

High Risk Odour Management Plan

The following plan has been prepared as part of the EPR permit application.

The following tables highlight the likely sources of odour arising from poultry broiler production at Thorngrove Farm

Actions and measures are listed that will prevent where possible or minimise odour emissions at Thorngrove Farm

Site plan shows all material storage areas and potential odour emission sources.

Plan to be reviewed every year from permit issue date, prior to any major changes to operations (to ensure effectiveness) or following any complaint, any changes to OMP or other management plans to be documented dated and signed and Area Officer notified.

Actions and preventative measures in OMP referenced from Odour Assessment Document and Fugitive Emissions Assessment in line with the H1 Risk Assessment, to be implemented in conjunction with the following key documents;

Emergency Plan

Technical Standards

Routine Maintenance Schedule

Key responsibility for the OMP and the referenced plans are the Operator or deputies who have been briefed on the requirements.

Example Odour Complaint form attached.

Introduction

There are sensitive receptors around Thorngrove Farm Poultry Unit. The prevailing wind is from the south west this helps to minimise Odour to sensitive receptors that are located around the site with the exception of those located to the North east. The sighting of main operational activities will be taken into consideration, sighting where practical away from closest sensitive receptors to minimise impacts of them. Existing houses 1 – 4 have roof fan outlets which aid dispersion of odour with gable fans for hot

weather cooling. The proposed houses 5 – 8 will be tunnel ventilated with air being drawn in the side walls at the eastern end of the houses and exiting at the western gable through a dust baffle misting system reducing odour laden dust particulates.

Formal odour monitoring will be conducted weekly by persons not directly involved with the broiler production, this will be done at points marked on the sensitive receptor map. Monitoring procedure is given in a separate document.

The table below lists all sensitive receptors with 400m.

Receptor Name	Description	Distance	Orientation	National Grid Reference
Residential 1	Residential	309m	North east	382312,260268
Residential 2	Residential	85m	North	382207,260097
Residential 3	Residential	180m	North	382147,260203
Residential 4	Residential	222m	North	382172,260233
Residential 5	Residential	250m	North	382003,260271
Residential 6	Residential	257m	North	381972,260266
Residential 7	Residential	301m	North west	381892,260254
Residential 8	Residential	320m	North west	381854,260254
Residential 9	Residential	400m	North west	381766,260276
Residential 10	Residential	354m	West	381716,260058

Residential 11	Residential	353m	South west	381904,259376
Residential 12	Residential	360m	South west	381932,259351
Residential 13	Residential	367m	South west	381950,259332
Residential 14	Residential	383m	South west	381987,259298
Residential 15	Residential	388m	South west	381995,259292
Residential 16	Residential	190m	North east	382250,260155
Residential 17	Residential	318m	North	382047,260341
Residential 18	Residential	306m	North	382014,260321
Residential 19	Residential	284m	North	382040,260311
Residential 20	Residential	345m	North	382020,260360
Residential 21	Residential	346m	North	381970,260351
Residential	Residential	334m	North Northwest	381966,260350
Residential	Residential	316m	North	382040,260349
Residential	Residential	288m	North	382035,260307
Residential	Residential	270m	North Northwest	381962,260283
Residential	Residential	255m	North Northwest	382005,260266
Residential	Residential	181m	North	382144,260203
Residential	Residential	334m	North East	382335,260276
Residential	Residential	358m	West	381697,260056

Residential	Residential	122m	North East	382186,260128
Residential	Residential	125m	North East	382191,260127
Residential	Residential	127m	North East	382198,260125
Residential	Residential	129m	North East	382203,260125
Residential	Residential	130m	North East	382208,260123
Residential	Residential	132m	North East	382211,260121
Residential	Residential	134m	North East	382216,260120
Residential	Residential	136m	North East	382223,260119

Odour Related Issue	Potential Risks and Problems	Actions taken to minimise odour and odour risks at Thorngrove Farm	Completion date
Broiler Production	Odour levels	Twice daily olfactory checks coinciding with stock inspections (normally 07.00-10.00 hrs and 16.00-18.00hrs) any abnormalities recorded and investigated – see Thorngrove Farm contingency plan and as per routine inspection and maintenance schedule.	Olfactory checks at installation boundary twice daily

Manufacture and selection of feed	<p>Milling and mixing of compound feeds. The use of poor quality and odorous ingredients. Feeds which are 'unbalanced' in nutrients, leading to increased excretion and litter moisture and emissions of ammonia and other odorous compounds to air.</p>	<p>No on-site milling and mixing. Feed specifications are prepared by the feed compounder's nutrition specialist. Feed is supplied only from UKAS accredited feed mills, so that only approved raw materials are used. Protein is reduced in accordance with SGN EPR6.09 'How to comply with your environmental permit for intensive farming' 'How to comply with your environmental permit for intensive farming'.</p>	In place

<p>Feed delivery and storage</p>	<p>Spillage of feed during delivery and storage. Creation of dust during feed delivery.</p>	<p>Feed delivery systems are sealed to minimise atmospheric dust. Any spillage of feed around the bin is immediately swept up. The condition of feed bins are checked daily so that any damage or leaks can be identified. Damaged leaking bins not used until repairs effected, repairs documented. Feed deliveries are monitored to avoid dust and spills.</p>	<p>In place</p>
<p>Ventilation and heating Systems/Dust</p>	<p>Inadequate air movement in the house, leading to high humidity and wet litter</p> <p>Inadequate system design, causing poor dispersal of odours. Extraction fans located close to sensitive receptors.</p> <p>Dust</p>	<p>Use of gable extraction fans on the new houses with all exhaust air passing through a misting system within a baffled area which will remove a high percentage of dust particles reducing both bioaerosol and odour emissions. Ventilation systems checked prior to cycle commencement by qualified electrician who will provide 24hr breakdown cover, any defective fan isolated for repair and alternative fan used. Repair documented. The ventilation and heating system is regularly adjusted to match the age and requirements of the flock. The ventilation system is designed to efficiently remove moisture from the house. Indirect heating system giving lower humidity levels. Humidity recorded daily and maintained in the range of 55 – 65% keeping a balance of dry litter and avoiding dust production. Stock inspections carried out by trained staff to avoid panicking birds creating dust.</p>	<p>In place</p>

Litter management	Odours arising from wet litter (see above).	<p>Controls on feed and ventilation (see above) help to maintain litter quality.</p> <p>Additional controls include:-</p> <ul style="list-style-type: none"> Use of nipple drinkers with drip cups to minimise spillage. Daily checks of drinker height and pressures to avoid capping. Insulated walls and ceilings to prevent condensation. Concrete floors to prevent ingress of water. Stocking levels at optimum to prevent overcrowding. Use of veterinarian bespoke health plan. 	In place
Carcase disposal	<p>Inadequate storage of carcasses on site</p> <p>Carcass Incinerator</p>	<p>Carcasses placed into plastic sealed bags, stored in sealed, locked, shaded and vermin proof freezers away from sensitive receptors. Frequent (3/5 times per week) Incineration of carcasses. Carcass bins checked daily for integrity, damaged containers will not be used and replaced. Containers washed and disinfected with washings directed to dirty water tanks. Licensed incinerator, regularly serviced, incinerator ash stored securely and sent off site with surplus litter at end of cycle.</p>	In place
House clean out	<p>Creation of dust associated with litter removal from houses</p> <p>Use of odorous products during cleaning.</p>	<p>Houses sealed immediately following destocking. Minimum ventilation in operation during de littering</p> <p>Litter carefully placed into trailers positioned close to doors.</p> <p>Trailers sheeted before leaving fill position. Only DEFRA approved and suitable products used. Chemical containers triple washed at point of use.</p> <p>Wash water tank levels monitored during washing and emptied as required to prevent overflow.</p>	<p>In place</p> <p>In place</p>

		<p>Washing operations stopped if free board in SSAFO compliant tanks are reached, not resumed until tanks emptied.</p> <p>Litter out carried out within 24 hours following destocking per house (72 hours total for site)</p>	
Used litter	<p>Storage of used litter on site.</p> <p>Transport of litter and land spreading.</p>	<p>Litter transported off site immediately.</p> <p>All trailers sheeted before leaving fill position.</p> <p>Avoidance of double handling.</p>	In place
Washing operations including vehicles	Loss of dirty water to land or watercourse	<p>Use of specialist contractors for washing operations.</p> <p>Upper deck houses 6 & 8 have impermeable floors sloping to drains at the eastern ends which pipe the dirty water directly to the wash water tanks. This will prevent leaching or draining through to the lower decks.</p> <p>Bespoke terminal hygiene program followed, detailing quantities of water and chemical dilution rates.</p> <p>Exhaust vents washed under low pressure to minimise both dust and the release of dirty water to poultry house roofs.</p> <p>Key staff monitoring washing operations ensuring effective drainage to dirty water tanks.</p> <p>Yard areas sloped to drains ensuring all yard washings directed to dirty water tanks preventing any run off.</p> <p>Dirty water tanks monitored during wash down to maintain freeboard.</p> <p>Washing operations completed within three days, commencing immediately following de littering.</p> <p>Vehicle washing at designated wash point, washings directed to dirty water tanks</p> <p>All sediment traps and drains cleaned both before and after washing operations with any sediment</p>	In place

		sent off site with surplus litter. Dirty water system flushed with clean water prior to dirty water tanks being emptied, tanks emptied immediately following washing has ceased.	
Fugitive emissions	Leaks to doors, bin pipes, feed bins, fuel and chemical storage	Checks to feed storage and fill pipes as per routine maintenance schedule. Fuel oil in approved bunded storage tank.	In place
Dirty water management	Standing dirty water during the production cycle or at clean out. Application of dirty water to land.	Working areas around houses are concreted and kept clean during production cycle. At clean out dirty water from houses together with lightly contaminated yard wash is directed to the underground storage tanks, before being removed off site.	In place
Abnormal operations	Water leak/pipe failure Bird health/sickness	Water consumption monitored daily ensuring early detection, wet area blanket covered with top up bedding material to prevent increased odour. Veterinarian contacted (24hour cover) Litter covered with fresh top up bedding to minimise increase in odour until bird health recovered. Abnormal events documented, dated and signed, appropriate plans reviewed and updated to prevent reoccurrence ie. Routine maintenance schedule, Technical standards	In place
Waste production/storage	Odour from production or storage areas	No storage or production of odorous waste on site. Waste management plan in force detailing types and quantities produced along with disposal routes. Records kept on site.	In place
Materials/storage	Potential odour source	Feed delivered into sealed vermin proof silos. Sealed delivery system into poultry houses with no milling or mixing on site. Remaining feed at end of cycle stored in sealed silo and used on subsequent cycle. 3 month shelf life of feed negating the need for	In place

		removal. Chemicals in secure bunded shed free from frost and unauthorised entry together with any veterinarian products/medicine	
--	--	---	--

The table below lists the industry check list and details measures already in place on site.

Source of Odour	Method	On Site Check	OMP Check	Comments
Broiler production operations	Location of odourous operations and emission/storage points	Yes	Yes	Operations, emission and storage points located as far as practicable from nearest receptors
OMP	Manage day to day activities in accordance with this OMP	Yes	Yes	
Feed	Reduce protein content of feed in accordance with H2C	Yes	Yes	Feed documentation recorded
	Avoid fine grinding of feed	N/A		
	Follow good housekeeping and clean up all spills	Yes	Yes	
	Feed deliveries monitored to avoid dust or spills	Yes	Yes	
	Enclosed handling, storage and on site transport	Yes	Yes	
	When moving feed, avoid drops and open chutes	Yes	Yes	
	Relocation of any odorous activities, storage or extraction points from buildings			
	Avoidance of and immediate treatment of any pests	Yes	Yes	Pest control contract in force
Litter and manure management - water	Use of nipple drinkers with drip cups	Yes	Yes	
	Daily checks of water lines to avoid leaks/capping of litter	Yes	Yes	
	Maintenance of water lines to avoid spills	Yes	Yes	
Litter – (dry matter 60% DM)	Litter/manure DM measurements	Yes	Yes	Tested weekly, records kept
	Humidity controlled with daily checks	Yes	Yes	

	Temperature controlled with daily checks	Yes	Yes	
	Choice of most absorbent bedding used	Yes	Yes	
	Addition of litter when capping occurs	Yes	Yes	As required
Ventilation	Extraction is to a single point at gable end of new housing	Yes	Yes	All exhaust air passing through a baffled area with misting system
	Extraction via roof vents	Yes	Yes	
	Use of increased fan velocity away from sensitive receptors			
	Ventilation matched to bird needs	Yes	Yes	Minimum ventilation program in place
Catching / destocking	Doors kept closed or catching curtains used when birds being removed	Yes	Yes	
	Vehicles sited away from sensitive receptors	Yes	Yes	House orientation
Cleaning out	Clean out contained to avoid odours	Yes	Yes	
	Buildings sealed during and/or after cleanout	Yes	Yes	
	Separate collection system for wash-water	Yes	Yes	
	Building ventilation reduced to a minimum during cleanout	Yes	Yes	
	Areas kerbed to avoid run-off	N/A	N/A	Concrete levels designed to prevent run off
	Clean out starts to take place within one day of destocking	Yes	Yes	
	Clean out over whole site takes place in as short a time as possible	Yes	Yes	
	Tanks are emptied regularly to prevent overflowing	Yes	Yes	Monitored during wash down
Spent litter/manure	Vehicles with litter/manure kept covered unless loading	Yes	Yes	
	Avoidance of double handling once out of the sheds	Yes	Yes	
	Vehicles sited away from sensitive receptors as far as possible	Yes	Yes	House orientation
Carcasses	Frequent collections	N/A	N/A	
	Storage containers kept cool / shaded	Yes	Yes	Stored in freezers
	Storage containers kept covered and locked	Yes	Yes	
	Leaks prevented from storage containers	Yes	Yes	
	Storage location away from sensitive receptors	Yes	Yes	
	Use of odour suppressant near container	N/A	N/A	
	Avoid production and build up stagnant water	Yes	Yes	
	Carcasses disposed of promptly on-site via incinerator, if used	Yes	Yes	
	Incinerator licensed and well maintained	Yes	Yes	
	Incinerator ash disposed of promptly and appropriately	Yes	Yes	

Infrastructure	Buildings maintained to ensure integrity	Yes	Yes	
	Use of landscaping trees, banking	Yes	Yes	
Dust	Avoid build up at any location	Yes	Yes	Levels monitored and cleaned regularly
Monitoring	Weather station installed and maintained in accordance with manufacturer's instructions but sited using the instructions in the following paper http://www.rmets.org/pdf/guidelines/aws-guide.pdf	Yes	Yes	Daily records kept
	Shed humidity recorded	Yes	Yes	
	Monitoring of complaints	Yes	Yes	
	Daily checks of surrounding area by persons who do not work regularly on the farm Proactively ask neighbours what the overall situation is and record the results	Yes	Yes	
	Ammonia spot monitoring	N/A	N/A	
	Visual (and nasal) inspections of potentially odorous activities	Yes	Yes	
Contingencies	List of 'routine' abnormalities and fixes – such as fire; electricity, gas and water failure; sick staff	Yes	Yes	
	Daily checks to detect abnormally high housekeeping odours	Yes	Yes	
	Daily checks to detect the effects from any disease	Yes	Yes	
	Monitoring of high ammonia levels and how to bring under control	Yes	Yes	
	Monitoring of high litter/manure moisture content and how to bring under control	Yes	Yes	
	Monitoring of high offsite odour (self assessed or complaints) – investigate, contact neighbours to see if it is a problem for them, consider if further actions needed	Yes Yes	Yes Yes	
	Plan in place for staff un-availability	Yes	Yes	
	Potential site specific low tech options			
	Change of feed ration	N/A	N/A	Feed rations determined by integrator
	Use of feed additives	N/A	N/A	Feed rations determined by integrator

	Stagger cycles within sheds to avoid peak odours	N/A	N/A	Determined by integrator
	Grow birds to a lower weight	N/A	N/A	Determined by integrator
	Reduce number of cycles	N/A	N/A	Determined by integrator
	Use of litter additives e.g. PLT (not an option for layer systems)			Being investigated
	Use of masking / neutralising agents	Yes	Yes	Liquid soap sprayed through misting system in existing houses 1-4 binding odour molecules, reduced odour
	Potential site specific higher tech options			
	Use of water misters to minimise evaporation and dust	yes	yes	
	Forced air drying			
	Under floor heating			
	Heat exchanger			
	Perforated flooring with forced air etc			
	Presence of elevated stack(s)			Potential installation on proposed houses 5-8 if required
	Scrubber/s present			
	Biofilter/s present			
	Indirect Heating	Yes	Yes	

Odour Contingency					
Source	Potential Cause	Trigger Factor with immediate action	Mitigation Measures to be implemented and remain operative until cessation trigger verified	Additional Mitigation	Cessation Trigger
Feed delivery and storage	Pipe or bin failure causing leak	Daily inspection Immediate action	Repair to pipe work or feed bin with immediate effect, use other bins, spills cleaned up immediately. Integrity of pipe work and bin checking frequency reviewed and updated in routine maintenance and inspection document, with changes recorded and dated.	Bin/pipework replaced within 48 hrs	Visual inspection
Carcass storage	Storage container	Daily	Carcasses removed	Collection by	Visual Inspection

and disposal/ incinerator failure	failure/damage	Inspection Immediate action	from damaged container into additional container, damaged container replaced/repared immediately.	licensed renderer within 24hrs	
Variations in stocking density/bird growth	Rapid bird growth or poor growth due to illness.	Deviation in predicted growth Action within 12 hrs	Bird growth monitored Daily Ventilation and heating controls advanced to account for additional live- weight within house. Veterinarian advice sought immediately for bird illness with additional bedding added to prevent/minimise odour release. Document and record abnormalities. Ensure stocking density complies with BAT standards and bird permit places.	Potential for early bird depletion timescale dependant on integrator	Growth rates normal
Ventilation System	Fan/system failure	System fully alarmed, Immediate	Alternative ventilation fan used, electrician call out	Mobile generator sourced within 4	Repairs effected and documented

		action		hrs	
Drinker systems	Leaky systems/pipe failure	Deviation in expected water consumption Immediate action	Any leaks isolated and repaired immediately. Wet areas covered with additional bedding to minimise odour. Arrange system integrity testing at cycle end, findings to be documented and recorded, pipe work/system parts to be replaced as per report.	Potable water tankered in within 12hrs	Normal consumption
Bird depletion	Fugitive odour release	OMP monitoring Immediate action	Minimum ventilation rate to prevent fugitive release of odour, review OMP with any changes documented and recorded and submitted to Environment Agency Area Officer for approval.	Area within houses where forklift has been operating blanket covered with shavings following bird thinning only within 2 hrs	OMP monitoring recording reduced low levels
Litter Removal	Fugitive odour release from poultry houses	Raised odour levels during OMP	Minimum ventilation rate to prevent fugitive release of	Review of littering out procedures	OMP monitoring levels returned to normal

		monitoring Immediate action	odour, review OMP with any changes documented and recorded and submitted to Environment Agency Area Officer for approval.	within 1 week Area officer notified	
Washing operations/dirty water	Odour release from drainage/storage Delay in dirty water removal Blocked drains	Raised odour levels during OMP monitoring immediate action Washing procedure monitoring immediate action Immediate action	Arrange drainage integrity testing and drain cleaning, record and document findings. Dirty water tanks filled with clean water and agitated prior to removal to remove any possible sediment/stagnation. Washing operations suspended, agreement with neighbouring farms for dirty water removal Blockage cleared	Ventilation rates increased within 1hr Licensed waste disposal contractor used within 24hrs Specialist drainage contractor	OMP monitoring levels normal Normal washing resumed after visual inspection

				called out within 24hrs	
Litter/manure	Wet litter	Raised odour levels during OMP monitoring Immediate action	Additional bedding applied to maintain dry friable litter. Initiate olfactory checks to ensure effectiveness.	Additional ventilation and heating implemented to dry litter within 4hrs	OMP monitoring levels normal

The contingency measures above, when implemented, will be verified for effectiveness by means of visual inspection of equipment or additional checks at odour monitoring points.

In the event of contingency measures being ineffective, and substantiated odour complaints persist, additional measures outlined in industry check list for high tech solutions will be explored with the agreement of Area Officer.

As a final backstop if persistent long-term odour issues cannot be rectified operator will down stock bird numbers/ close older housing until odour issue can be resolved.

Key Responsibilities

Task	Staff position responsible
Olfactory checks on site by staff	Manager
Olfactory checks on installation boundary	Persons not involved directly with poultry
Overseeing/monitoring feed deliveries	Manager/Assistant
Sweeping feed spillages	Lorry driver/ Assistant
Feed bin and pipe integrity checks	Manager/Assistant
Adjusting ventilation and heating	Manager/Assistant

Stock inspections	Manager/Assistant
Daily checks on drinker heights and pressures	Manager/Assistant
Carcase disposal	Manager/Assistant
Complaints Investigations	Manager/Operator

Complaints Procedure

'In the event of odour scores of 3, 4 or 5 being recorded the site staff will be alerted to implement contingency measures' and 'Re-testing at the monitoring points will be conducted following any actions implemented to ensure the effectiveness of recorded actions implemented' as detailed in the document 'Monitoring procedures at Thorngrove Farm'.

In the event of any strong odour detected the cause would be investigated and actions taken listed in the odour/contingency plans to cease the release. Area officer would be notified immediately, a review of the OMP conducted at the earliest opportunity with any changes communicated to Area officer for approval. Complainant will be contacted following an investigation and notified of the cause and the remedial action that was undertaken. A complaints report would be filled out and retained on site.

Odour Complaint Form

Installation Name	Date Recorded	Reference Number

Name and Address of caller:	
Tel. No. of caller	
Location of caller in relation to Installation	
Time and Date of complaint	
Date, Time and duration of Offending odour	
Callers description of odour	
Has the caller any other Comments about the odour?	

Weather conditions	
Wind strength and direction	
Any previous complaints Relating to this odour?	
Any other relevant information	
Potential odour sources that could give rise to the complaint	
Operating conditions at the time offending odour occurred	
Follow up Date and time caller contacted	
Action taken	

Amendment requirement to Odour Management Plan			
Form completed by		Signed	

Version 6 September 2019