.0 Off Waste Landfill Gas Monitoring

Monitoring for the presence of landfill gas in perimeter boreholes has been undertaken on a weekly or fortnightly basis throughout the review period, in accordance with Table S4.5 of the current site Permit Variation issued on 10th June 2016.
Monitoring of perimeter boreholes has been reduced in the most recent variation to fortnightly for the boreholes in the higher risk (of migration) area of site and monthly for all perimeter boreholes.

Revised background concentration levels of landfill gases were agreed as part of the improvement programme requirements (IC13) included in the variation (table S1.3.12). Following the review, Methane compliance and action limits plus Carbon Dioxide (action levels only) were approved by Natural Resources Wales (CAR form RDR/121105BU0800IZ), for all perimeter boreholes.

During this reporting period (of the 354 perimeter gas readings taken) there were no readings in excess of the compliance level for methane.

Borehole 40 has a compliance limit of 2.5% (with an action limit of 1.5%) and is not situated at the site perimeter.

A summary of the borehole readings is attached with this report in Appendix 2.

3.0 Water Quality

Water quality is currently measured from 17 groundwater monitoring boreholes, the Dulas spring, W1 (discharge point) and the Afon Dulas upstream/downstream as shown on ESID 13B for Phases 1 and 3 of the application. Monthly suites of surface water samples were taken during May and June 2017 with a quarterly set of samples collected for analysis during July.

3.1 Groundwater Quality

Water quality and level was measured monthly at all of the groundwater monitoring boreholes on site, in accordance with Table S4.10 of the current site Permit variation issued on 10th June 2016, in which groundwater monitoring was reduced from monthly to quarterly.

There was insufficient liquid for a sample to be retrieved from boreholes GW1, GWBH06, and GWBH26b in this quarter.

3.2 Surface Water Quality

Surface water sampling is carried out in accordance with Tables S4.3 and S4.9 of the current site Permit.

Surface water from the Dulas Spring is sampled weekly and the Upstream and Downstream points of the Afon Dulas along with the Spring and surface water emission point W1 monthly. Generally, analyses of samples from these surface water points, suggests the water is of a good quality with no signs of any deterioration.

All analytical data obtained is attached with this report in Appendix 9.

3.3 Surface Water Discharge Quality

Sampling of surface water discharge point W1, as shown on ESID 13B for phases 1 and 3 of the Permit Application, recommenced during September 2010, at the request of EA Wales (continuing on a Monthly basis) having not been sampled for some time due to there being no discharge of surface water from this point of the site, as is still the case.

4.0 Leachate Monitoring

4.1 Leachate Quality

Leachate sampling was carried out at all 7 leachate collection points on site and at the revised frequency of quarterly, as agreed with NRW. This reduced sampling frequency has now been written into the current Permit Variation issued on 10th June, EPR/BU0800IZ/V011. Results of the annual analyses of leachate samples are attached in Appendix 7.

4.2 Leachate Levels

Leachate levels are monitored on a monthly basis in accordance with Table S4.1 of the current site Permit variation (EPR/BU0800IZ/V011).

There were two breaches of the 2m compliance level in LCP2Br2 in May (2.12m) and LCP3 in June (2.17m) although this chamber has recently been lowered – a resurvey has been requested.

Data is attached with this report in Appendix 6**.**

Leachate levels are generally closely managed at the site with pumps checked on a daily basis with all leachate processed by the treatment plant and discharged to sewer.

5.0 Landfill Gas Management

Landfill gas is currently extracted and utilised at the site from Phases 1, 2, 3 and 3A. The LFG utilisation plant, located on site, comprises of two Jenbacher engines both capable of producing 2 x 1000kWs which are running at full capacity.

The total flaring capacity on site consists of one 2000m3 high temperature flare and one 1000m3 high temperature flare commissioned in September 2008. These are capable of sufficient gas control in the event of the engines being unavailable.

5.1 Flare/Gas Engine Emissions

Monitoring of the flare and gas engine emissions was undertaken during December 2016 in accordance with the IPPC permit and the results submitted to Natural Resources Wales with the Annual Monitoring Report in May 2017.

5.2 In Waste Gas Quality

Monitoring at the gas control collection wells is carried out in accordance with condition 3.6.1 and Table S4.7 of the permit variation.

Table S4.7 states that an assessment of air ingress into the extraction system must be carried out if the following control limits are exceeded;

- Oxygen Concentration >5%
- The addition of carbon dioxide and methane percentages <80%
- Carbon monoxide concentration >100ppm requires additional investigation

During the review period a total of 493 gas well readings obtained, with weekly gas field balancing taking place across Phase 3A.

Oxygen concentrations in excess of 5% were recorded on 82 occasions and total Carbon Dioxide and Methane concentrations of less than 80% recorded on 249 occasions. In the majority of the cases above, gas wells have their valves either closed, or closed post-monitoring or partially open to aid odour control or gas migration.

Investigations and remediations are carried out in relation to air ingress and other parameter breaches on a continual basis by our gas contractors.

Of the 493 gas well readings there were no readings of Carbon Monoxide concentrations in excess of 100ppm.

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