From: [redacted]
Sent: 09 June 2021 14:35
To: [redacted]
Subject: RE: Walleys Quarry Landfill - variation application EPR-DP3734DC-V003 - Request for further information

Hi [redacted]

I can confirm the 2nd July 2021 is acceptable for your response.

We have now completed our review of the information you submitted on 13 April 2021 in relation to the ICoP. As a result we have the following additional questions:

CH4 compliance limit in BH17D

We are satisfied that there is sufficient evidence to conclude that the methane levels detected in BH17D are influenced by external gas sources we therefore have no objection to the proposal to increase the methane compliance limit to 6.7%v/v; the limit having been derived in accordance with the Industry Code of Practice (ICoP).

However, given that the proposed compliance limit exceeds the lower explosive limit of 5%v/v and that there is the potential for a gas migration pathway to exist between the strata penetrated by BH17D and the nearest residential properties at Barnacle Close, we recommend that a lower action level is set within the LFGMP.

A mean methane concentration of 1.21%v/v was calculated for the dataset used to determine the Tmax value with a standard deviation of 1.59. An action level based on the mean + 2 standard deviations would give a value of 4.4%v/v. This is below than the lower explosive limit and therefore provides a reasonable safeguard.

Question 1

Please confirm whether you would agree to set an action level of 4.4%v/v for BH17D within the LFGMP in order to provide an assessment level that is less than the lower explosive limit.

Note: The establishment of an Action Level for BH17D will require a minor redraft of the LFGMP, specifically Table 12.

Carbon dioxide action levels and compliance limits

You have only specifically requested to remove CO2 compliance limits and set borehole specific action levels for the following boreholes:

- 03D
- 04S
- 05S/05M/05D
- 16S
- 17S/17D
- 18S
- 20S
- 22D
- 23S

It is not entirely clear from the variation application whether you also seek to retain the current CO2 compliance limit of 7%v/v on the remaining boreholes or change that to an action level. Most ICoP variations seek to remove CO2 compliance limits entirely and replace them with borehole specific action levels.

Question 2
Please confirm whether you would like to remove CO2 compliance limits from all boreholes and replace them with the action levels specified in Table 8 of the LFGMP (Doc Ref EEL.7745.R03.002).
Note: In the event that CO2 compliance limits are removed, we would expect to see borehole specific limits imposed on all boreholes, not just the ones that currently exceed the compliance limit of 7%v/v.

Question 3
It is noted that within Table 8 of the LFGMP boreholes 201S and 201D have been struck out. **Please confirm whether 201S and 201D are to be removed from the monitoring schedule and provide the justification for their removal**.

Could you please provide your response to these 3 questions by 2nd July 2021.

Also, could you please advise if you now have collected the groundwater data as requested by email on 11th May 2021. And if so, please provide the results.

Regards
[redacted]

Hi [redacted]

Further to your e-mail of the 9th June, below. Please find below our response, in red using the question numbers of your e-mail.

Question 1
Please confirm whether you would agree to set an action level of 4.4%v/v for BH17D within the LFGMP in order to provide an assessment level that is less than the lower explosive limit.

Note: The establishment of an Action Level for BH17D will require a minor redraft of the LFGMP, specifically Table 12.

We appreciate concerns about adopting reliable assessment levels for gas monitoring points at this site.
After all this site is situated in an area of historic coal mines where coal measures strata also produce methane, carbon dioxide along with other gases.
Mines gas therefore may appear in landfill monitoring boreholes but there is no way of predicting when this may happen and what mechanisms (other than atmospheric pressure) drive this process.
We see such short-term spikes in gas concentrations in several gas monitoring points from time to time.
This is why we have requested to recognise this in setting up borehole specific action levels which take into account background concentrations of the gas.

In responding to your proposal to revise the action level for CH4 in borehole 17D, we have rerun the ICOP calculations which included the data gathered after October 2019.

These show just such a fluctuation from 0% to over 11% which indicate that the subsurface gas environment is indeed unstable in the locality of this monitoring point.
We have rerun the statistical test to normalise the CH4 dataset. The Tmax is 6.2%v/v and it should be adopted as a background concentration.
The fact that it is above LEL for methane (5%v/v) is somewhat irrelevant at the site perimeter but should be applied when assessing ground gas quality at the receptor location.
However we recognise the concern by the EA due to uncertainty over the background gas concentrations in this area, and propose to adopt both Action Level and Compliance Level for methane at BH17D.

The CH4 Action Level of 4.4% v/v suggested by yourselves together with a Compliance Level of 6.5% v/v would be used to assess the gas concentrations.
If the concentration exceeds the Action Level the site operator will initiate the Gas Action Plan and investigation of the gas levels.
The Environment Agency would only be informed when the Compliance limit has been breached.

Question 2
Please confirm whether you would like to remove CO2 compliance limits from all boreholes and replace them with the action levels specified in Table 8 of the LFGMP (Doc Ref EEL.7745.R03.002).
Note: In the event that CO2 compliance limits are removed, we would expect to see borehole specific limits imposed on all boreholes, not just the ones that currently exceed the compliance limit of 7%v/v.

The application seeks to adopt borehole specific action levels for CO2 where the ICOP assessment showed that Tmax exceed the current control limit of 7%v/v. The majority of the monitoring points can still be assessed using this limit.

LFGMP (report EEL.7745.R03.002) states on page 14 that for CO2 assessment, "certain boreholes will need to adopt risk-based specific Action Levels for CO2 to be use for assessment of compliance with conditions of the site permit. The proposed BH specific Action Levels for CO2 are highlighted in Red. The remaining boreholes should continue to be assessed using the current CO2 control level of 7%v/v."

Question 3
It is noted that within Table 8 of the LFGMP boreholes 201S and 201D have been struck out. ***Please confirm whether 201S and 201D are to be removed from the monitoring schedule and provide the justification for their removal****.*

Boreholes 201S and 201D have been reinstated after the application has been submitted. These monitoring points have been monitored since March 2021. Given the fact that no data was collected from these locations during a period of several years, we cannot propose any BH specific action levels but will adopt (for the time being) the site general limits of 1%v/v for methane and 7%v/v for carbon dioxide.

We trust the above adequately addresses your queries. If however you have any further questions in this regard please do not hesitate to contact me.

Kind Regards,

[redacted]