

Summary, Technical Standards and Control Measures for
Application Variation V003 EPR/VP3138FM Friars Farm, Morningthorpe,
Long Stratton, Norfolk, NR15 2QL

July 2026

Contents

Question	Title	Page
Q2b	Non-technical summary of application	2
Q4	Summary of environmental management system	4
Q7	Emissions to air, water, and land	6
Q8a	Technical Standards	7
Q8c	Types and amounts of raw materials	24
Q10a	Basic Measures for improving how energy efficient the activities are	25
Q10c	How We Avoid Waste in Line with Council Directive 2008/98/EC	26

5 Supporting information

Non-technical Summary for the Introductory Note

Application Variation V003 to authorise the following changes:

- Extend installation boundary to enclose 0.09 hectares land east of the site to extend concrete apron to improve HGV access, create additional space for new LPG storage tanks, carcass and chemical stores including an unlined pond acting as a soakaway. Plus enclose approx. 12 square metres north-east for an unlined ditch acting as a soakaway.
- Replace the Schedule 1 activity for the rearing of poultry in a facility with a capacity for 49,000 duck places to a facility with a capacity for 181,715 broiler places.
- Addition of mobile macerator as a Directly Associated Activity.
- Refurbish all five existing poultry houses with new insulation, steel cladding, and windows, not proposing any increase in floor area, or any new houses.
- New package LPG-fired heaters in houses, extraction fans and water fogging system.
- New package feed silos, cyclone dust separators, feed delivery and drinking equipment.
- New back-up generator and diesel tank.

The rest of the installation is operated as follows:

Friars Farm is located approx. 2km east of the town of Long Stratton in Norfolk centred on approximately NGR TM 21591 92469.

The installation is operated by Christopher Sargent and comprises five poultry houses numbered one to five, which operate a broiler farm. The five houses provide a combined capacity for 181,715 places for broiler chickens.

Birds are housed as incubated eggs or day-old chicks from a hatchery and reared to around 31 days of age when a quarter will be removed and transported to a local abattoir, and the remainder reared to around 38 days of age. Poultry houses are empty for approximately ten days to clean out providing approximately 7.6 batches per annum on an all-in-all-out basis for biosecurity.

The houses are ventilated by high velocity extraction fans (Vents greater than 5.5m high, fan efflux velocity at or greater than 10m/s) with fresh air inlets in the side walls and drinking water is provided via a nipple drinking system, fitted with cups to reduce leakage and spills to keep litter dry.

The houses are pre-warmed at the start of each rearing period using package LPG-fired heaters. As the birds grow extraction fans are turned on and side inlets opened as more fresh air is required and heaters can be switched off. Gable end fans on house number five and a package, water fogging system in all five houses used infrequently for cooling in warm weather. There is a diesel-fired back-up emergency generator in case of grid electricity outage, with a net rated thermal input of 0.215MWth and this has a separate bunded fuel tank.

Feed is stored inside fully enclosed package silos located at the side of the houses to protect them from collision damage with package cyclone dust separators. Feed composition is closely matched to the birds' nutritional requirements at each stage of growth with use of four pelleted diets with a lower percentage crude protein and phosphorous in each.

Mortalities are collected daily and stored in secure containers inside the carcass store and removed frequently under the National Fallen Stock Scheme. At the end of the rearing period the houses and equipment are pressure washed, disinfected and dried before spreading new litter for restocking. Drainage from animal housing and water from cleaning out is collected in underground storage tanks. Dirty water is exported offsite for spreading on land. Used litter is removed immediately after destocking and exported offsite in covered trailers for spreading on land or supplied as fuel to a power station.

Separate surface and dirty water drainage prevents pollution in any watercourse, underlying geology, or groundwater.

Lightly contaminated runoff the concrete apron (excluding during washout periods when water from off the apron drains to an underground tank) is conveyed overland and via catchpits into solid wall underground pipes to the onsite ditch for attenuation and acts as a soakaway. Clean roof-water from poultry houses 1-3 is conveyed via gutters and downpipes into solid wall underground pipes into the onsite pond and soakaway. Clean roof-water from all the poultry houses 1-5 (excluding what was soaked away from houses 1-3) mixes with the lightly contaminated runoff the concrete apron for attenuation and soakaway in the ditch, before emission into an offsite pond and watercourse to the north – a tributary of the River Yare.

There are three Sites of Special Scientific Interest within 5km of the installation and one Ancient Woodland within 2km. There are no International or European sites within 5km. An assessment of the impact of emissions has been carried out, and the installation is considered to have no adverse impact on the nature conservation sites.

4 Management systems

Table 1: Summary of environment management system for Friars Farm

Technical guidance	An environment management system will be in place in accordance with Environment Agency (2010) SGN EPR 6.09 V2.
Normal operations	• Daily records will be kept on all aspects of the farm's operation including: ○ Water consumption ○ Feed consumption and deliveries ○ Bird mortalities ○ Poultry house temperature and humidity ○ Waste collections. • Daily inspection by staff around the site to ensure equipment is operating correctly.
Maintenance schedule and records	• A programme of planned preventive maintenance will be carried out on all plant and equipment including the ventilation fans, feeding and water systems. • Inspection and maintenance schedules based on manufacturer's recommendations. • Buildings and equipment on site will be regularly inspected and checked for visual signs of leakage, corrosion, structural damage, security, and correct operation. • A record of all faults, maintenance work and inspections will be kept in the site office.
Incidents and abnormal operations	• Measures will be in place to identify incidents and abnormal operations. Workers will be trained to be able to detect abnormal operation and investigate its causes and get back to normal operation and ensure the problem does not reoccur.
Complaint system	• Complaints will be logged and referred to the Site Manager for investigation and follow-up action. A record will be kept of any remedial action to prevent or minimise the causes and we will respond to concerns raised by the local community as appropriate.
Accidents	• Site has an accident management plan which will be implemented if an accident occurs. Events or failures that could damage the environment have been identified using the H1 environmental risk assessment for accidents. The format of the site Accident Management Plan is in accordance with the Environment Agency's accident prevention and management plan on the government website at https://www.gov.uk/guidance/develop-a-management-system-environmental-permits#accident-prevention-and-management-plan.

Training and qualifications	• All staff will be suitably qualified to work at the installation. Qualified with NVQ level 2, and managers and area managers with NVQ level 3, and all members of the Poultry Passport scheme. • All staff will receive formal training from both the Site Manager and an external training provider. • All staff will receive formal training on health and safety, the accident management plan and will be trained about the requirements of the environmental permit and pollution prevention. • New staff will be mentored as part of their on-the-job training. • Staff and contractors will have defined roles. • Training and instruction of staff and contractors will be recorded in the training plan.
Site security	• Site will have a secure perimeter fence. • Poultry houses are securely locked at night. • Site gates locked at night to prevent pedestrian and vehicle access out of hours. • The fuel oil and LPG tanks will be secure and locked. • No public footpath through any part of the site.
Site closure plan	• A site closure plan will be created and reviewed in pursuance of any conditions in the Permit or inspection scheme. Such a plan will include removal of any potentially polluting substances and decommissioning and removing equipment, plant, buildings, hard standing and underground structures.
Certification	• Installation will be operated in accordance with a poultry assurance certification scheme including the EMS.

7 Emissions to air, water, and land

Table 2 Emissions (releases) at Friars Farm

Emission point description and location	Source
Point source emissions to air	
High velocity roof fan outlets (vents greater than 5.5m high, fan efflux velocity 10m/s) as shown on the Drainage Schematic included with the application for EPR/VP3138FM/V003	Poultry house 1-5
Gable end fans as shown on the Drainage Schematic included with the application for EPR/VP3138FM/V003	Poultry house 5
Exhaust outlet as shown on the Drainage Schematic included with the application for EPR/VP3138FM/V003	Emergency backup diesel-fired generator
Vent outlet as shown on the Drainage Schematic included with the application for EPR/VP3138FM/V003	Diesel tank for backup generator
Point source emissions to water	
Outlet into unlined pond onsite at NGR TM 21646 92439, a tributary of the River Yare as shown on the Drainage Schematic included with the application for EPR/VP3138FM/V003	Uncontaminated roof water from poultry house 1-3
Outlet into unlined pond onsite at NGR TM 21650 92456, a tributary of the River Yare as shown on the Drainage Schematic included with the application for EPR/VP3138FM/V003	Uncontaminated roof water from poultry house 3
Outlet into unlined ditch onsite at NGR TM 21680 92560, a tributary of the River Yare as shown on the Drainage Schematic included with the application for EPR/VP3138FM/V003	Uncontaminated roof water from poultry house 1-5 and lightly contaminated runoff the concrete apron (excluding during periods of destocking & washing out)
Outlet to surface water at NGR TM 21658 92579 via underground solid wall pipe into offsite pond and watercourse north of the installation boundary, a tributary of the River Yare as shown on the Drainage Schematic included with the application for EPR/VP3138FM/V003	Uncontaminated roof water from poultry house 1-5 and runoff the concrete apron (excluding during periods of destocking & washing out)
Point source emissions to land	
Unlined pond onsite centred on NGR TM 21654 92458 acts as soakaway, a tributary of the River Yare as shown on the Drainage Schematic included with the application for EPR/VP3138FM/V003	Uncontaminated roof water from poultry house 1-3
Unlined ditch onsite centred on NGR TM 21683 92570 acts as soakaway, a tributary of	Uncontaminated roof water from poultry house 1-5 and lightly contaminated runoff

the River Yare as shown on the Drainage Schematic included with the application for EPR/VP3138FM/V003	the concrete apron (excluding during periods of destocking & washing out)
Point source emissions to sewer, effluent treatment plants or other transfers offsite	
None	

8 Operating techniques

Table 3 Technical Standards for Friars Farm

Schedule 1 activity	Section 6.9; Part A(1)(a)(i) Rearing poultry intensively at installation with more than 40,000 places for poultry
Technical guidance	- Environment Agency (2010) EPR 6.09 Sector Guidance Note: How to comply – Intensive Farming Version 2. - Best Available Techniques (BAT) Reference Document for the Intensive Rearing of Poultry or Pigs 2017.

Table 4 Measures to control emissions at Friars Farm

Selection & use of feed. Technical standard: you must take appropriate measures to provide a diet which minimises the excretion of nitrogen and phosphorous.	- Operator will use a nutritional strategy to reduce levels of nitrogen excreted and consequently ammonia, and phosphorous excretion while meeting the nutritional needs of the chickens. - Package feed delivery equipment - storage silos, augers, pipes, and feeders, etc will be designed to accommodate the required feeding regime for rearing broiler chickens.
Housing design & management. Technical standard: you must take appropriate measures in the design and management of housing to minimize the emissions from those systems	<u>Housing</u> Poultry houses will be designed and constructed to modern specifications – clear span portal construction on concrete floors poured over a continuous damp proof membrane, concrete panel walls and insulated walls and roofs with steel cladding. Walls and roofs fully insulated with a U-Value of approximately 0.4 W/m²/°C to reduce heat loss and condensation. <u>Litter</u> Litter will be kept loose and friable and regularly inspected to ensure it does not become excessively wet or dry, and steps taken to rectify any changes to the quality of the litter. <u>Temperature</u> Temperature in the houses will meet the health and welfare needs for the age and number of chickens. Use LPG-direct fired space heaters and will be regularly spaced in the houses to prevent cold spots and extremes of temperature. Extraction fans will be fitted with back draught shutters to prevent draughts and unnecessary heat loss. Houses will be accessed via a control room/vestibule area, which prevents draughts. <u>Ventilation</u> Package computer-controlled ventilation system will be installed to control ventilation rates, so they will be appropriate to the age, weight, and health and welfare needs of the chickens: High velocity roof fan outlets (vents greater than 5.5m high and fan efflux velocity 11m/s).

	• Uncapped outlets to avoid dust deposition on roof and contamination of rainwater runoff. • Operated to achieve optimum humidity levels for the stage of production in all weather and seasonal conditions. • Control of minimum ventilation rates planned to avoid build-up of moisture. • Houses managed to maintain litter as dry and friable as possible. • Dust controlled through the management of litter and air quality. <u>General management</u> In accordance with the management system at the farm, the buildings and equipment will be regularly inspected and well maintained. The floors and walls of the houses will be kept clean.
Livestock numbers and movements	• A system will be in place to record the number of bird places and bird movements on and offsite. These records will be available for inspection.
Slurry spreading and manure management planning – offsite activity	• Records will be kept of the quantities and date of transfers for example to a third party for spreading on land for benefit to agriculture or power station or biogas plant for recovery, and • The names and addresses and land hectares available where manure is exported for spreading to land.
Slurry spreading and manure management planning – onsite activity	• Litter will not be spread by the operator or employees onsite (land belonging to the operator); or by a contractor.
Spreading of manure and slurry to minimise emissions to air Technical standard: you must take appropriate measures when spreading manure or slurry to land to prevent, or where this is not possible to minimise the emissions to air in implementing your manure management plan	• Where a 'manure agent' or other third party accepts liability for removing manure they will provide acceptable confirmation that: as a minimum, the third party will ensure that the manure is spread to land in accordance with the Code of Good Agricultural Practice, or that the spreading will be in accordance with a manure management plan for the receiving land.
Waste sent off-site	Waste will be removed offsite by a registered carrier with a transfer document for non-hazardous waste - mostly packaging waste, etc., or a consignment note for any hazardous waste in accordance with legal requirements.

Fugitive emissions	Appropriate measures for preventing and minimising fugitive emissions will be in place with provisions for: - • Buildings & equipment will be well maintained & kept in good repair. • Areas around buildings will be kept free from build-up of litter & spilt feed. • Drainage from poultry houses and water from washout will be collected in a package underground storage tank shown on the drainage plan. • Diverter valves shown on the drainage plan will be used during wash down periods to prevent contamination of surface water systems and to divert dirty wash water into below ground dirty water tanks. Clean drainage systems will not be contaminated. • Drainage from yard contaminated by litter or wash water will be collected in below ground dirty water tanks. • The dirty water collection system and package below ground storage tanks will be designed to deal with the volumes of wash water generated and manufactured to conform to the specification in SGN EPR6.09. • Footbaths will be managed so that they do not overflow, and spent disinfectants will be emptied into the dirty water tanks. • Wheel washings will be prevented from entering into surface water or groundwater.
Dust	Environmental Risk Assessment submitted with the application shows dust has been identified as having moderate significance: - • Sensitive receptors for dust within 100m of installation boundary. • Submitted a dust & bio-aerosol management plan with the application. • Routine and contingency actions to minimise dust and bio-aerosol risks will be in accordance with EPR6.09 and the BREF. • Poultry feed will be stored in package feed silos, protected from vehicle collision damage by careful siting relative to traffic flows in between the houses, and with kerbs or barriers as required. • Feed will be delivered direct from suppliers and blown directly into silos. • Feed will be delivered into the houses by package augers and pipes. • No milling or mixing of feed will take place at the farm. • Used litter will not be stored onsite.
Carcase management including mobile macerator	Appropriate measures to prevent/ minimise fugitive emissions will be in place: • Mobile macerator contained inside small, covered trailers, towed on a van. • Teams of workers & macerators cover all sites, so work not delayed by any normal working onsite and eggs picked up and macerated quickly. • Workers and macerator arrive onsite day after hatching so seven days each year. Gather up all the unviable and unhatched eggs, including pipping and dead-in-shell off the litter into buckets. • No unviable, unhatched eggs stored anywhere else before macerating. • They will be quickly, humanely killed in a macerator to produce immediate death, and unviable chicks killed by dislocation of the neck in accordance with legal requirements. • Store macerated eggs, dead chicks and the dirty water from cleaning the macerator and carcasses of dead chickens in secure, non-leaking, vermin-proof containers with lids and kept covered.

	- Classified as category 2 animal by-products on account of presence of animals that died or were killed and dead-in-shell poultry for processing offsite e.g. rendering. - Dirty water from cleaning and disinfecting macerator and buckets, etc collected into the carcass containers with category 2 material for processing offsite e.g. rendering. Never add the dirty water from cleaning macerator into the dirty water storage tanks to be spread on land. - Rent containers, frequent collections planned by an approved transporter, under National Fallen Stock Scheme. - Macerator will be located on the concrete apron near to an electrical supply point, carcass containers and the carcass store. - No point source emissions to air, water or land from the macerator or the trailer. Macerator not considered to have any specific odour or noise issues and used for short durations. - Macerator capacity has been measured at 112.8 tonnes per day based on 78.3kg/minute (1,350 eggs) without taking into account any limiting factor, e.g. for cleaning, but takes less than an hour. - Use of a mobile macerator has been added as a directly associated activity (DAA) with an operational limit of 4.7 tonnes per day based on maximum operation of 1 hour per day in permits for other installations and will be sufficient for Friars Farm.
Flies	Appropriate actions will be implemented to prevent, and control flies should problems occur.
Measures for bunding and containment	(a) <u>Agricultural fuel oil and other chemical storage:</u> - Package, emergency back-up diesel-fired generator with separate bunded fuel tank will meet requirements under the Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) Regulations 2010 (SSAFO Regulations). - Generator will be operated and maintained in accordance with the manufacturer's instructions and recommendations. - Pesticides and veterinary medicines will be kept in stores that are resistant to fire, dry, frost-free, and secure against unauthorised access and capable of retaining any spillage. (b) <u>Feedstuffs</u> - Poultry feed will be stored in package feed silos. - Protected from vehicle collision damage by careful siting relative to traffic flows in between houses, and with kerbs or barriers, as required.
Odour	Environmental Risk Assessment submitted with the application shows odour has been identified as having moderate significance: - Sensitive receptors for odour within 400m of the installation boundary. - Submitted an odour management plan with the application. - Routine and contingency actions to minimise odour will be in accordance with EPR6.09 and the BREF.

Noise & vibrations	The Environmental Risk Assessment submitted with the application shows noise has been identified as having moderate significance: • Sensitive receptors for noise within 400m of installation boundary. • Submitted a noise management plan with the application. • Routine and contingency actions to minimise noise will be in accordance with EPR6.09 and the BREF.
Emergency backup generator	• Emergency backup diesel-fired generator in place at Friars Farm to guarantee sufficient air renewal for chicken welfare. Thermal input 0.215 MW (250 KVA) less than 1 MW so not a specified generator under the Environmental Permitting Regulations and not in scope of Medium Combustion Plant Directive. Operated for the purpose of testing for not more than 50 hours per year or operated for not more than 500 hours per year averaged over three years, including testing. • Calculated thermal input from information provided by the supplier. • Grid outages rarely happen.

Q8a Technical standards contd. EC (2017) Best Available techniques (BAT) Reference Document for the Intensive Rearing of Poultry or pigs at Friars Farm

Included Agency's permitting decisions (*italic*) under how the site will demonstrate compliance in Table 5 below.

Table 5 Measures in accordance with EC (2017) Best Available techniques (BAT) Reference Document

BAT	Description	How is the site demonstrating compliance
BAT 1	EMS <i>In order to improve the overall performance of farms, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the following features [in the BAT conclusions document].</i>	<i>Operator already holding a written management system comprising a suite of documents to help identify and minimise the risk of pollution. These include an accident management plan, maintenance plan, staff training and where necessary odour and noise management plans. This is a requirement of the existing general management condition in the permit.</i> <i>By 21 February 2021, the operator will be required to update their management system to include an environmental policy statement and demonstrate their commitment of their management to the EMS. This will be checked during routine compliance inspections.</i> Operator will adhere to an environmental management system that incorporates all of the features, including an environmental policy statement.
BAT 2	Good housekeeping <i>In order to prevent or reduce the environmental impact and overall performance, BAT is to use all the techniques given [in the BAT conclusions document].</i>	<i>The operator is already required to manage their operation as set out in the existing general management and operating techniques conditions in the permit. In complying with these conditions, we expect the operator to use most of the techniques identified in BAT2.</i> Operator will use all of the techniques given: - • Proper location of the plant/farm and spatial arrangements of the activities in order to: ○ Consider potential future development capacity of the farm ○ prevent the contamination of water. • Educate and train staff, in particular for: ○ relevant regulations, livestock farming, animal health and welfare, manure management, worker safety ○ manure transport and land-spreading ○ planning of activities ○ emergency planning and management ○ repair and maintenance of equipment. • Prepare an emergency plan for dealing with unexpected emissions & incidents such as pollution of water bodies including: ○ a plan of the farm showing the drainage systems and water and effluent sources.

		○ plans of action for responding to certain potential events for example fire, oil spillages. ○ available equipment for dealing with a pollution incident for example spill kit for oil spillages. ● Regularly check, repair, & maintain structures & equipment such as: ○ water and feed supply systems ○ ventilation systems and temperature sensors, ○ silos, and transport equipment, ○ includes cleanliness of the farm, and pest management. ● Store dead animals in such a way as to prevent or reduce emissions.
Nutritional management		
BAT 3	<i>In order to reduce total nitrogen excreted and consequently ammonia emissions while meeting the nutritional needs of the animals, BAT is to use a diet formulation and nutritional strategy which includes one or a combination of the techniques given [in the BAT conclusions document].</i>	<i>Operator already required to have a nutritional strategy to reduce nitrogen and phosphorous. This requirement is incorporated into the existing operating techniques condition in the permit.</i> <i>In addition, the variation included a new condition requiring the operator to report annually the levels of nitrogen and phosphorous excretion per animal place to demonstrate compliance with the BAT-associated total nitrogen and phosphorous excreted. The operator will now need to submit monitoring to demonstrate they are compliant. If they are not compliant with the BAT-associated total nitrogen and total phosphorous excreted, they will be in breach of the permit and will need to revisit their nutritional management techniques. Based on our review, and engagement with industry, we expect all operators to meet the BAT-associated excretion levels.</i> <i>Where the BAT-associated total nitrogen & total phosphorous excreted level is not met the operator will be required to consider and adopt alternative diets or feed additives which enable them to meet the level.</i> Operator will use a combination of the techniques given: - ● Reduce the crude protein content using a N-balanced diet based on the energy needs and digestible amino acids. Flaked soya bean will be added during milling to increase percentage crude protein and supplement otherwise low natural levels in wheat grains, especially in first diets. Percentage of flaked soya reduced as chickens grow. ● Multiphase feeding with a diet formulation adapted to the specific requirements of the production period. Provide chickens a minimum of three separate diets which contain increasingly lower percentage crude protein. ● Addition of controlled amounts of essential amino acids. Highly digestible amino acid analogues lysine, methionine, threonine, and

		valine are added to all the feeds during milling to supplement otherwise low naturally occurring levels in the wheat grains.
BAT 4	<i>In order to reduce total phosphorous excreted while meeting the nutritional needs of the animals, BAT is to use a diet formulation and nutritional strategy which includes one or a combination of the techniques given [in the BAT conclusions document].</i>	As BAT 3. Operator will use a combination of the techniques given: - • Multiphase feeding with a diet formulation adapted to the specific requirements of the production period. Provide chickens a minimum of three separate diets which contain increasingly lower percentage of phosphorous. • Use of authorised feed additives which reduce the total phosphorous excreted. Specifically, 6-phytase enzyme added during milling. Degrades the phytate phosphorous in grain during digestion, making more naturally occurring phosphorous and other nutrients available to chickens. • Use of highly digestible inorganic phosphates for the partial replacement of conventional sources of phosphorous in the feed. Specifically, calcium hydrogen orthophosphate/ calcium phosphate will be added during milling.
BAT 5	Efficient use of water <i>In order to use water efficiently, BAT is to use a combination of the techniques given [in the BAT conclusions document].</i>	Operator is already required to minimise the use of water as set out in the existing efficient use of raw materials in the permit. Operator will use a combination of techniques given: - • Keep a record of water use • Detect and repair water leakages • Use high pressure cleaners for cleaning animal housing and equipment • Select and use suitable equipment e.g. nipple drinkers with drip cups for chickens while ensuring water availability (ad-libitum).
Emissions from wastewater		
BAT 6	<i>In order to reduce the generation of wastewater, BAT is using a combination of the techniques given [in the BAT conclusions document].</i>	These requirements are fulfilled through existing permit conditions on general management, the efficient use of raw materials and emissions of substances not controlled by emissions limits. Operator will use all of the techniques given: - • Keep the fouled yard areas as small as possible • Minimise use of water • Segregate uncontaminated rainwater from wastewater streams that require treatment.

BAT 7	<i>In order to reduce emissions to water from wastewater, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].</i>	<i>The operator is already required to minimise emissions of wastewater through existing permit conditions on general management, operating techniques and emissions of substances not controlled by emissions limits.</i> <i>Where appropriate the operator is already expected to have dedicated slurry and/or wash water storage which is compliant with BAT standards (equivalent to the standards set out in The Silage Slurry and Agricultural Fuel Oil Regulations (SSAFO)). These requirements also apply to reception pits, channels, underground tanks, and pipework and requires that slurry is collected and contained.</i> Operator will use a combination of the techniques given: - • Drain wastewater to a dedicated container • Land spreading of wastewater.
BAT 8	Efficient use of energy <i>In order to use energy efficiently in a farm. BAT is to use a combination of the techniques given [in the BAT conclusions document].</i>	<i>The operator is already required to minimise the use of energy through existing permit conditions on general management and energy efficiency.</i> Operator will use a combination of techniques given: - • High efficiency heating/cooling and ventilation systems • Insulation of the walls and ceilings of animal housing • Use of energy efficient lighting.
Noise emissions		
BAT 9	<i>In order to prevent, or where that is not practicable, to reduce noise emissions, BAT is to set up and implement a noise management plan, as part of the environmental management system (see BAT 1).</i> <i>BAT 9 is only applicable to cases where a noise nuisance at sensitive receptors is expected and/or has been substantiated.</i>	<i>A noise management plan (NMP) is in place when there are relevant receptors within 400m of the installation boundary or there have been substantiated complaints. This reflects our current approach, and no change is required.</i> <i>This conclusion is only applicable where we expect noise pollution, or it has been substantiated. We anticipate the potential for noise pollution within 400m of sites, and require operators with receptors located within this distance, or at sites where noise complaints have been substantiated at receptors outside this distance, to have an NMP. This is already detailed in the existing permit condition on noise and vibration in the permit. This condition allows for us to require a NMP if not previously in place. In the event of noise complaints or other evidence of risk of noise pollution beyond the installation boundary.</i> <i>The NMP needs to be regularly updated and reviewed to prevent noise pollution and ensure compliance.</i> Operator will use a combination of techniques given: -

		- Submitted a NMP with the application owing to sensitive receptors within 400m of the boundary that includes the following elements: - A protocol containing appropriate actions and timelines - A protocol for conducting noise monitoring - A protocol for response to identified noise events. Operator has no records or recollections of having substantiated any noise concerns or complaints, so a noise reduction programme to implement elimination and/or reduction measures is not considered necessary.
BAT 10	<i>In order to prevent, or where that is not practicable, to reduce noise emissions, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].</i>	<i>Noise minimisation has been considered in equipment location and operation in the permit determination stage.</i> <i>The operator is already required to prevent and minimise noise through the existing permit conditions on general management, operating techniques and noise and vibration. The existing operating techniques permit condition already allows us to require the operator to update the NMP to introduce additional BAT measures to minimise the risk of noise pollution beyond the installation in the event of substantiated noise complaints at local receptors.</i> Operator will use a combination of techniques given: - - Equipment location - Operational measures - Low noise equipment. The techniques are described in the NMP.
BAT 11	Dust emissions <i>In order to reduce dust emissions from each animal house, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].</i>	<i>Techniques are already in place to reduce dust generation inside sheds such as ad-libitum feeding.</i> <i>The operator is already required to minimise dust emissions through existing permit conditions on general management, operating techniques and emissions of substances not controlled by emission limits.</i> Operator will use a combination of the techniques given: - - Reduce dust generation inside livestock buildings. For this purpose, a combination of the following techniques will be used: - - Use coarser litter material e.g. chopped straw/wood shavings mix - Apply fresh litter using a low dust littering technique - Apply ad-libitum feeding - Use pelleted feed in dry feed systems

		• Equip dry feed stores which are filled pneumatically with dust separators • Reduce dust concentration inside housing by applying one or more of the following techniques: • Water fogging.
Odour emissions		
BAT 12	<i>In order to prevent, or where that is not practicable, to reduce odour emissions from a farm, BAT is to set up, implement and regularly review an odour management plan, as part of the environmental management system (see BAT 1), that includes the following elements [in the BAT conclusions document].</i>	<i>An odour management plan (OMP) is in place when there are relevant receptors within 400m of the installation boundary or there have been substantiated complaints. This reflects our current approach, and no change is required.</i> <i>This conclusion is only applicable where we expect odour pollution, or it has been substantiated. We anticipate the potential for odour pollution within 400m of sites, and require operators with receptors located within this distance, or at sites where odour complaints have been substantiated at receptors outside this distance, to have an OMP. This is already detailed in the existing permit condition on odour in the permit. The condition allows for us to require an OMP if not previously in place, in the event of odour complaints or other evidence of risk of odour pollution beyond the installation boundary.</i> <i>The OMP needs to be regularly updated and reviewed to prevent odour pollution and ensure compliance.</i> Operator will use a combination of techniques given: - • Submitted an OMP with the application owing to sensitive receptors within 400m of the boundary that includes the following elements: • A protocol containing appropriate actions and timelines • A protocol for conducting odour monitoring • A protocol for response to identified odour nuisance. Operator has no records or recollections of having substantiated any odour concerns or complaints, so an odour reduction programme to implement elimination and/or reduction measures are not considered necessary.
BAT 13	<i>In order to prevent, or where that is not practicable, to reduce odour emissions and/or odour impact from a farm, BAT is to use a combination of the techniques given [in the BAT conclusions document].</i>	<i>Odour minimisation has been considered in equipment location and operation in the permit determination stage.</i> <i>The operator is already required to prevent and minimise odour through the existing permit conditions on general management, operating techniques, and odour. The existing operating techniques permit condition already allows us to require the operator to update the OMP to introduce additional BAT measures to minimise the risk of odour pollution beyond the installation in the event of substantiated odour complaints at local receptors.</i>

		Operator will be using a combination of the techniques given: - • Use a housing system which implements one or a combination of the following principles: - • Keeping the chickens and the surfaces dry and clean, and • Keeping litter dry and under aerobic conditions in litter systems • Optimise the discharge conditions of exhaust air from the animal houses by using a combination of the techniques given: • Increasing the outlet height – exhaust air above roof level, stacks, diver air exhaust through the ridge instead of through the low part of the walls • Increasing the vertical outlet ventilation velocity. The techniques have been described in the OMP.
Emissions from solid manure storage		
BAT 14	<i>In order to reduce ammonia emissions to air from the storage of solid manure, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].</i>	Not applicable, no used poultry litter will be stored onsite.
BAT 15	<i>In order to prevent, or where that is not practicable, to reduce emissions to soil and water from the storage of solid manure, BAT is to use a combination of the techniques given [in the BAT conclusions document].</i>	Not applicable, no used poultry litter will be stored onsite.
Emissions from slurry storage		
BAT 16	<i>In order to reduce ammonia emissions to air from a slurry store, BAT is to use a combination of the techniques given [in the BAT conclusions document].</i>	Not applicable, store dirty water in a package, below ground tank.
BAT 17	<i>In order to reduce ammonia emissions to air from an earth-banked slurry store (lagoon),</i>	Not applicable, no earth-banked slurry store onsite.

	<i>BAT is to use a combination of the techniques [in the BAT conclusions document].</i>	
BAT 18	<i>In order to prevent emissions to soil and water from slurry collection, piping and from a store and/or an earth-banked storage (lagoon), BAT is to use a combination of the techniques given [in the BAT conclusions document].</i>	Not applicable, no earth-banked slurry store onsite.
BAT 19	On farm processing of manure <i>If on farm processing of manure is used, in order to reduce emissions of nitrogen, phosphorous, odour and microbial pathogens to air and water and facilitate manure storage and/or land spreading, BAT is to process the manure by applying one or a combination of the techniques given [in the BAT conclusions document].</i>	Not applicable, no manure processing onsite.
Manure land spreading		
BAT 20	<i>In order to prevent or, where that is not practicable, to reduce emissions of nitrogen, phosphorous, odour and microbial pathogens to soil and water from land spreading BAT is to use all the techniques given [in the BAT conclusions document].</i>	<i>Spreading of manure and slurry on land outside of the installation boundary is not considered to part of the permitted installation. In the rare circumstances where spreading occurs within the installation boundary the requirements are covered by the existing operating techniques permit condition.</i> Not applicable, no used poultry litter will be spread onsite.

BAT 21	<i>In order to reduce ammonia emissions to air from slurry land spreading, BAT is to use a combination of the techniques given [in the BAT conclusions document].</i>	<i>Spreading of manure and slurry on land outside of the installation boundary is not considered to part of the permitted installation. In the rare circumstances where spreading occurs within the installation boundary the requirements are covered by the existing operating techniques permit condition.</i> Not applicable, no used poultry litter will be spread onsite.
BAT 22	<i>In order to reduce ammonia emissions to air from manure land spreading, BAT is to incorporate the manure into the soil as soon as possible.</i>	<i>Spreading of manure and slurry on land outside of the installation boundary is not considered to part of the permitted installation. In the rare circumstances where spreading occurs within the installation boundary the requirements are covered by the existing operating techniques permit condition. The time delay between land spreading and incorporation into the soil is now a maximum of 12 hours.</i> Not applicable, no used poultry litter will be spread onsite.
BAT 23	<i>In order to reduce ammonia emissions from the whole production process for the rearing of pigs (including sows) or poultry, BAT is to estimate or calculate the reduction of ammonia emissions from the whole production process using the BAT implemented on the farm.</i>	<i>An operator complying with the relevant existing conditions in the permit will meet this BAT conclusion in so far as they will have reduced ammonia emissions compared to those they would have produced had they not implemented BAT. The operator is not required to report they are meeting the BAT-AELs annually.</i>
Monitoring of emissions and process parameters		
BAT 24	<i>BAT is to monitor the total nitrogen and total phosphorous excreted in manure using one or more of the following techniques [in the BAT conclusions document] with at least the frequency given [in the BAT conclusions document].</i>	<i>The operator will now be required to comply with a new permit condition which sets out a requirement to monitor nitrogen and phosphorous levels in livestock manure.</i> <i>This can be carried out using a mass balance of nitrogen based on the feed intake, dietary content of crude protein and animal performance or estimation by using manure analysis for total nitrogen content and the equivalent for phosphorous.</i> Operator will be using one of the techniques given: - • Calculation by using a mass balance of nitrogen and phosphorous based on the feed intake, crude protein content of the diet, total phosphorous and animal performance.

BAT 25	<i>BAT is to monitor ammonia emissions to air using one of the following techniques with at least the frequency given [in the BAT conclusions document].</i>	<i>The operator will now be required to comply with a new permit condition setting out a requirement for annual reporting on ammonia emissions. This should not represent a new requirement as they already submit this in their Pollution Inventory return.</i> <i>We expect all operators will demonstrate compliance using emissions factors (one of the identified techniques) however they may choose to monitor ammonia emissions using a suitable and agreed monitoring protocol.</i> Operator will be using one of the techniques given: - • Estimation by using emission factors once every year.
BAT 26	<i>BAT is to periodically monitor odour emissions to air.</i>	<i>Routine monitoring (e.g., subjective 'sniff testing') is not expected in most cases, as we would expect the odour management plan to minimise and prevent any odour pollution. It will only be expected as part of ongoing odour management at sites where there have been substantiated odour complaints.</i> • Submitted an OMP with the application owing to sensitive receptors within 400m of the boundary that includes daily monitoring for elevated odour level 'sniff-testing'.
BAT 27	<i>BAT is to monitor dust emissions from each animal house using one of the following techniques with at least the frequency given [in the BAT conclusions document].</i>	<i>The operator will now be required to comply with a new permit condition setting out a requirement for annual reporting of dust emissions. For pigs this is a new requirement. We expect all operators will demonstrate compliance using the emissions factors techniques.</i> Operator will be using one of the techniques given: - • Estimation by using emission factors once every year.
BAT 28	<i>BAT is to monitor ammonia, dust and/or odour emissions from each animal house equipped with an air cleaning system by using all of the following techniques with at least the frequency given [in the BAT conclusions document].</i>	<i>If an air scrubber or cleaning system is in place, the operator will be required to comply with this BAT conclusion. Air abatement systems are not common as they are costly and only work with closed housing systems so are not appropriate for a retrofit to older housing. Where such abatement is in place (for ammonia or odour abatement) the criteria has been met via process monitoring.</i> Not applicable, not proposing any air cleaning systems.

BAT 29	<i>BAT is to monitor the following process parameter at least once every year: -</i> • <i>Water consumption</i> • <i>Electric energy consumption</i> • <i>Fuel consumption</i> • <i>Number of incoming and outgoing animals</i> • <i>Feed consumption</i> • <i>Manure generation.</i>	<i>The operator is already required to keep records for these parameters in their current permit through existing permit conditions on energy efficiency, efficient use of raw materials and operating techniques. These will be checked during routine compliance inspections.</i> Operator will monitor all the process parameters at least once per year: • Water consumption • Electric energy consumption • Fuel consumption • Number of incoming and outgoing animals, including deaths • Feed consumption • Manure generation.
BAT 30	Ammonia emissions from pig houses <i>In order to reduce ammonia emissions to air from each pig house, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].</i>	Not applicable to rearing broiler chickens.
BAT 31	Ammonia emissions from houses for laying hens, broiler breeders or pullets <i>In order to reduce ammonia emissions to air from each house for laying hens, broiler breeders or pullets, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].</i>	Not applicable to rearing broiler chickens.
BAT 32	Ammonia emissions from houses for broilers <i>In order to reduce ammonia emissions to air</i>	<i>We are confident that broiler farm installations will be able to comply with the objective of BAT 32 via the usage of existing housing and operating techniques.</i> <i>This is based on the operator using techniques listed in this conclusion and achieving the BAT-AELs or by demonstrating the method used</i>

	from each house for broilers, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].	produces an equivalent level of protection. 'Equivalence' will need to be confirmed through emissions monitoring to show compliance with the BAT-AELs. Our review of housing types in England indicated that all operators should already be compliant with the techniques set out in BAT31. This will be checked during routine compliance inspections. The operator is required to comply with the new permit condition to carry out annual monitoring and reporting. The results will need to meet the associated BAT-AELs. We expect the operator will demonstrate compliance using emission factors. Compliance with AELs is covered under a new condition and associated process monitoring table. Operator will be using a combination of the techniques given: Forced ventilation and a non-leaking drinking system (in case of solid floor with deep litter).
BAT 33	Ammonia emissions from houses for ducks In order to reduce ammonia emissions to air from each house for ducks, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].	Not applicable to rearing broiler chickens.
BAT 34	Ammonia emissions from houses for turkeys In order to reduce ammonia emissions to air from each house for turkeys, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].	Not applicable to rearing broiler chickens.

8 Operating techniques

Table 6 Raw materials inventory for Friars Farm

Raw materials inventory	Quantity stored onsite (litres/kg)	Quantity used per year (litres/kg)	Justification for use of this material
Biocides (includes disinfectants, wood preservatives, slimicides)			
Disinfectants brought onsite by contractors to washout and disinfect houses & equipment	tbc	tbc	Defra Disinfectants Approved for use in England, Scotland, and Wales.
Pesticides (including herbicides, vertebrate control products, biological pesticides)			
Rodenticide baits, often in proprietary bait boxes	tbc	tbc	HSE UK List of Authorised Biocidal Products
Veterinary medicines (excluding dietary additives)			
	tbc	tbc	Chicken welfare/disease/pest control. Provided only in accordance with a veterinary prescription as required
Bedding types			
Litter bales (proprietary mix of wood shavings/ chopped straw), delivered in time for setting up & small quantity stored onsite for topping up as required	tbc	tbc	UK industry standard, readily available, efficacy & cost
Fuels and oils			
LPG (propane) for heating poultry houses	tbc	tbc	UK industry standard, efficacy & cost
Gasoline (red diesel) for emergency back-up generator	tbc	tbc	UK industry standard, efficacy & cost

Inventory will be reviewed every 4 years and updated if alternative products are available.

10 Resource efficiency and climate change

Table 7 Energy usage at Friars Farm

Energy source	Use
Grid electricity	Ventilation system including extraction fans, recirculation fans for indoor air, computers, feed delivery equipment including augers to deliver feed into houses and inside into feeding pans, lighting, winches, water pumps, and pressure washers, etc.
LPG (propane)	Space heating in all the poultry houses
Gasoline (red diesel)	Emergency backup diesel-fired generator

Table 8 Basic energy efficiency measures in poultry houses at Friars Farm

Activity	Basic energy efficiency measures
Heating	• Houses fully insulated with a U-value of approximately 0.4 W/m²/°C to reduce condensation and heat loss. • Houses constructed with a continuous damp-proof membrane installed under the concrete floor preventing moisture being drawn up from the ground and ensure the litter is dry and friable and reduce the need to heat houses to keep litter dry. • Nipple drinking systems with drip cups reduce water spillages. • Package LPG-fired heaters, equally distributed to prevent cold spots or sensors triggering and activating heaters unnecessarily. • Houses monitored by a computer system, which automatically controls and records humidity and temperature. • Temperature control sensors checked regularly and kept clean, so they are able to detect the temperature at stock level. • Pre-warm houses at start of rearing cycle to keep eggs and chicks at correct temperature. • Keep fabric of houses in good condition, cracks and open seams will be repaired, including in the concrete floor. • Planned preventive maintenance of equipment by qualified farmworkers, electricians or contractors in accordance with manufacturer's instructions and keep records of work.
Ventilation system	• Package ventilation system designed and installed by a professional contractor. • Forced ventilation via high velocity roof fan outlets (vents greater than 5.5m high and fan efflux velocity 11m/s). • Appropriate size and power fans to minimise energy consumption, the fans are low energy per m³ of air. • Extraction fans fitted with back draft shutters to reduce heat loss. • Automatic, computer control system will control the ventilation for maximum efficiency. • Use small number of fans running continually at high-speed rather than more fans switching on and off. One fan operating at full capacity rather than two operating at half their capacity.

	• More extraction fans turned on, and side inlets opened as more fresh air is required to match age, weight and health and welfare requirements of chickens and provide adequate ventilation under all weather and seasonal conditions. Minimise, as far as the indoor requirements allow, heat losses from the houses. • Ventilation system switched off in empty houses, and after a drying period following washing and disinfecting. • Automated or mechanical equipment essential for the health and well-being of the chickens must be inspected at least once a day to check there is not defect in it, these will be rectified immediately. • Planned preventive maintenance of equipment by qualified farmworkers, electricians or contractors in accordance with manufacturer's instructions and keep records of work.
Lighting	• Use a combination of natural and artificial lighting - windows in sides of houses and energy efficient LED lighting. • Lighting follows a 24-hour rhythm allowing enough light for normal chicken behaviours, dark periods for rest and inspections.
Gasoline (red diesel)	• Package, emergency back-up diesel-fired generator to guarantee sufficient air renewal for the health and well-being of birds in event of grid electricity outage. • Fuel level will be checked for use or signs of leakage. • Planned preventive maintenance of equipment by qualified farmworkers, electricians or contractors in accordance with manufacturer's instructions and keep records of work.
Monitoring	• Read electricity meters every day and recording kWh used. • Recording litres of LPG and diesel delivered to site.

Q10c How we avoid producing waste in line with Council Directive 2008/98/EC on waste

Table 9 Treating waste in accordance with the waste hierarchy at Friars Farm

Used poultry litter	Export offsite for recovery by land spreading to confer agricultural benefit or used as fuel in a power station.
Dirty water	Export offsite for recovery by land spreading to confer agricultural benefit
Municipal waste (Household waste and similar commercial, industrial and institutional waste).	Export offsite for sorting for recycling and residual waste for energy recovery or disposal.