Application for Environmental Permit EPB3.5 (Version 4)

Buckles Farm, Kaber, Kirkby Stephen. Cumbria

Pre Application Ref.EPR/GP3001LP/A001

BF Appendix 5 Minimising emissions *(from new Poultry Housing.* \_BREF Guidance)

Reference made to BREF Document (July 2017 and to BAT Conclusions (Feb 2017) for intensive rearing of poultry. These supersede the EA version 2 produced in Jan 2010.

The system installed both at the original house in 2013 and the one proposed, most closely relate to the guidance offered in section A3.1.9An Aviary system with range and outside scratch area (BREF 4.5.2.2) However since this version the Aviary ‘type’ system has evolved and new versions, most focussing on improved ammonia avoidance are continually being developed. Variation on the guidance is included here. Both existing and proposed houses have :-

* thermal insulation in walls and roofs, Original > 0.4W/m2K. New ones 150mm glass fibre in walls and gable end, 200mm in roof (0.22W/m2K )
* No windows for natural daylight but all low energy LED lighting is computer controlled to manage day / night and associated dawn / dusk. This complies with the latest flock welfare regulations.
* Forced air ventilation through gable end extractor fans and aperture controlled roof inlet ports. All are computer controlled. 16,000 bird units (4) have freedom of whole floor of that house.
* Both houses 1a and 1b (original) have pop holes, scratch areas and wooded range on both sides. (see Appendix 12- Photo Montage) Proposed Houses 2a and 2b will be in one building and therefore have access to the range on just one side each. Scratch areas and wooded range will also be provided.
* Tiers are staggered but all nest boxes, drinkers, feeders and perches are supplied with manure belts. Houses 1a and 1b delivering to trailers outside and the propose houses directly into the new covered manure store.
* Feed delivery is by conventional chains but designed to minimise dust creation. Nipple drinkers are of low leak design, adjusted to modal hen height and have larg(er) drip cups.
* Automatic egg collection.
* Houses 1a and 1b being fitted and commissioned with *‘water to air heat exchangers.’*
* Netherlands emission factor quoted at 0.09 Kg NH3/ bird / yr. which is 71% less than the reference non- caged system. In Scotland similar systems to Broxty Farm, with additional heat applied to the houses to enhance ammonia prevention and especially when blown onto manure belts as designed for houses 2a and 2b use a factor of 0.035 for their environmental inventory returns.
* This emission is based on 90% of all manure being removed by belts and (10% onto floor and removed after depletion.) However that 10% will have a higher retention of nitrogen (less ammonia release because of additional applied heat which keeps litter dry. Also the belts are run at least 2x / week so a 71 % reduction may be an under-estimate of the actual reduction in ammonia production.
* The impact of dryer manure / litter comes at a cost of potentially higher dust generation. (A dust management plans for interception, metabolism and nuisance avoidance has been compiled for planners but not deemed necessary here given the distance from receptors.) Computer controls on temperature can help establish a target dry matter of 65% which is considered optimal for these vying objectives.
* Scratch areas, immediately outside pop-holes, provide ‘secure’ outside areas whilst plantation matures (see photos of existing range Appendix 17). The underdrains keep the area dry and reduce the water brought into the house on hens’ feet. This reduces overall moisture especially in winter and reduces ‘capping’ adjacent to the pop holes and associated need for greater heat input. The scratch areas are all under-drained and drainage treated by swales.
* Reduction in the prevalence to “laid- away eggs” is achieved through occasional summer grazing by the farm sheep flock and future planting designed to be easily manged by spacing design.
* Natural daylight behaviour issues are addresses by using appropriate wavelength LEDs and creating artificial dawn and dusk each side of a managed night time.
* In 2010 when “How to comply” guidance was written, this was a new modern system for free range eggs. (1%) This is now the most common format being applied to new units because of the wide acceptance by the market place and demand for free range eggs for minimum energy input.