Aire Valley Against Incineration (AVAI) response to the Environment Agency Draft Decision Document

Application of Best Available Techniques

Stack Height

The height of the incinerator stack is obviously a key BAT issue in ensuring the effective dispersion of any emissions.

The importance of the stack height is reflected in the number of questions posed by the EA to Endless Energy on this topic during their assessment of the permit application.

Date of EA questions	Date of EE responses
20.12.18	18.02.19
06.05.19	01.07.19 29.07.19
19.09.19	23.10.19 08.11.19

1. Planning limit on Stack Height

In the Ricardo Air Quality Assessment (AQA) reference ED 10527, Issue Number 1, section 4.1 they stated the following:

In the case of the proposed Clean Energy Facility, a further constraint was placed on potential stack heights by planning constraints. It was considered that a stack height of 60 m would be the maximum acceptable height in planning terms. Consequently, while lower stack heights were investigated, the approach adopted was to ensure that the modelled impact using a stack height of 60 m was acceptable, and that forecast levels of released substances complied with all relevant air quality standards and guidelines.

AVAI have extensive knowledge of all the planning documents associated with the Endless Energy planning application to Bradford Metropolitan District Council. We have never seen any reference in the planning documentation that stipulated a maximum stack height of 60 metres. This may have been solely an understanding between BMDC planning department and the applicant. The planning approval does not stipulate stack height as a condition.

Has the Environment Agency requested written evidence from Endless Energy regarding the planning constraint on stack height?

This stated planning constraint has totally governed Ricardo's approach to the assessment of the facility's stack height. In other permit applications it has been customary to plot the

increase in stack height against the pollutant process concentration (PC) until there is no further reduction in the values of the PC.

Ricardo did not adopt this approach and their rationale is explained in the AQA text reproduced above.

The consequence of Ricardo's approach is that they have plainly not demonstrated the stack height at which PC values the plot levels off. This view was obviously shared by the EA as stated in the Draft Decision Document, page 76, section 6.2.7 Stack Height as detailed below:

The Applicant also provided a plot of pollutant process contribution (PC) against stack height. The Applicant claimed that this showed the PC levelled out at 60 m. Our view is that the plot did show some levelling off at around 60m, however because the plot did not go above 65 m the levelling off point could not be established.

AVAI have analysed the details of the stack height assessment results from figure 2 on page 18 of Ricardo's first AQA reference ED10527. With reference to the NO_2 annual mean values we have determined that an increase in the stack height to 65 metres would reduce the PC by a further 1.4%. Compared to the maximum pollution level of 14% shown on the plot at a 45 m stack height, this would a mean that for a 5 metres stack height increase from 60 to 65 m there would be a reduction in the pollution of 9%. We conclude that the EA were right in stating that the applicants claims could not be accepted.

A	B
45m	100%
50m	77%
55m	55%
60m	38%
65m	29%

Column A shows the stack height and column B the reduction in the process contribution compared to that obtained for a stack height of 45 m.

The EA then requested that the Applicant carried out a cost benefit analysis of the stack height.

2. Cost Benefit Analysis

The cost benefit analysis submitted by the Applicant focussed on the marginal cost of increasing the stack height above 60 m. The figures that they provided showed that the cost of a 15m increase from 45 m to 60 m was €5,000 to €10,000 but that a 5 m increase from 60 m to 65 m would cost €220,000.

The Applicant's explanation was that this very significant increase in costs would be incurred because major changes in the basement structure would be required for any further increase in the stack height. The Applicants explanation is detailed in their Schedule 5 response dated 8 November 2019.

Did the EA request a detailed Structural Engineer's report from the Applicant to validate the need for these major structural changes?

3. The EA decision on BAT for the Stack Height

As we have detailed in this submission, technically a stack height of 60m for this facility cannot be considered BAT. The deciding factor then becomes one of cost effectiveness when considering an increase in the stack height.

We consider it is essential that the stated additional costs provided by Applicant in the event of any increase in stack height be fully validated by the EA.
This validation should surely be based on an Engineering report and not just on claims by the applicant.

When one considers the overall cost of the planned incinerator at approximately £125 million, and the fact that it will have an operating life of over 20 years the additional costs associated with raising the stack height above 60m are not necessarily excessive. Put another way, even with the additional cost of €220,000, surely the lifetime reduction of 9% or more in the pollution levels is a price worth paying?

What level of additional expenditure to achieve a 9% reduction in pollution would the EA consider reasonable?

7 August 2020