

Odour Management Plan for Langstone Poultry Unit

Address: Langstone Poultry Farm, Langstone, Catbrook, Chepstow, Gwent, NP16 6ND

Operator: Richard Howat, Alan Howat, John Howat, Ian Howat and Christine Howat

Environmental Permit number: EPR/RP3932MF

Document Reference: SPC/ESP0040/Odour Management Plan/Version 1/March 2017



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1. Introduction

This document comprising an Odour Management Plan (OMP) has been prepared by Shann Pitts Consulting Limited on behalf of Richard Howat, Alan Howat, John Howat, Ian Howat and Christine Howat herein termed 'the Operator' to support an Environmental Permit variation application for an Intensive Agriculture Installation at Langstone Poultry Farm, Langstone, Catbrook, Chepstow, Gwent, NP16 6ND herein termed 'the site'.

On 27th July 2007 the environmental permit for the site was issued with a limit of 49,350 pullet places.

On 26th May 2010 a permit variation was issued to increase the maximum number of bird places to 60,000 laying hens (while also correcting an error on the original permit).

On 26th January 2011 a permit variation was issued to show change of company name.

On 14th June 2016 the environmental permit was transferred to the current Operator, detailed above.

The current permit variation application which this OMP supports is to change from a laying hen unit to a pullet rearing unit with a capacity of 135,000 places shared across the four existing buildings.

This variation will result in an overall reduction in ammonia emissions (refer to Ammonia Screening Assessment in Non-Technical Summary); there is a strong correlation between ammonia levels and odour potential from this type of site.

This OMP identifies all of the activities at the site that have the potential to generate odour. It identifies the receptors that may be affected by this odour via windblown emissions and determines the level of risk.

The OMP details what odour mitigation measures are already in place.

If the operation causes substantiated odour reports then the operator will, in accordance with the Permit, review this OMP and, if necessary, include additional mitigation measures.

The purposes of the OMP are:

- To employ appropriate methods, including monitoring and contingencies, to control and minimise odour pollution;
- Prevent unacceptable odour pollution at all times; and,
- Reduce the risk of odour releasing incidents or accidents by anticipating them and planning accordingly.

The OMP has been developed to:

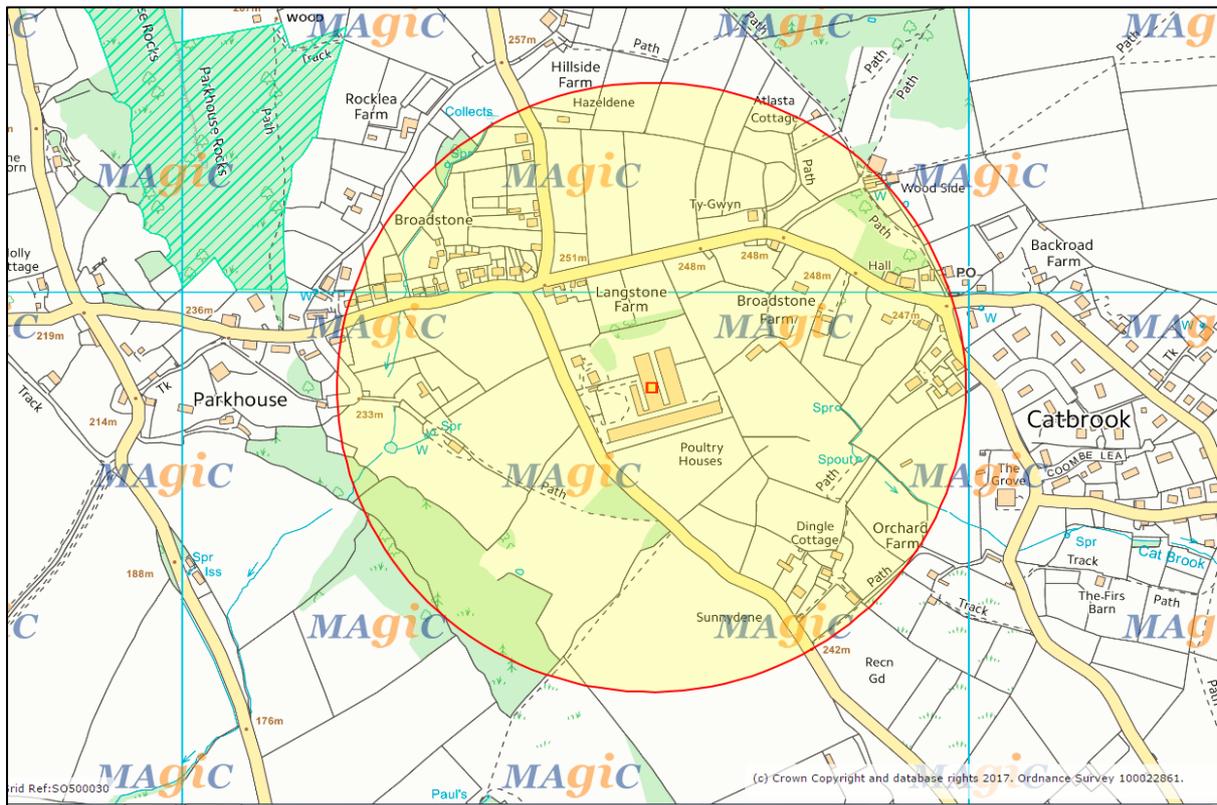
- Establish the likely sources of odour arising from the site;
- Establish sensitive receptors around the site;
- Set out the proposed procedures in order to prevent or minimise odour emissions; and
- Formalise the procedures for dealing with any odour complaints

2. Location

The regulated installation is approximately 5.5 acres in size and is centred at National Grid Reference SO5059102883.

The installation is in a semi-rural location approximately 300 metres of the village of Broadstone.

Figure 1: Map Showing Location of Langstone Farm and All Properties within 400 m of the Centre of the Site



3. Process Description with Controls

Poultry Houses

The site consists of a total of two timber frame, steel clad poultry houses and two steel constructed poultry houses of which will be built in accordance with Best Available Techniques (BAT) using high levels of insulation to reduce energy demand and a state of the art ventilation system to optimise the living conditions for the birds while minimising any possible effects on nearby designated sites/receptors.

All poultry will be reared inside buildings with controlled ventilation with side fans and ridge inlets for the ventilation. There is a control system fitted to ensure the correct level of ventilation for poultry health but no excessive ventilation.

The sheds benefit from concrete floors and a chopped rape bedding layer spread before each crop.

Production Process

The birds are housed from day old chicks and are depopulated (all in all out) when the birds are approximately 16 weeks of age. On average there will be 2.5 crops per annum with a turnaround of 14 days between crops.

Clean out Between Crops

At the end of the crop all birds are taken off site.

The buildings are first dry cleaned by means of compressed air being used to remove dust build up from the building internals and equipment. This is done with the door closed where safe to do so. The spent litter and dry material from inside building is then removed.

Following dry cleaning the buildings are then washed clean using high pressure water which is collected in an underground storage tank and later removed from site to be blended into the total feedstock at a nearby anaerobic digestion plant. If, for any reason, this disposal route is not available during the building wash down process equipment is on hand to allow the wash-waters to be spread to agricultural land in accordance with the Code of Good Agricultural Practice.

Once dry all the building internals are disinfected to point of run, minimising the amount of water to be collected, transported or spread.

On average there are 2.5 crops per annum with a turnaround of 14 days between crops. This gives plenty of time to allow the buildings to dry thoroughly to ensure the best possible conditions for the incoming day old chicks.

Poultry Litter Management

Spent poultry litter is not stored on site.

A contract is in place with G.E. Hunt and Son for all the spent litter which is taken away from the site between crops by sheeted trailers where it will be used as a feed stock to generate power in their Anaerobic Digestion plant.

In the event of G.E. Hunt being unable to take the poultry there are contingency arrangements with three other local farmers who are all able to take the poultry litter off-site, thus reducing the potential from odours generated by the storage of litter.

Fallen Stock

The sheds are checked daily for mortalities and any dead birds are immediately removed from the sheds. Numbers are recorded and all carcasses are stored in a refrigerated store prior to weekly collection via the Fallen Stock Scheme (membership no.2002137).

4. Odour Sources

The following potential odour sources have been identified:

- Odour emissions from ventilation system during normal operating conditions; early and late phases of cropping cycle
- Odour emissions arising from poultry litter due to building design and quality
- Odour emissions arising from litter conditions; wet litter
- Odour emissions arising from litter conditions; diseased stock
- Odour emissions from poultry litter storage
- Odour emissions from poultry litter transport
- Odour emissions from feed type / delivery / storage
- Odour emissions from de-stocking
- Odour emissions from carcass storage and disposal
- Odour emissions from final clean out (end of crop)
- Odour emissions from residual litter at cleaning out
- Odour emissions from disinfectants at cleaning out
- Odour emissions from dirty water holding tank

5. Odour Pathway

Odour from the site would reach sensitive receptors via wind-blown emissions.

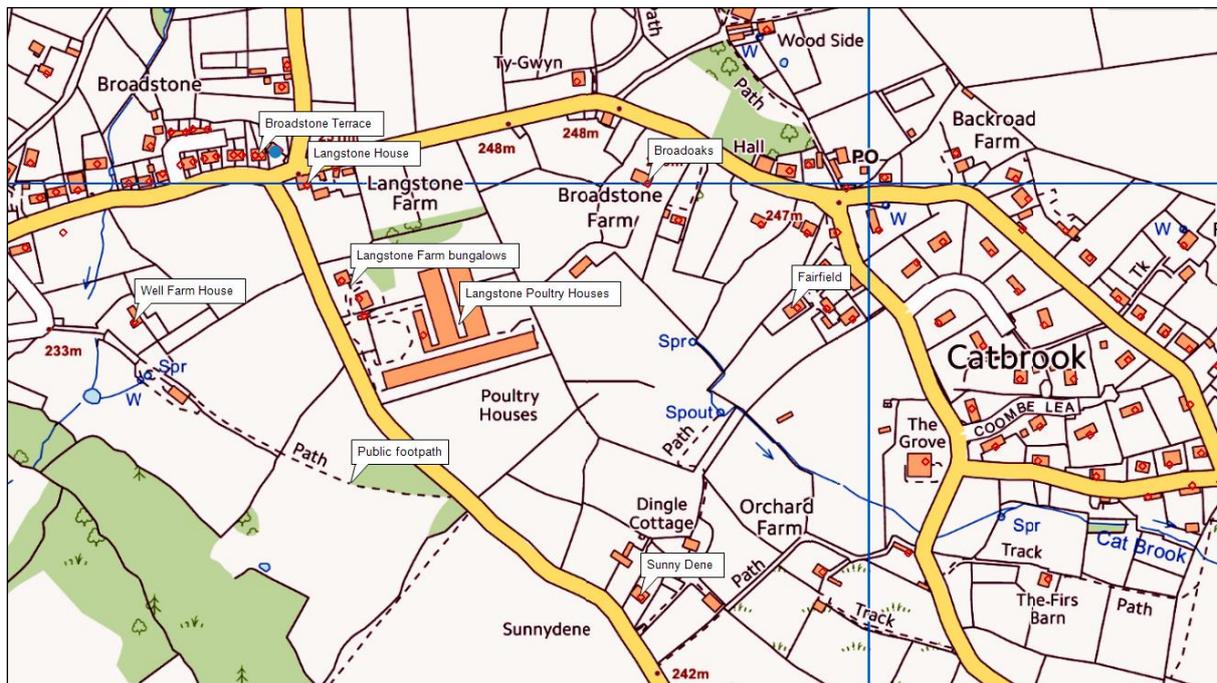
The potential for odour to impact sensitive receptors does depend significantly on the meteorological conditions particularly wind direction, during times of odorous activities on site. The meteorological conditions of most interest are the proportion of low wind speeds and occurrence of stable atmospheric conditions. This is because these conditions result in reduced dilution of emissions.

The closest weather station is situated at 9 km away from the site at Netherend, Woolaston SO 5900 3706 and is a personal automatic weather station. The data from this weather station shows a prevailing southerly wind is southerly¹.

¹ <https://www.wunderground.com/personal-weather-station/dashboard?ID=IWOOLAST2#history/s20160229/e20170301/myear> accessed 1st March 2017

6. Sensitive Receptors

Figure 2: Map Identifying Sensitive Receptors within the Vicinity of the Site



All of the sensitive receptors that have been identified are residential, except the footpath.

It is recognised that the most sensitive receptors to odour are inhabitants of residential buildings.

The distances to sensitive receptors have been measured from the edge of the nearest point on a poultry shed as although the permitted area extends beyond the sheds, the significant odour sources are confined to the poultry sheds themselves.

However, the distances to sensitive receptors have been measured to the extent of the property garden, recognising the potential for residents to experience odour impacts whilst in their gardens.

Table 1: Table of Sensitive Receptors

Receptor	Type of receptor	Bearing from site	Distance from Poultry House (m)
Public footpath	Amenity	South - Southwest	97
Langstone Farm bungalows	Residential	East	56
Langstone House	Residential	Northwest	131
Broadoaks	Residential	Northeast	168
Broadstone Terrace	Residential	North - Northeast	180
Fairfield	Residential	East	213
Well Farm House	Residential	West	229
Sunny Dene	Residential	South – Southwest	244

7. Odour Risk Assessment

The Odour risk assessment considers in turn:

- Receptor – what is at risk? What do I want to protect?
- Source – what is the agent/ process with potential to cause harm?
- Harm – consequences if things go wrong?
- Pathway – how might the receptor come in to contact with the source?
- Probability of exposure – how likely is contact?
- Consequence – how severe will the consequences be if it occurs?
- Magnitude of risk – what is the overall magnitude of the risk?
- Justification for magnitude – on what did I base my judgement?

Probability of exposure - the likelihood of exposure of specific receptors to the source is based on several factors:

- Distance between source and receptor
- Dispersion potential of emission
- Duration of emission
- Frequency of emission

Consequence: - the severity of consequence from a risk depends on:

- How much a person or part of the environment is exposed
- How sensitive a person or part of the environment is

Magnitude of risk – level of risk is a combination of probability of exposure and the severity of the consequence and has been determined in accordance with the matrix below:

Table 2: Matrix to Determine Magnitude of Risk

	Consequence		
Probability of exposure	Low	Medium	High
Low	Very Low	Low	Medium
Medium	Low	Medium	Medium
High	Medium	Medium	High

The Odour risk assessment for the proposed activities at the site is shown in the table below.

<u>Data and information</u>				<u>Control Measures</u>	<u>Judgement</u>			
<u>Receptor</u>	<u>Source</u>	<u>Harm</u>	<u>Pathway</u>		<u>Probability of exposure</u>	<u>Consequence</u>	<u>Magnitude of risk</u>	<u>Justification of magnitude</u>
<u>What is at risk? What do I want to protect?</u>	<u>What is the agent or process with potential to cause harm?</u>	<u>What are the harmful consequences if things go wrong?</u>	<u>How might the receptor come into contact with the source?</u>		<u>How likely is this contact?</u>	<u>How severe will be if this occurs?</u>	<u>What is the overall magnitude of the risk?</u>	<u>On what did I base my judgement?</u>
Residential properties in the vicinity of the site.	Odour release from the intensive rearing of poultry via side ventilation system – early phase of cropping cycle.	Loss of amenity	Wind-blown emissions	The ventilation system is automatically adjusted to provide optimum environmental conditions inside the rearing sheds. Stacks on the ventilation outlets to enable dispersion of odourous compounds. Daily inspection of litter quality – addition of dry rape straw where appropriate. For details on control of litter quality see following sections of risk assessment.	Low – due to low levels of litter and therefore odour production during early stages of cropping cycle and management techniques and on site technologies	Medium - Poultry litter has an odour that many people find unpleasant	Low – The overall magnitude of risk is deemed to be low	The probability of exposure is low due to the low odour potential during the beginning of the cropping cycle and the control measures in place.
Residential properties in the vicinity of the site.	Odour release from the intensive rearing of poultry via side ventilation system – late phase of cropping cycle.	Loss of amenity	Wind-blown emissions	As above plus during the late phase of cropping cycle increased addition of dry rape straw where necessary to maintain a	Medium – recognising larger bird size, litter accumulation and therefore higher	Medium - Poultry litter has an odour that many people find unpleasant	Low – The overall magnitude of risk is deemed to be low	Due to increased controls and management of litter during the late phase of the cropping cycle the

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				dry litter base where possible	potential for emissions			overall risk of odour from the ventilation system of the sheds is deemed to be low.
Residential properties in the vicinity of the site.	Emissions arising from litter conditions – building design and quality	Loss of amenity	Wind-blown emissions	All wall and ceiling voids have been insulated to BAT standards to prevent condensation. Damp proof membrane laid under concrete floors to prevent moisture being drawn up from the ground. Regular maintenance and inspection of buildings as part of the EMS will identify issues to be addressed.	Low – due to newly refurbished, high specification poultry housing	Medium - Poultry litter has an odour that many people find unpleasant	Low - The overall magnitude of risk is deemed to be low	The probability of exposure is low due to the control measures in place.

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Residential properties in the vicinity of the site.	Emissions arising from litter conditions – wet litter	Loss of amenity	Wind-blown emissions	Use of nipple drinkers and drip trays to minimise spillage. Water meters used to help identify any leaks; water meters for each shed checked daily. Chopped rape straw is used as experience has identified this as improving litter quality the quickest. Keeping litter as dry as possible will reduce production of ammonia, the major source of odour.	Low – due to effective management of the process inside the building	High – Very wet litter is odorous.	Medium – The overall magnitude of risk is considered to be medium.	The probability of exposure is low due to the control measures in place but the material in question, if exposed, has a strong odour.
Residential properties in the vicinity of the site.	Emissions arising from litter conditions – Disease outbreaks leading to poorly conditioned birds	Loss of amenity	Wind-blown emissions	Use of a veterinary health plan with specialist veterinary input used if necessary. Strict biosecurity protocols.	Low – due to animal health controls in place	Medium - Poultry litter has an odour that many people find unpleasant	Low - The overall magnitude of risk is deemed to be low	The probability of exposure is low due to the control measures in place.

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				Water use monitored and recorded as indicator of bird health.				
Residential properties in the vicinity of the site.	Storage of poultry litter	Loss of amenity	Wind-blown emissions	No spent litter is stored on site. As soon as the birds have been removed from site the litter will be loaded into trailers and removed from site	Low – due to no litter being stored outside the building	Medium - Poultry litter has an odour that many people find unpleasant	Low - The overall magnitude of risk is deemed to be low	Low risk due to management techniques
Residential properties in the vicinity of the site.	Emissions from poultry litter transport	Loss of amenity	Wind-blown emissions	All trailers are sealed and sheeted over. Litter removal will only occur 2-3 times a year.	Low – due to control measures in place and frequency of clear out.	Medium - Poultry litter has an odour that many people find unpleasant	Low - The overall magnitude of risk is deemed to be low	Solid waste loads being exported from site will be covered over reducing potential for transient odorous emissions.

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Residential properties in the vicinity of the site	Emissions from compound feed selection – poor quality or odorous ingredients. “Unbalanced” feed increases excretion and litter moisture leading to increase in ammonia production.	Loss of amenity	Wind-blown emissions	Feed specifications provided by nutritionist. Feed is only supplied by UKASTA accredited feed mill so that only approved raw materials are used in production. Sample of feed is kept for Quality Assurance and traceability. Samples kept for minimum of 3 months.	Low – low odour potential from feed	Low – odour from feed is not generally unpleasant	Low - The overall magnitude of risk is deemed to be low	Good quality feeds are unlikely to contain odorous compounds or cause health issues leading to damp litter.
Residential properties in the vicinity of the site	Spillages of feed during delivery	Loss of amenity	Wind-blown emissions	Feed delivery systems are sealed to minimise atmospheric dust. Cyclone dust catchment systems will be in place on all silos. All spillages are cleaned up immediately. For major spillages over 500 kg the feed mill would	Low – Feed contained in custom built silo	Low – odour from feed is not generally unpleasant	Low - The overall magnitude of risk is deemed to be low	The probability of exposure is low due to the control measures in place. Odours from spillages can be easily dealt with through good housekeeping and management.

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				send vehicle to transfer feed to another silo. Any unfit feed will be contained in a skip and removed from site with 24hrs.				
Residential properties in the vicinity of the site.	Destocking of livestock – final removal of birds.	Loss of amenity	Wind-blown emissions	Ventilation controls used to control release of odours while still maintaining optimum conditions throughout the depletion process. Personnel will all be aware that the final emptying of sheds is when odours are most likely to be experienced and complaints made.	Low – this activity only occurs 2-3 times a year	High – the odour from a destocking event may be unpleasant to local residents	Medium – The overall magnitude of risk is considered to be medium.	There is a potential for odour impacts from this event but the operator will put appropriate controls in place as detailed to reduce the potential impact on local residents.

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				Doors are kept closed as much as possible to reduce dust and odour releases. Only opened when essential for getting birds out and for removal of spent litter. Litter is scraped into a large heap running the length of the centre of the building. This facilitates the drying process and minimises loading times.				
Residential properties in the vicinity of the site.	Emissions from carcass storage and disposal	Loss of amenity	Wind-blown emissions	Sheds are checked daily for mortalities and any dead birds are immediately removed from the sheds. Numbers	Low – due to control measures in place	Medium – Odour from carcasses is distinct and many people	Low – The overall magnitude of risk is	The probability of exposure is low due to the control measures in place.

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				are recorded and all carcasses are stored in a refrigerated store prior to weekly collection via the Fallen Stock Scheme (membership no.2002137).		find it unpleasant.	considered to be low.	
Residential properties in the vicinity of the site	Odour emissions from residual litter at cleaning out	Loss of amenity	Wind-blown emissions	All internal surfaces are cleaned using high pressure air lances prior to using water. This reduces the amount of odourous wet litter and dirty water produced. Doors kept shut where safe to do so. There is a 4 week window between crops allowing ample time for delaying clean out operation if unsuitable weather conditions e.g. high winds	Low –due to small amounts of litter present at this stage of this process and the short exposure activity period.	Medium – wet litter is an unpleasant odour	Low – The overall magnitude of risk is considered to be low.	The probability of exposure is low due to the control measures in place but the material in question, if exposed, has a strong odour.

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				or wind direction towards sensitive receptors.				
Residential properties in the vicinity of the site	Odour emissions from disinfectants at cleaning out	Loss of amenity	Wind-blown emissions	Only DEFRA approved disinfectants used following manufacturers guidelines including concentrations and amounts.	Low - due to low frequency of event 2-3 times year	Low – disinfectant not particularly unpleasant odour	Low – The overall magnitude of risk is considered to be low.	
Residential properties in the vicinity of the site	Odour from dirty water	Loss of amenity	Wind-blown emissions	Dirty water generation is minimised by first doing a dry clean out. During clean out all dirty water is stored in SSAFO compliant sealed underground tank.	Low – due to infrequent clean out activity (2-3 times per year)	Low – dirty water not likely to be particularly odourous	Low – The overall magnitude of risk is considered to be low.	Emptying of tanks using vacuum tankers is infrequent and short duration

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				Vacuum tankers used to empty the tank.			.	

8. Odour Monitoring

Daily checks are made around the site boundary for odour and any issues noted in the site diary along with daily weather conditions and a record of any unusual activities.

Should odour be detected or reported off-site, this will be investigated and measures put in place to ensure emissions do not cause adverse effect at any sensitive location in the vicinity of the site. These measures may include removal of material found to be responsible for causing odours, changes to operating procedures, cessation of particular activities when the wind is blowing in a particular direction and other appropriate measures.

All of this will be recorded in the site diary.

The Odour Management Plan will be reviewed following any substantiated odour complaint.

9. Odour Complaint Procedure

Any odour complaint received will be investigated by the site manager or a nominated employee. They will investigate the incident to determine the nature of the complaint. Information will normally be collected by visiting the complainant (if known), although in some cases, contact may be made by telephone. After details of the complaint have been compiled, the cause(s) will be investigated, with reference to:

- Where the odour was detected
- When the odour was detected
- The complainants assessment of the strength of the odour (scale 1-6)
- The activities taking place at the farm at the time of the complaint including any unusual activities.
- The stage of the crop cycle
- The prevailing meteorological conditions

Where such an investigation identifies an odour issue attributable to the site, the feasibility of making changes to the activities responsible for the odour will be considered. If feasible, remedial action will promptly be implemented to reduce any odour impact. NRW will be notified of any substantiated complaints being found attributable to the site

Details of any action taken will be recorded on an odour complaint form (Appendix A). If the complainant is known they will be contacted and updated of the actions being taken.

If permanent changes to operating procedures and / or odour control measures are made, the OMP will be amended accordingly.

10. Odour Monitoring and Reduction Plan

In the event of prolonged substantiated odour complaints, an independent odour assessment shall be carried out in conjunction with NRW and a third party monitoring company.

Monitoring will be undertaken in line with current guidance to identify the root cause / source of the odour and whether odours from the site correlate with specific times within the flock cycle.

If normal operations are deemed to be the root cause, all further reasonable and financially viable mitigation will be implemented to reduce the odour pollution and further measures as appropriate will be agreed with NRW.

11. Related and Supporting Documents

Environmental Permit Reference EPR/RP3932MF

Environment Management System for Langstone Farm Poultry Unit (version 2, 24th July 2015)

Appendix A – Odour Complaint Record Form