Dust & Bio-aerosol Management Plan for Badcocks Farm Poultry Unit

Poultry dust may vary in composition from pure wood dust to a complex mixture of organic and inorganic particles, faecal material, feathers, dander (skin material) and bioaerosols – dust particles containing living organisms including mites, bacteria, fungi and fungal spores and endotoxins, depending on the type of birds, the work activity, and the point in the growing or production cycle.

The Environmental Risk Assessment submitted with the application for a bespoke permit for rearing broiler chickens and directly associated activities including a mobile macerator identified sources of dust with minor potential to cause annoyance, although no significant increase in dust is to be expected result of changing from rearing turkeys to broilers. Created this dust management plan (DMP) to support the overall environmental management system in place. The overriding principle is to ensure day-to-day activities are carried out in accordance with the plan so there is no reasonable cause for annoyance to people outside the installation boundary. No cause for annoyance is expected; the operator has no record or recollections of any dust concerns or complaints and will continue to foster good relations with neighbours.

Actions and contingency actions in this DMP are best available techniques (BAT) in accordance with Best Available Techniques (BAT) Reference Document 2017, Environment Agency (2010) EPR 6.09 Sector Guidance Note; How to comply – Intensive Farming v2 Appendix 11 Assessing dust control measures on intensive poultry installations, Health and Safety Executive (2012) Controlling exposure to poultry dust, guidance for employers, and DEFRA (2018) Code of practice for the welfare of meat chickens and meat breeding chickens, updated 25 January 2024, and DEFRA (2005) Heat Stress in Poultry, Solving the Problem.

Identified sensitive receptors within 100m of the installation boundary (including a dwelling for a farmworker in control of the installation) from a desk top study shown in Table 1 and Figure 1: -

Table 1. Badcocks Farm Poultry Unit sensitive receptors within 400m

Nº	Receptor	Address	NGR	Direction	Distance from boundary metres
1	PROW	PROW - Byway, Saling Road, Stebbing, Dunmow, CM6 3TD	TL 6808 2489	E	0
2	Residential	Saling Road, Stebbing, Dunmow, CM6 3TD	TL 6799 2483	S	5
3	Residential	Saling Road, Stebbing, Dunmow, CM6 3TD	TL 6804 2484	S	30
4	Residential	Saling Road, Stebbing, Dunmow, CM6 3TD	TL 6805 2484	S	30
5	Residential	Saling Road, Stebbing, Dunmow, CM6 3TD	TL 6806 2485	S	35
6	Residential	Saling Road, Stebbing, Dunmow, CM6 3TD	TL 6807 2481	S	70
7	Residential	Saling Road, Stebbing, Dunmow, CM6 3TD	TL 6809 2479	S	95

Distances measured on government website at magic.defra.gov.uk

Fig 1. Badcocks Farm Poultry Unit locations of sensitive receptors within 100m

Wind direction is defined as the direction from which the wind is blowing. According to the Met Office Eastern England climate report - as Atlantic depressions pass by the UK the wind typically starts to blow from the south or south-west but later comes from the west or north-west as the depression moves away. Directions between south and north-west account for the majority of occasions and the strongest winds nearly always blow from this range. Averaged across the year the prevailing wind direction is from the southwest.

Residential dwellings have high sensitivity and reasonably expect enjoyment of a high level of amenity, and where people would reasonably be expected to be present continuously, or at least regularly for extended periods. Public rights of way (byways) likely to have low sensitivity – where the enjoyment of amenity would not reasonably be expected, or there is transient exposure, where people would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use. Sensitive receptors will potentially be exposed to dust and bioaerosols when the wind blows from the northwest. The following table sets out: -

- Sources of dust & bioaerosols from a typical intensive poultry unit
- Actions taken at Badcock Farm Poultry Unit to prevent or minimise dust levels
- Contingency actions to limit exposure to elevated dust and bioaerosol emissions beyond the installation boundary.

Table 2. Routine actions and contingency actions to minimise dust and bio-aerosols and risks at Badcocks Farm Poultry Unit

Source of dust & bio-aerosols	Potential risks and problems	Routine actions to minimise dust & bio-aerosols and risks	Contingency actions to minimise dust & bio-aerosols & risks
Dust from manufacture & feed selection	• Form of feed • Feed ingredients • Milling & mixing	• Use pelleted feed in a dry feed system, crumbled for chicks up to 12 days of age. • Feed broiler chickens ad-libitum. • Feed specifications are prepared by the feed compounders nutrition specialist. • Feeds supplied from mills in certification schemes and only use approved ingredients. • No feed manufacturing, milling, or mixing on site.	
Dust from feed delivery & storage	• Feed storage • Feed delivery • Feed spillage	• Package enclosed feed silos, hoppers and augers will contain most dust and odour in operation. Use pan feeders which create less dust than track feeders. • Cyclone dust separators capture dust during delivery and routinely checked and emptied by farmworkers. • Feed delivery vehicles always covered to minimise any dust and odour from being released. • Blow feedstuffs over as short a distance as possible to minimise creating dust. • Silos and feeding equipment protected from collision damage from reversing vehicles by careful siting relative to traffic flows with kerbs or barriers as required. • Deliveries monitored by drivers or farmworkers and any spillage will be cleared up immediately. • Automated or mechanical equipment essential for the health and well-being of the birds must be inspected by farmworkers at least once per day to check there is no defect.	Trigger • Feed spillage outside • Fault with the feeding equipment spillages inside. Timeframe for implementation • Immediate/same day Contingency action • Spillage will be cleared up immediately into bags by drivers or farmworkers and stored in a secure place. • Uncontaminated feed will be used but feed which is contaminated is waste - for disposal in trade waste bin or skip to be removed on the next scheduled emptying or changeover. • If there isn't a large enough bin or skip onsite, farmworkers will need to contact the contractor for emptying or changeover sooner. • Equipment defects must be rectified immediately, same day by farmworkers, operators' engineers or professional contractors. Duration of action • Achievable same day, bins or skips to be emptied.

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Source of dust & bio-aerosols	Potential risks and problems	Routine actions to minimise dust & bio-aerosols and risks	Contingency actions to minimise dust & bio-aerosols & risks
		• Planned preventive maintenance by operator's engineers or professional contractors in accordance with manufacturer's instructions and keeping records of work.	<u>Cessation of action</u> • Spillage cleared up for use or secured for disposal. • Farmworkers inspect the contingency actions have been successful and any contaminated feedstuffs have been secured for offsite for disposal.
Dust & bioaerosols from ventilation fans	• Dust may contain large amounts of bird proteins and mite residues with high risk of respiratory sensitisation for workers inside poultry houses. • Increasing ventilation may reduce airborne dust inside the house but will be released outside.	• Forced ventilation system designed & installed by professional contractor. • Optimised discharge conditions of exhaust air from houses using a combination of techniques to disperse ammonia, odour, dust and bioaerosols quickly - maximised outlet heights, exhaust air above roof level through the ridge, maximised vertical outlet velocity and uncapped outlet cones. • Ventilation is automatic, computer controlled to provide sufficient fresh air appropriate for the age of the birds, without draughts, and remove excess moisture to keep the litter and droppings dry and friable under all weather & seasonal conditions. • Automated or mechanical equipment essential for the health and well-being of the birds must be inspected by farmworkers at least once per day to check there is no defect. • Remove build-up of settled dust from fans, ceiling and feeding equipment, etc after destocking.	<u>Trigger</u> • Defects in ventilation equipment. <u>Timeframe for implementation</u> • Immediate/same day <u>Contingency action</u> • Defects must be rectified immediately, same day by farmworkers, operators' engineers or professional contractors. <u>Duration of action</u> • Normally achievable same day. <u>Cessation of action</u> • Farmworkers inspect the contingency actions have been successful and ventilation equipment is working normally.

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Source of dust & bio-aerosols	Potential risks and problems	Routine actions to minimise dust & bio-aerosols and risks	Contingency actions to minimise dust & bio-aerosols & risks
Gable end fans	• Dust released outside close to ground level. • Exposure at the sensitive receptor will potentially be increased. • Running fans continually day & night • Expect frequency & duration of use in the future will increase owing to climate change.	• External deflectors on fans direct the exhaust air and dust on to the ground. • Switch on fans infrequently. When chickens are nearly fully feathered & start exhibiting uncomfortable feeling hot behaviours e.g. lifting their wings and exposing more of their bodies to get rid of excess heat, and panting. Never used for brooding chicks or young birds, which would be chill stressed. • Switch on fans in warmer weather, most likely in June, July & August or in a heat wave (Met Office definition for a UK heat wave is an extended period of hot weather for three consecutive days with daily maximum temperatures meeting or exceeding the heat wave temperature threshold of 27^{o}C for Essex). • Fans could be in use for approx. seven days near the end of a rearing period. Based on production cycles of nearly seven weeks, fans might be switched on near the end of two rearing periods so up to fourteen days or more per year. • Switch off fans immediately as soon as they are not needed. When daytime outside temperature goes down and chickens stop exhibiting uncomfortable feeling hot behaviours or have been depopulated. • Never used when removing litter or washing out.	

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Dust issues with litter quality	• Type of bedding • Treatment of bedding • Application of bedding • Amount of bedding • Age of bedding	• Use proprietary blends of dust extracted chopped straw/wood shavings or chopped straw to provide absorbent bedding. Dust extracted straw/wood shavings are commercially available, cost effective and readily disposed of end of each production cycle. • According to How to comply sawdust and flax straw have been found to produce less dust than wheat or barley straw, but neither are normal UK industry practise for intensive rearing broiler chickens. • Bedding supplied in plastic wrapped bales. • Bales unpacked and spread by hand to minimise and contain any dust inside the house. Spread evenly over entire floor area prior to eggs or chicks being delivered. • Dust filtration not installed but closing doors, opening vents and switching on extraction fans to create effective airflow is industry best practise to limit workers exposure to dust during litter spreading. • Use new litter every time, never reuse litter.	
Dust issues with bird activity	• Increased flock numbers • Birds exhibiting higher activity levels create elevated levels of dust in the air.	• A systematic inspection of all the birds must be undertaken at least twice each day at appropriate intervals by farmworkers. Young birds should be inspected at least three times a day. • Farm workers should walk close enough to see the birds clearly and for them to be disturbed and so move away to identify any bird that is sick, injured or weak for appropriate action.	

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Source of dust & bio-aerosols	Potential risks and problems	Routine actions to minimise dust & bio-aerosols and risks	Contingency actions to minimise dust & bio-aerosols & risks
Dust issues during destocking	• Ventilation fans • Open doors • Increasing ventilation will reduce airborne dust inside but more dust will be exhausted outside.	• Expect to be destocking houses not less than 14 days every year. Abattoir can take the smaller and larger birds in as little as a single day. • Ventilation used to minimise airborne dust in the houses for workers & maintain sufficient air changes and temperature for chickens throughout the process. • Minimise workers exposure to dust by keeping doors closed and switch on more fans to create effective airflow is best practise. Release and disperse dust and odour via the high velocity extraction fans. • Catching takes place in low light to keep bird's calm. • Birds caught with care and lifted directly into transport modules inside houses, modules covered to protect chickens from weather conditions during transport, also contains dust and odour, but expect them to be uncovered in warmer weather. • Loaded trailers promptly moved offsite. • HGVs pass-by receptors but takes only seconds.	
Dust issues removing litter	• Ventilation fans • Open doors • Increasing ventilation will reduce airborne dust inside but more dust will be exhausted outside	• Must remove litter after destocking. • Use new litter every time, never reuse litter. • Expect to be removing litter not less than seven times every year and from all the houses in less than a day. • Contract service established to remove litter as soon as possible, normally within a day of destocking, not more than 3 days, e.g., destocking on Friday and remove litter on Monday. • Remove litter in normal daytime 07.00-23.00hrs in working week (Monday to Friday and Saturday	

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Source of dust & bio-aerosols	Potential risks and problems	Routine actions to minimise dust & bio-aerosols and risks	Contingency actions to minimise dust & bio-aerosols & risks
	• Considered to be the dustiest activity	morning but exclusive of public & bank holidays), in accordance with How to comply. • Use ventilation to maximum effect to reduce workers exposure during litter removal. Use combination of opening or closing doors, opening vents for natural air dilution, and switching on fans to create required airflow in accordance with HSE guidance. • Remove build-up of settled dust from fans, ceiling and feeding equipment, etc with compressed air before washout, and helps reduce the quantity of dirty water. • Use front end or skid-steer loader to push bulk of litter into a large heap the length of house to avoid double handling and minimise time loading into trailers. • Doors open on to waiting trailers parked outside as close as possible. • Trailers will be kept covered at all times except during loading. • Export litter offsite for power generation or land-spreading. Latter will be under control of a separate farming business & with a written agreement in place. • When work is finished switch off fans and keep houses closed & locked. • No used litter will be stored onsite.	

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Washout	• Ventilation fans • Open doors • Considered to be the least dusty activity	• Expect to washout seven times every year and to be completed as quickly as possible – probably in as little as a single day. • Professional contractor's washout houses as soon as possible, normally within one day of destocking, & not normally more than 3 days e.g. destocking on Friday & washout on Monday. • Washout in normal daytime 07.00-23.00hrs in working week (Monday to Friday and Saturday morning but exclusive of public & bank holidays), in accordance with How to comply. • Keep roadways, concrete apron, dirty water grates and drains clear of litter, etc to avoid backing-up, pooling, or over spilling into surface water drains or on unmade land. • Keep poultry houses closed & locked after washout.	
Monitoring	• Wind direction • Sensitivity likely to increase in warm weather when people want to enjoy the amenity of their gardens and have windows open	• Farm Manager responsible for site tour every day including perimeter check for any abnormal elevated dust level, especially any with the potential to cause annoyance at any sensitive receptors.	Trigger • Abnormal, extraordinary, elevated dust levels. Timeframe for implementation • Immediate, same day. Contingency action • Check routine actions to minimise dust are being adhered to. • Inform people at sensitive receptors and anyone else likely to be seriously affected, what has been done or still needs to be done to reduce dust levels and duration with timescales. Duration of action

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			• Normally achievable same day, next day. Cessation of action • Continue checking at perimeter, until dust levels are reduced and back to normal. • Record events and actions in farm diary.
Complaint	• Elevated level of annoyance • Slow response	• Farm Manager will be responsible for investigating any complaint.	Trigger • Complaint reported by the public, the Environment Agency or local authority. • Complaint reported on Saturday or Sunday by email from the Agency or local authority, not considered likely from anywhere else. Timeframe for implementation • Immediate, as soon as possible on opening email. Contingency action • Investigate if alleged dust can be substantiated. Even if no longer apparent investigation must still be carried out and recorded same day. Use the dust compliant report and establish: - • Time event occurred, duration, description of dust. • Activities taking place onsite at time of complaint. • Any dusty activities taking place offsite in the vicinity. • Check actions, contingency actions being adhered to and any change to standard operating procedure. • Record details of investigation and action taken on the dust complaint report. • A copy must be sent to the Agricultural Manager and Environment Manager immediately.

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			• Must be retained onsite and available for future reference, or inspection with the Agency. Duration of action • Investigation likely achievable same day, next day. Cessation of action • Notify complainant and anyone else likely to be seriously affected, and the Environment Agency or local authority as required, same day or as soon as possible of the result of the investigation and corrective action or what still needs to be done with timescales.
Review	• New issues • New actions	• Environment Manager responsible for annual review of this plan or update sooner where a substantiated complaint results in making changes to related issues procedures, or any routine or contingency actions.	

Change history	Date	Name
Last updated	02/12/25	Karl Collett
Last review		
Next review		
02/12/25 Created mandatory plan to apply for bespoke permit for rearing broiler chickens, to be reviewed twelve months after bringing the new houses into operation.		

Dust Complaint Report

Date	
Reference number	
Name and address of complainant	
Telephone number of complainants	

Time and date of complaint	
Date, time, and duration of offending dust	
Weather conditions *(e.g., dry, rain. Fog, snow)*	
Wind strength and direction *(e.g., light, steady, strong, gusting)*	
Callers' description of dust	
Has the caller any other comments about the offending dust?	
Any other previous known complaints relating to the installation (all aspects, not just dust)	
Any other relevant information	
Potential dust sources that could give rise to the complaint	
Operating conditions at the time offending dust occurred	
Actions taken	
Final outcome	
Complainant visited	
Complainant contacted with explanation Yes/No Date By whom	

Form completed by	Date:	Signed: