

Dust and Bioaerosols Risk Assessment

This Dust and Bioaerosols Risk Assessment was undertaken following the methodology in Sector Guidance Note EPR 6.09 – How to comply with your environmental permit for intensive farming – Appendix 11 - Assessing dust control measures on intensive poultry installations (Version 1, March 2011).

Dust from poultry houses mainly originates from feathers, skin particles and used litter, and to a lesser extent from feed, bedding, micro-organisms and fungi.

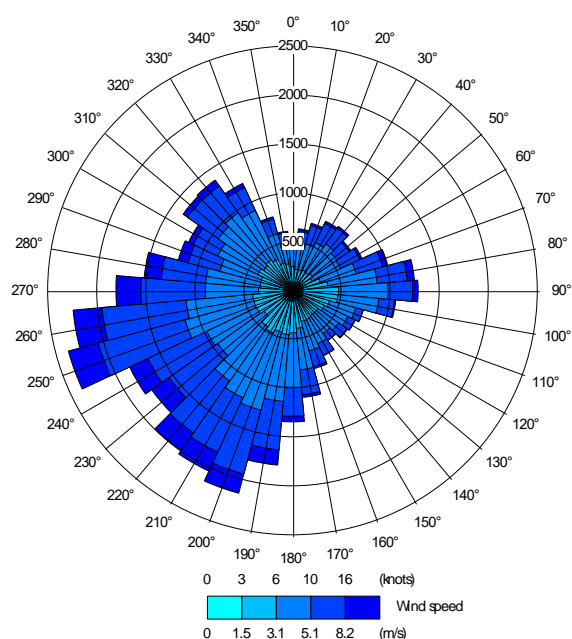
A dust and bioaerosol management plan is required where there are sensitive receptors within 100m of the Installation.

The following receptors are present within 100m of the installation boundary:

Receptor	Location	Distance from boundary (metres)	Grid Reference	Direction from installation
Dwelling	Conifers, Silvertoft Lane	41m NE	TF 29590 41703	NE

A robust complaints system is in place to record and investigate dust, noise and odour complaints. Please refer to document titled “Noise Management Plan” and “Odour Management Plan”. At the time of this application there had been no known dust or odour complaints made against the existing poultry operation.

Below is a wind rose from weather stations at RAF Coningsby, approximately 15km north west of the installation.



This wind rose over the period 2016-2020 shows the prevailing wind direction comes from the west/south west direction, which would be expected to direct any dust or odour towards the north east.

The following table sets out:

- Likely sources of dust and bio-aerosols arising from a poultry rearing farm.
- The procedures and processes employed by Stonegate Agriculture to reduce or prevent dust and bio-aerosols emissions.

At poultry units operated by Stonegate Agriculture Ltd. the preference is for dust control at source rather than relying on control at exhaust. This reduces energy consumption and minimises waste streams.

Control of dust

Dust source	Method	Actions taken to reduce	Achieved
Poultry feed	• Dust from silos	Covers are placed over silo feed pipes when not in use.	Yes
	• Dust extraction in feed mill areas	No milling undertaken on site.	Yes
	• Storage of feed	Use of covers for feed containers.	Yes
	• Feed spill control	Collection of any feed spill is undertaken to avoid dust being generated.	Yes
	• Form of feed	Feed delivered in pre-mixed form according to age of laying hens.	Yes
	• Fat content	Fat content in feed matched to nutritional requirements and binds dusty ingredients together.	Yes
	• Feed ingredients	Feed ingredients are wheat and barley with some maize and soya. Use of approved and accredited feed supplier with dedicated feed vehicles, and sealed feed systems.	Yes

	<ul style="list-style-type: none"> Feeding method 	<p>Automatic feeders with screw augers are provided which are covered to prevent loss of feed and drop into feed pans to reduce release of dust.</p> <p>Hand feeding impractical with large numbers of birds.</p>	Yes
	<ul style="list-style-type: none"> Over administration of feed to birds 	<p>Feed is metered carefully dependent on bird numbers to prevent overfeeding. This avoids spilled feed crushed on the floor into particles which become airborne.</p>	Yes
Bedding Material	<ul style="list-style-type: none"> Type of bedding 	<p>Soft whitewood shavings are used, for cleanliness and pathogen control reasons, in preference over straw, but also results in less dust.</p>	Yes
	<ul style="list-style-type: none"> Treatment of bedding 	<p>Wood shavings have dust removed prior to delivery. No further treatment is required.</p>	Yes
	<ul style="list-style-type: none"> Amount of bedding 	<p>Deep bedding is applied to provide effective floor coverage and environment for laying hens. The aviary system allows the birds to roost and lay away from the litter, further reducing disturbance of the litter.</p>	Yes
	<ul style="list-style-type: none"> Application of bedding 	<p>Plastic wrapped bales delivered directly into housing. Applied by vehicle and manually with rakes. No blowing or augering required.</p>	Yes
	<ul style="list-style-type: none"> Age of bedding 	<p>Shavings are applied before stocking and remain in place until destocking (c. 58-60 weeks). Temperature and humidity control prevent overdrying. Additional shaving applied to areas as required.</p>	Yes
Litter systems	Cages not applicable to pullet rearing		
Ventilation	<ul style="list-style-type: none"> Increasing ventilation 	<p>Ventilation is computer controlled using manufacturer's specifications. Medium velocity side wall fans prevent dust from building up in the poultry house and from depositing on the roof. The correct operation of ventilation systems will be verified should odour or dust complaints be received. The correct operation of ventilation systems will be verified should odour or dust complaints be received.</p>	Yes

	<ul style="list-style-type: none"> Increasing humidity 	Humidity is automatically controlled through ventilation and heating to keep litter appropriately dry. No misting systems are present. Too high humidity can lead to wet litter and disease.	Yes
House cleaning	<ul style="list-style-type: none"> Good management 	<p>Rigorous cleaning regime to remove all litter and sanitise between flocks, to comply with biosecurity protocols also reduces potential for litter to remain as dust.</p> <p>Manure/used litter is stored in the rearing shed until depopulation and is moved by excavator to a trailer, which is covered and removed from site promptly, reducing airborne dust.</p>	Yes
	<ul style="list-style-type: none"> Equipment cleaning 	<p>Areas where dust can settle in the poultry houses (such as on top of equipment) are cleaned between flocks.</p> <p>Fans/ventilation outlets are pressure washed during clean downs operations and dusty water is retained within the poultry house.</p>	Yes
Genotype	<ul style="list-style-type: none"> Animal activity 	Birds are stocked from 15-16 weeks old and destocked by 76 weeks old (58-60 weeks at the installation). Adult birds are expected to have reduced feather drop than young birds. In any case, this is not excessive and does not generate significant dust.	Yes
	<ul style="list-style-type: none"> Feather crunchiness 	Modern hybrid birds are bred for egg laying but also exhibit desirable characteristics relating to feather drop/moulting.	Yes
Number of birds	<ul style="list-style-type: none"> Reduced flock numbers 	<p>Bird density within the houses is maintained at levels in compliance with Defra welfare codes.</p> <p>This allows the design of the feeding system to provide access for the correct number of birds, minimising feed spillage into the litter.</p>	Yes
Crop cycle length	More appropriate to broiler rearing. Reducing crop cycle length not applicable to rearing hens for laying as they need to be at the suitable age for laying.		

Litter Removal

Removing litter is acknowledged as having the greatest potential for releasing dust, bioaerosols and odour. Litter is only removed once at the end of every growing cycle approximately 2.7 times each

year. This is based on destocking every 16 weeks and taking 14 days to collect the chickens from all the houses.

Professional contractors remove all litter and wash the poultry houses, typically within one day of destocking, and not usually more than 3 days (e.g. destocking on a Friday and cleaning out on Monday), and cleaning out all the houses is scheduled to take place as close to destocking as possible and for short duration to minimise aerosol generation.

Removing litter and cleaning on weekdays avoids causing weekend nuisance at sensitive receptors which may be downwind of the site. While no nearby sensitive receptors have been identified, Stonegate Agriculture Ltd. continues this practice at all of its sites to maintain good relations with neighbours.

Stonegate Agriculture Ltd. relies on control of dust at source; control of exhaust methods are not installed, i.e. dust filtration. Instead, opening inlet vents to provide natural ventilation and using high velocity roof ventilation fans while depopulating poultry houses is accepted industry best practice, as this:

- limits worker dust exposure.
- maximises atmospheric dispersion
- minimises roof dust deposition, preventing rainwater contamination.

Litter is removed from the poultry house floors using a front end loader to shovel the bulk of the litter carefully and directly from the floor into a waiting trailer positioned outside the doors on hardsurfacing which drains to the above ground dirty water tank. This avoids double handling outside and tipping from minimal height. All collection vehicles and/or trailers are kept covered unless loading and depart the site immediately once full.

Animal and litter collection vehicles may drive past some sensitive receptors such as houses, but all loads are covered, and this is a temporary situation. The installation is located in a rural area of Lincolnshire where poultry and other agricultural activities are widespread.

Poultry house doors are kept closed and locked following destocking and litter removal, and outside working areas swept clean at the end of each day where litter has been present.

Dust Monitoring

Weekly visual checks for problematic levels of dust will be undertaken by the site manager. This will include a visual check of the building roofs (although side fans are in operation rather than roof fans) around the ventilation systems and also on areas of equipment where dust could settle, e.g. silos and pipework, site vehicles.

A weekly check sheet will be completed to record the visual inspections and any follow up action required. These records will be stored in the farm office.

Dust Response

In the event that problematic dust levels are identified in the weekly checks, or should a complaint be made, the following response measures will be taken:

Event	Response	Timescale
Feed spillage during delivery	Feed delivery personnel will stop delivery and sweep up	Immediately

	spillage for bagging and disposal	
Feed spillage due to broken pipework	Site personnel will sweep up spillage and can switch off feed system if required. Hand feeding can be implemented for short periods if necessary.	Immediate clear up of spillage. Prompt contact with repair company.
Fans operating incorrectly	Should a fan stop working, repair will be requested promptly.	Immediately
Dust from spreading fresh shavings	Ensure that dust free shavings have been supplied and adjust ventilation rates as appropriate.	Immediately
Dust from manure/litter clearance	Ensure adequate ventilation rates to direct dust away from sensitive receptors	Immediately

Review of this plan

This plan will be reviewed by management at least annually or following receipt of dust complaints.

Dust Check Record Form

This record must be made weekly. Tick to record that a visual dust check of all building roofs and silos has been carried out. If any problematic dust is detected, record the findings and follow up actions. Implement checks on feed systems and ventilation fans.

Year:							
Dust check carried out? (tick)		Dust Detected: Follow-up actions		Dust check carried out? (tick)		Dust Detected: Follow-up actions	
1				27			
2				28			
3				29			
4				30			
5				31			
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