

Action Plan for Dust & Ammonia at Cubley Poultry Farm

Submitted 9th April 2010

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Following a period of air sampling by the Environment Agency's Ambient Air Monitoring Team between 23rd October 2008 and 5th May 2009 the following action plan has been drawn up in response to two specific elements, PM10 dust particles and NH₃ Ammonia levels emitted from the poultry site at Cubley.

General principles suggest that dry friable litter and correct ventilation rates will reduce ammonia emissions to within acceptable levels and ventilation management, good husbandry techniques and vehicle management will assist in minimising PM10 particle levels.

The following are the key points that have been and are being changed at Cubley since the monitoring occurred, with the specific aim of tackling the issues relating to PM10 particles and ammonia emissions.

- The site has, since May 2009, changed ownership from Moy Park to Mr Clive Vernon, this has meant a change of management which has had a significant effect on how the site is managed. Alterations have been made in terms of the management of the bird environment, timeliness of operations and the altering vehicle movements.
- New ventilation rates have been set along with a recalculation of heater settings with the aim of minimising the air flow leaving the buildings whilst ensuring good bird welfare and good litter quality. In principle sheds are ventilated to remove waste gases produced by the birds such as carbon dioxide and introduce fresh levels of oxygen. When the removal of stale air or the cooling of birds reduces the internal air temperature below a pre calculated mean target temperature heaters are automatically switched on burning LPG gas inside the sheds and warming the air. Once the air reaches its target temperature the heaters are then automatically switched off. Due to the significant volumes of air being moved through the facility and the significant heat generated by the gas heaters settings have to be calculated to prevent the heaters still running to warm the air whilst the fans are simultaneously running to cool the air.

This calculation, whilst based on a scientific consideration, is worked out on an individual shed basis using experience and a degree of learning. Over the past 3 months considerable effort has gone in to ensure the site neither burns excessive gas nor emits excessive volumes of air. Ensuring the correct balance between heating and cooling reduces unnecessary air flow and gas consumption which in turn will improve bird health, improve litter quality and minimise any unnecessary emissions.

- During periods when only 1 or 2 fans are required to ventilate the sheds, i.e. when the birds are young and during cold weather, the ventilation fans on the southern end of the shed roofs are used for ventilation purposes to minimise emissions at the sites northern boundary.
- Birds are housed on wood shavings which is the best litter available. Previous owners were not able to secure sufficient quantities of wood shavings and so used a recycled wood product. It is firmly believed that the recycled product contains more fine dust particles than whole flake wood shavings and so the change of litter type should of reduced particle emissions.
- Along with a change in the litter type used additional litter is added to the sheds during the crop growing cycle to ensure optimal litter condition at all times minimising emissions.
- Bird health is constantly monitored and veterinary assistance sought whenever there appears an issue. Veterinary support is provided through Moy Park and their approved veterinary surgeons. Good bird health is a fundamental requirement of any modern poultry unit and helps to ensure optimum bird welfare which includes the monitoring of intestinal integrity which in turn leads to good litter quality and hence low ammonia emissions.
- The bird diet is continually under review, although birds are fed a prescriptive diet dictated by the end customers nutritionist/ feed mill, Moy Park. Under contractual arrangement the birds at Cubley have to be fed exclusively on Moy Park feed.
- Birds are monitored sufficiently to ensure good welfare but not so often as to unnecessarily disturb the internal environment releasing dust and ammonia into to vented atmosphere. High levels of dust particles were generally recorded during periods of bird disturbance such as the catching process known as thinning when part of the bird population is removed from each house to allow the remaining birds to grow on to a larger size.

- Vehicle movements around the site have been altered to stop vehicles, especially loaded lorries, from stopping and pulling away at a location close to the residential property, where the monitoring station was located. Vehicles have to stop and sign in and out of the premises for reasons of bio security but this is now done at the other end of the farm on a concrete roadway to minimise dust being created from the local environment, the loaded birds on the lorries or the vehicle exhaust systems. In addition the vehicle parking area close to the residential property is no longer used, further reducing dust creation in this area. Following these alterations some visual monitoring is continually carried out to assess the levels of dust visible and ensure that all is being done to minimise any particles leaving the poultry unit's site boundaries.
- At the end of a bird cycle the mucking out and washing processes has been amended and now these activities occur only over a 3-4 day period rather than a 5-6 day period previously; this greatly reduces the period when dust or ammonia may be emitted during any period when buildings are cleaned and birds are not present in the houses. In addition the site now remains empty with no activity for an additional few days prior to chick placement. Over a 12 month period this can equate to an additional 14 days empty with no activity and hence no emissions.
- During the mucking out period vehicles are parked for loading giving consideration to the wind direction and strength and where ever possible parked such that dust does not drift towards local residential properties. On leaving the site vehicles are suitably covered to prevent waste materials such as manure dust from blowing off the moving vehicles.
- As with all elements emitted from a poultry unit PM10 levels will vary throughout the seasons as ventilation rates increase and decrease. It is estimated that summer ventilation will dilute down the dust emitted per unit of air emitted and thermal differences would carry any emitted dust higher into the atmosphere for improved dispersion.
- The Cubley site stocking density is continually monitored both by the site owner/operator and also by independent external auditors. During the winter months poultry buildings of this design house a target stocking density of no more than 36kg/M², this is the maximum present at any one time, usually just before depletion and is below the UK code of practice recommended maximum of 38 kg/ M² (increasing to 39kg/M² in

2010). During summer months houses of the design at Cubley are down stocked due to the risks of high external ambient temperatures combined with high relative humidity's leading to heat stress which can kill chickens. The aim is to only stock the buildings with the number of birds that can be successfully cooled with ambient ventilation present during hot periods. This down stocking process can be anything upward of a 10% reduction in bird numbers for up to 3 of the 7 cropping cycles per annum and in turn has a significant effect on reducing dust and ammonia emissions from the unit on an annual basis.

- The air monitoring report states that some of the highest PM10 readings occurred during periods when birds are thinned (part depopulated). Whilst some production techniques do not require a thinning process and simply wait and clear the birds in one go this is not currently available to Mr Vernon from this site as birds removed at thinning are an essential part of Mr Vernon's customers portfolio. Under the new management vehicles minimise the stopping near to the site boundary close to the residential property and now role straight past this area without any undue hesitation.
- During summer periods ventilation can be increased by upwards of 5 fold, greatly increasing dilution of ammonia within the buildings and also being a period when litter is often drier due to increased ventilation for bird cooling and hence ammonia levels are reduced further.
- Mr Clive Vernon, as the current owner of Cubley Poultry Site, is committed to working with the Environment Agency and local residents to ensure that the impact his business has on the immediate and outlying environment is minimal and within all recommended health and environmental guidelines.