Environment Agency Permitting decisions

We have decided to refuse the permit application for Foston Pig Unit and Anaerobic Digestion Plant applied for by Midland Pig Producers Limited.

The application number is EPR/LP3930FA/A001 (the “Application”)

The applicant is Midland Pig Producers Limited (the “Applicant”)

The proposed facility location is at land adjacent to Foston Prison, Uttoxeter Road, Foston, Derbyshire DE65 5DL.

The decision was effective from 10/02/2015.

Summary of the decision

We have decided to refuse the Application.

We consider in reaching this decision that we have taken into account all relevant considerations and legal requirements.

The reason for refusal is that based on the information that has been provided to us we cannot be satisfied that the activities can be undertaken without resulting in significant pollution of the environment due to odour which will result in offence to human senses and impair amenity and/or legitimate uses of the environment.

Purpose of this document

This decision document:

- explains how the Applicant's Application has been determined
- provides a record of the decision making process

Structure of this document

Part A: Administration issues
Part B: Process description
Part C: Reason for refusal
Part D: Issues still to be resolved
Part E: Other considerations
Annex 1: Consultation responses
Annex 2: Map showing location of the proposed Installation and surrounding area

Part A: Administration Issues

Application history

This section includes administrative information relating to the application and information about the Applicant and the Installation.

The Application was for the following listed activities in Part 2 of Schedule 1 of the Environmental Permitting (England and Wales) Regulations 2010 (SI 2010 No. 675) as amended. We have referred to these regulations as EPR in this document.

Section 6.9 A(1)(a)(ii) Rearing of pigs intensively in an Installation with more than 2,000 places for production pigs (over 30kg)

Section 6.9 A(1)(a)(iii) Rearing of pigs intensively in an Installation with more than 750 places for sows

Section 5.4A(1)(b)(i) Recovery of waste involving biological treatment - Part A installation - On-farm anaerobic digestion facility including the use of the resultant biogas.

Section 5.4A(1)(a)(i) Disposal of non hazardous waste with a capacity exceeding 50 tonnes per day involving biological treatment – Liquors Treatment Plant.

Together these four activities and any directly associated activities comprise the Application (see Part B below for more detail).

The Application was received on 29/03/11 and we accepted the application as duly made on 29/03/11, this meant it was at that time considered to be in the correct form and contained enough information for us to begin our determination. However, this did not mean it contained all the information we needed to complete the determination. In hindsight we should have decided it was not duly made as from the outset of the determination we identified a number of deficiencies in the application and issued several informal information requests. We issued a formal Schedule 5 Notice (Request For Information) on 01/02/12 with a deadline for their response of 02/03/12. The Applicant made a total of 5 separate extension requests to this deadline, all of which we accepted. We also agreed to meet with the Applicant on the 20/03/13 to discuss the Schedule 5 notice and provide advice. During the meeting it was agreed that the Applicant would submit a revised application and supporting information in addition to the Schedule 5 Notice request.

We received the Applicant's response on 30/04/13. We found this submission confusing in its layout and referencing, and some information was unclear. For this reason we sent a further request for further information (RFI) on 29/05/13 and the final revised submission of the application, all supporting documentation, and responses to our Schedule 5 notice and RFI requests was received on 10/06/13.

The submission was technically assessed and a significant number of deficiencies were identified in the information supplied. Due to this we were minded to refuse the application owing to lack of information. However following a request from the Applicant for a final opportunity to supply the additional information, it was decided to draft another Schedule 5 notice. We met with the Applicant on the 24/02/14 to discuss the content of the proposed Schedule 5 Notice and allow the Applicant the opportunity to ask us questions and seek clarification on the questions in the notice. At the meeting it was emphasised to the Applicant that this Schedule 5 Notice was a final opportunity to provide evidence on the effectiveness of measures to minimise risk of significant pollution from the Installation.

At the meeting on 24/02/14 we agreed that the Applicant could submit a draft response to the Schedule 5 Notice prior to the submission deadline and that we would undertake a high level review of the responses contained in the draft. The purpose of the review was to highlight any obvious discrepancies in the information or any aspects of the response that we did not understand. It was not a detailed review of whether the information was adequate to enable a permit to be issued.

The Schedule 5 Notice was issued on 04/03/14 with a deadline for submission of 30/09/14. A further meeting was held with the Applicant on 10/04/14 specifically to look at the odour management proposals for the pig rearing activity and provided the Applicant with the opportunity to ask questions and to seek clarification. A letter was also sent to the Applicant dated 07/05/14 clarifying the level of technical detail required within the Schedule 5 linked to proposed odour abatement systems.

The draft response was received on 02/09/14 and feedback was provided in the form of a letter which was sent to Applicant on 18/09/14 . In view of the feedback we offered the Applicant an extension until 31/10/14. The final response to the Schedule 5 Notice was received on 24/10/14.

Details of advertising and consultation.

The application was advertised and consulted on in accordance with the EPR.

The application was originally publicised on the Environment Agency's website from 19/04/11 with a deadline for responses by 23/05/11. Due to the high number of public representations received, the Environment Agency deemed the site a 'Site of High Public Interest' (SHPI). This led to the application being re-advertised on our website and also advertised in the Derbyshire Evening News on 22/06/11, with a deadline for responses by 20/07/11. Copies of the application were placed in the Environment Agency public register at Environment Agency Office, Trentside Offices, Scarrington Road, West Bridgford, Nottingham, NG2 5FA and South Derbyshire District Council public register at South Derbyshire District Council, Civic Offices, Civic Way, Swadlincote, DE11 0AH.

The following were also consulted:

- South Derbyshire District Council (Planning department)

- South Derbyshire District Council (Environmental Health department)
- Derbyshire County Primary Care Trust
- Health and Safety Executive
- Food Standards Agency
- HM Prison FostonHall
- Animal Health and Veterinary Laboratories Agency

Following receipt of additional information on 10/06/13 which included a revised application and supporting documentation, the information was advertised in the Derbyshire Evening Telegraph, the Burton Mail and the Ashbourne News Telegraph on 03/07/13 with deadlines for responses by 31/07/13. Copies of the revised Application were placed in the Environment Agency public register at Environment Agency Office, Trentside Offices, Scarrington Road, West Bridgford, Nottingham, NG2 5FA and South Derbyshire District Council public register at South Derbyshire District Council, Civic Offices, Civic Way, Swadlincote, DE11 0AH.

In addition the following were consulted or re-consulted:

- Derbyshire County Council (Planning department)
- Derbyshire County Council (Environmental Health department)
- South Derbyshire District Council (Planning department)
- South Derbyshire District Council (Environmental Health department)
- Public Health England
- Director of Public Health, Derbyshire County
- Health and Safety Executive
- Food Standards Agency
- Animal Health and Veterinary Laboratories Agency
- Her Majesty's Prison Service (HMP and YOI, Foston Hall)
- Severn Trent Water

A summary of the consultation responses and the responses to the advertising and how we have taken these into consideration is contained in Annex 1 of this document.

The legal framework

The Application has been refused. This decision has been made in accordance with the requirements set out in the Environment Permit Regulations (England and Wales) 2010 and subsequent amendments. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility proposed contains activities that are:

- an *installation* as described by the Industrial Emissions Directive (IED);
- an *operation* covered by the Waste Framework Directive (WFD), and
- subject to aspects of other relevant legislation which also have to be addressed.

We consider some of the major legal requirements directly where relevant in the body of this document. Other requirements are considered in Part E.

Part B: Process description

The application is for an intensive pig unit and anaerobic digestion (AD) plant with subsequent biogas combustion for the treatment of pig manures and slurries generated by the intensive farming activities, and mixed with imported maize and spoiled wheat straw.

The site for the proposed Installation is approximately centred on National Grid Reference SK 18280 31606 and is surrounded predominantly by arable farmland. The site is located on the edge of the village of Foston and is bordered by H.M. Foston Hall Prison to the east and Maidensley Farm to the west. To the north, the site is bordered by Foston Prison access road (formerly Uttoxeter Road) and the A50, whilst to the south it adjoins Puddingbag Covert Local Wildlife Site (LWS), Fishpond Plantation and the Churchleys LWS and Roundabout Covert. The site is situated approximately 1.5km north west of the village of Scropton, and approximately 9km east of Uttoxeter (see Annex 2 for a map showing location of the proposed Installation and surrounding area).

The closest residential properties are within 100m of the proposed Installation boundary. H.M. Foston Hall Prison is also within 250m of the boundary, the Prison houses approximately 300 female inmates.

The Installation is within 2km of seven nature conservation sites, composed of Local Wildlife Sites (LWS) and Ancient Woodland. The sites are Puddingbag Covert LWS, Fishpond Plantation and the Churchleys LWS, Conygreave and Rough Woods LWS, Sudbury Willow Car LWS, The Coppice LWS and ancient Woodland, Pennywaste Wood LWS and an unnamed area of ancient woodland.

Midland Pig Producers Limited proposes the operation of an intensive pig unit with the capacity for 2500 sow places and 14,000 places for rearing production pigs. At full capacity the Installation will house 2500 sows (and their piglets) and served gilts (of which 400 are farrowing), 4000 pigs of weight 7 – 15kg, 4000 pigs of weight 15 – 30kg, 14,000 finishing production pigs (>30kg and including 500 unserved gilts) and 22 boars (please note livestock numbers are still to be confirmed, see Part D). Livestock which die during the production cycle are recorded and incinerated in an on-site carcass incinerator.

It is proposed that the Installation will include 14 houses (4 dry sow houses, 2 farrowing houses, 2 growing houses and 6 finishing houses), all of which will have extraction units, supported by abatement, to reduce ammonia and odour.

Hot water generated by the anaerobic digestion plant will be pumped to the pig units providing either under floor heating for the piglets or a cooling system through heat transfer technologies. All housing is linked via an enclosed pig race which allows for the movement of livestock through the system as they grow.

The proposed housing comprises a partially slatted floor, with slurry collected underneath in channels which are flushed every 48 hours with water. The slurry is then piped to the AD plant for treatment by separation and blending with maize silage prior to digestion. Digestate produced from the AD plant will be exported off site and spread on land when demand allows. It is proposed that excess liquids are treated in the on-site liquors treatment plant and either re-used on site for cleaning or discharged to sewer for further treatment at the local waste water treatment works.

The site has an on-site feed mill. The proposed mill operates automatically, pig feed is fed via augers into the mill and mix system. A collection of feed storage tanks and silos no greater than 6m in height are also proposed.

It is proposed that roof water is collected in a rainwater retention area to the west of the site. A storm tank will provide additional capacity in the event of high rainfall. The roof water will be used to either top up the water within the flushing system or be treated and used for drinking water for the pigs. Any excess water from the rainwater tanks will be discharged through an attenuation pond to a soak away or discharged to controlled water. Surface water from roadways will pass through an interceptor and into the rainwater retention tanks.

It is proposed that the Anaerobic Digestion plant will treat up to 45,000 tonnes per annum (tpa) of pig slurry from the on-site activities mixed with 9,200 tpa of maize and 3,200 tpa of spoiled wheat straw imported onto site. The biogas produced will be burnt in a biogas combustion engine with associated engine exhaust stack. The engine has a thermal input of no more than 5MW. It will produce electricity and heat for use within the facility.

Part C: Reason for refusal

The application has been refused. The reason for refusal is that based on the information that has been provided to us we cannot be satisfied that the activities can be undertaken without resulting in significant pollution of the environment due to odour which will result in offence to human senses and impair amenity and/or legitimate uses of the environment.

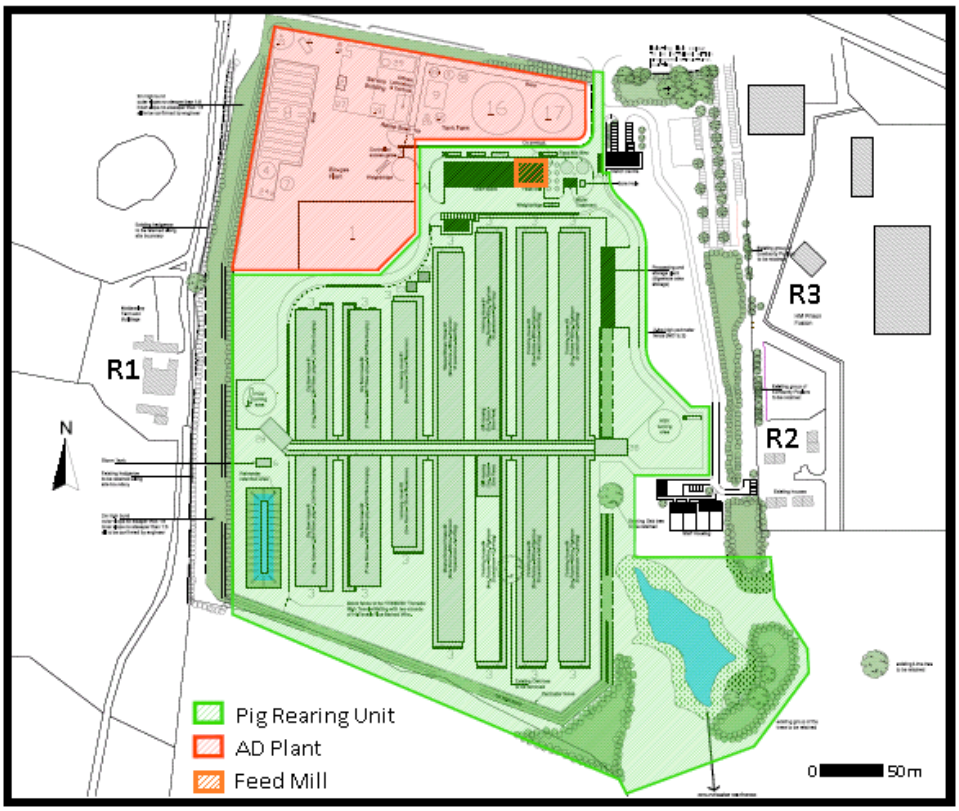
How we reached our decision

This section of the document explains how we reached our decision regarding this facility. Any aspects of the application not discussed in this document are considered acceptable.

The proposed activities on site have a high potential to produce significant odour and as referenced in section B above, the site is located close to a number of sensitive receptors, including a prison. The Applicant has not provided sufficient evidence to demonstrate the effectiveness of their proposed odour control measures to prevent the risk of significant pollution due to odour at nearby sensitive receptors. The Applicant has already been allowed more than sufficient time to have robustly addressed all these issues since the application was first submitted so we consider it is now appropriate to refuse the application.

Our experience of regulating activities of the types proposed in the Application, namely intensive farming and anaerobic digestion sites, shows that they can cause significant odour pollution at nearby receptors.

In the case of this application receptors are located very close to the Installation. The following plan shows the location of the closest receptors (R1, R2 and R3) in relation to the proposed Installation.



R1: Residential property at Maidensley Farm – located less than 100m from installation boundary.
R2: Residential property on Woodland Drive - located less than 100m from installation boundary.
R3: Foston Hall Prison - located less than 250m from installation boundary.

The above plan shows the close proximity of receptors. There are also a number of other receptors within 400m of the installation boundary that are not shown above that have the potential to be adversely impacted on, if odour is not controlled on site.

Both the prison and residential receptors are well within the distance associated with odour pollution from anaerobic digestion sites and intensive farms. It is set in Environment Agency sector guidance for intensive farming that where an intensive farming activity is taking place within 400m of receptors, an odour management plan (OMP) is submitted as part of the application.

In the light of the close proximity of receptors, and the fact that there are no existing pig rearing or anaerobic digestion activities taking place in this location, local receptors are likely to be sensitive to the types of odours that may be released. Therefore, proposals around odour management on site need to be suitably robust to give us confidence that odour can be adequately controlled. For this reason the most recent Schedule 5 Notice required the Applicant to submit detailed information on their proposed odour management and abatement proposals for the main activities on site.

The application, including responses to the Schedule 5 notices and other additional information submitted has been assessed by the Environment Agency. The assessment has highlighted a number of deficiencies in the information provided. The level of deficiencies are such that we believe, based on what is proposed, that odour from the proposed activities will not be effectively managed so as not to result in significant pollution beyond the site boundary.

The following section provides further details of the assessment we carried out and highlights the key deficiencies in the information :

Odour management plans (OMPs)

The Applicant's proposals are composed of three main activities, namely;

- Pig rearing
- Anaerobic Digestion Plant
- Feed Mill

We have assessed the odour management proposals (as detailed in the Schedule 5 notice response received 24/10/14, which supersedes all previous submissions) for each of these activities. The proposals were found to be

deficient in a number of key areas and as a consequence we do not believe that odour from the proposed activities can be effectively managed so as not to result in significant pollution beyond the site boundary.

Pig rearing

Overview

Based on the information that has been submitted the Applicant has failed to demonstrate that in this location their odour management proposals would be effective in preventing an unacceptable risk of odour pollution. There is considerable uncertainty around the effectiveness of the Applicant's proposed odour controls/contingency action plans to minimise the risk of unacceptable odour pollution. This is specifically in relation to the pig house air extraction abatement system design and contingency plans and to the measures to minimise risk of fugitive odour emissions from the pig rearing facilities.

The Applicant has not provided a clear design understanding of critical abatement system design parameters for effective odour control, nor have they provided sufficient information on proposals for the monitoring of those parameters or information on the measures to alert the Operator to abatement system malfunction. There are also no clear contingency plans for each malfunction scenario.

We have based this view on the following:

- Abatement system design and operation

The Applicant has proposed a 3 phase abatement system comprising water/acid scrubber and biofilter, however we have no detailed information on the operation or design, despite a specific request letter (dated 07/05/14). The limited data that is provided on the abatement system design is unclear and it has been presented in multiple documents and there is no definitive list of process controls or monitoring techniques. For example, there is no process control block diagram of the proposed system. Such a diagram is a standard design requirement for any process equipment and gives an overview of the design and key control methods for effective operation. The lack of such a diagram adds to the lack of clarity in the abatement systems' key design features for odour control.

The Applicant has provided a list of automatic controls for multiple facilities including ventilation and abatement systems, however it is unclear whether this is an exhaustive list of continuous monitoring. In addition, there is no separate list of periodic/manual monitoring parameters for effective abatement system operation. The level of such monitoring would need to be proportionate to the risk of unacceptable odour pollution beyond the installation boundary in the event of an abatement failure. For this Installation the immediate proximity of the sensitive receptors to the installation boundary, demands a high level of monitoring, primarily via continuous monitoring, to allow the operator to be promptly alerted to abatement failures and therefore to minimise the time when the abatement system is not operating as

designed. This lack of clarity leads to uncertainty in the effectiveness of the abatement system design to minimise the risk of unacceptable pollution due to odour beyond the installation boundary. In particular, it is unclear which specific abatement system operating parameters are critical for effective operation and what are the critical ranges of these parameters to prevent abatement system malfunction and under performance, leading to potentially elevated odour levels. In addition, there is no clarity on what specific performance triggers/alarms would be in place to minimise risk of unacceptable odour pollution beyond the installation boundary with respect to abatement system failure.

- Ventilation design

The anaerobic digestion plant service room has a ventilation design basis of 3 air changes per hour. The pig house ventilation system includes variable speed extraction fans linked to temperature monitoring within the pig houses. The application details (document reference FOS 49) how ventilation rates are calculated for each building based on pig numbers and using ventilation factors from reference papers. Total volumetric volumes for each pig house appear in the modelling report (document reference FOS14 table 5-2). However there is no justification that the stated air changes provide effective ventilation control to minimise risk of fugitive emissions from pig rearing buildings.

The report on ventilation (FOS 49 within Schedule 5 response dated 24/10/14) states the following:
"The proposed design of the pig houses is based on a principle of heat exchange. This has major advantages in terms of climate control and will reduce the ventilation requirement by removing heat balance from the ventilation equation. However, the implications in terms of containment (i.e. prevention of fugitive releases) and air flow to prevent build-up of gasses requires consideration."

The ventilation system design appears to focus only on animal health welfare without consideration of how it is to maintain containment of fugitive odour emissions within the pig rearing units, for example when the doors are open. As such they have not given the issue of fugitive emissions control the consideration they themselves stated it requires.

The Applicant has commented in the Schedule 5 response (received 24/10/14, response to question 21 on how ventilation is to be designed to minimise risk of fugitive emissions) that the inlet ventilation grill locations are "irrelevant", this shows a worrying lack of understanding of ventilation design. Specifically the interplay between the door position and air inlet positions is crucial along with overall ventilation design to maximise the chance for air to flow in through the pig rearing building doors when open and minimise risk of fugitive emissions.

The Applicant has confirmed in the Schedule 5 response (received 24/10/14, response to question 23) that volumetric flows for each scrubber abatement

system will be monitored but in the context of pig house temperature control. However, it is unclear how this will be utilised in a dynamic manner to ensure ventilation extraction system volumetric flows are maintained on a day to day basis to prevent fugitive emissions from the pig houses.

In summary, there is insufficient data to confirm that when controls are in place it will minimise the risk of fugitive emissions from the pig house buildings. This is in relation to the risk of unacceptable odour pollution beyond the installation boundary resulting from pig house stack emissions.

The Applicant's response is generic, the information provided is not detailed enough for us to fully assess the fugitive emissions risk. The uncertainty in the ventilation design effectiveness in minimising fugitive emissions means there is the potential for odorous fugitive emissions beyond the installation boundary. This results in potential for elevated odour levels beyond that predicted in the modelling report detailed in the odour impact assessment.

- Odour management plan detail

We have assessed the Applicant's odour management plan for the pig rearing activity that was submitted as part of the Schedule 5 Response received 24/10/14. The Applicant has covered the key headings of receptors, odour control measures, contingencies, odour complaints and emergency plans in line with Environment Agency H4 guidance (Odour Management - How to comply with Your Environmental Permit March 2011).

However the OMP document lacks the level of detail for it to be taken as an operating procedure particularly in the key areas of odour control, monitoring and contingencies.

It is the case that there are multiple technical documents linked to odour including a checklist, monitoring sheet, site plan listing locations of each abatement system and vents plus responses to specific questions asked as part of the most recent Schedule 5 Notice (response to questions 20 to 30) that do not form part of the Odour Management Plan document.

Specifically the details of the pig rearing facilities abatement system design and monitoring is limited in the OMP (information provided in the OMP is included in section 6.3). The OMP does not include the level of information on pig rearing abatement system design required in our clarification letter dated 07/05/14. There are additional submitted documents covering these subjects but not referenced in the OMP. However there is no clear overall definitive final abatement system design performance criteria and definitive list of monitoring of critical parameters linked to this abatement system.

Contingencies and emergency plans are discussed under section 7.0 and 9.0 of the OMP respectively and reference to a Crisis Management Plan and Accident Management Plan. Only the former refers to actions under potential odour abatement system failure; however the details are vague and

incomplete. These deficiencies are discussed in more depth below in the section entitled ‘contingency plan’.

In terms of door use for the pig rearing facilities, section 6.2.1 of the OMP clarifies door use policy to minimise fugitive emissions. However there is no discussion of how ventilation design integrates with door usage to minimise fugitive releases.

Section 6.2.3 of the OMP which is entitled Extraction System Monitoring, gives no specific monitoring criteria linked to the ventilation system for effective operation for fugitive mission control. The OMP appendix document entitled “Monitoring Schedule” does discuss optimisation of fan speed and air velocity but only in the context of the pig rearing unit temperature control and not in terms of volumetric flow or room pressure to allow containment of fugitive emissions within the buildings.

There is a section in the OMP linked to exporting pigs from the Installation (section 5.12). The dedicated loading area for the pigs will have a door policy to ensure closure of doors after lorries enter the area. However, again there is no clear statement on the ventilation design for this area and the critical monitored parameters to prevent fugitive emissions from this area when the doors are opened.

Overall the OMP submitted is not the comprehensive document required, referencing all key supporting documents, to provide details of control measures to minimise odour. We expect the OMP to act as an operating procedure. However, the one that has been submitted is deficient in many areas. It does not provide us with confidence that the measures proposed by the Applicant are likely to be effective in minimising odour pollution beyond the installation boundary.

The following is the standard odour condition, included in Environmental Permits issued for installations:

X.X.X Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

In line with the above condition and in this location and for these activities an approved OMP is required and we would not issue a permit without this in place. The OMP should describe the measures an operator will employ to prevent or where it is practicable to minimise odour. For the reasons discussed above we are not confident that the OMP submitted can deliver this level of protection and so we are not able to approve the OMP.

- Contingency plan

The Applicant's response to Schedule 5 question 28 (received 24/10/14) gives information on AD plant contingencies but insufficient details on ventilation /abatement system failures for pig houses. The response does not reference the document(s) where contingency plans for the pig rearing units can be found. More details are provided on contingencies in the pig farm OMP (FOS 17) in section 7.0, plus general responses in Appendix B and the crisis management plan FOS31. This leads to a lack of overall clarity with so many different documents giving partial answers and that nowhere is there a definitive list of actions and commitments to minimise the risk of unacceptable odour pollution beyond the installation boundary covering the full scope of potential odour control measure failures.

There is a specific section on the pig rearing unit odour abatement failures (section 7.4) with some monitoring parameters for wet scrubber and bio filter elements of the abatement systems. However the specific process monitoring parameter/alarms that are crucial in alerting the applicant to the fact that the abatement system is not working effectively are not identified. There are no specific contingency plans for each potential failure mode. Discussion is included on abatement system failures and moving pigs to spare wash rooms /transferring pigs off site in FOS31 crisis management plan. However there is no detail of the time to complete these actions, except for failure of heat exchanger system which has corrective actions within approximately 24 hours. It is unclear whether relocated pigs would be within areas with abated or unabated atmospheric emissions and hence no data to inform quantification of elevated odour levels and over what time periods.

- Overall process controls supervision for odour systems abatement

The Applicant has confirmed that there is a fully automated odour control unit system with 24 hour breakdown cover from suppliers for the anaerobic digestion plant service building abatement system. There is no such statement for cover for the pig rearing abatement system. It is not clear what the operator's time period is to respond to odour control unit malfunction and to commence actioning of the specific measures within the contingency plan in order to minimise odour pollution linked to the abatement system failures.

- Commissioning protocol

The Applicant's proposals for commissioning are detailed in their response to the latest Schedule 5 Notice (received 24/10/14, response to question 30). The proposals are generic and simply states the usage of a pilot facility will be utilised to develop commissioning protocol. Whilst we understand a final detailed commissioning protocol is not possible at this stage, we required the Applicant to provide an outline commissioning plan including information covering how the commissioning would utilise stack odour monitoring alongside equipment commissioning and abatement system parameter optimisation to ensure abatement performance in line with their proposed estimated final stack odour emission levels. This level of information has not been provided.

In summary, based on the information provided for the odour management from the Pig rearing activity we have serious concerns over the Applicant's ability to control odour.

Our main concerns are as follows:

The final stack odour levels proposed for pig rearing facilities vents post abatement, utilised in the Applicant odour modelling, have not been clearly justified to represent the chosen abatement design. The Applicant has not provided reference data to represent the typical performance of the chosen abatement design in this type of farming application. In addition there are uncertainties around the environmental impacts resulting from the failure of the odour abatement systems that are specifically designed to treat the pig houses vented emissions. The uncertainties are caused by the lack of clarity on unabated odour emission levels and the time such emissions would last for before abatement system failures are resolved and the effectiveness of the contingency plans to minimise the risk of unacceptable odour emissions during the period of these abatement failures.

Whilst some technical details have been provided the abatement system performance design information and contingency plans still have considerable gaps. It is also unclear what specific criteria constitute abatement system failure. There is no clear link between system monitoring, triggers indicating system out of normal operating range and then follow on specific corrective actions and timeframes for each failure mode.

Overall there is considerable uncertainty in the predicted odour levels beyond the installation boundary linked to pig rearing facilities in both normal operation and failure modes of chosen vent abatement systems. In addition to this and as mentioned previously in this document there is the potential for additional fugitive odour emissions from pig rearing facility buildings. All this, plus the lack of clarity in the final odour abatement design and monitoring / contingency plan corrective measures, means there is the potential for unacceptable odour pollution at sensitive receptors beyond the installation boundary. This risk is heightened with sensitive receptors located in the immediate vicinity of the installation boundary as any significant odour release is likely to reach a sensitive receptor before it is dispersed to levels that will not result in unacceptable pollution.

Because of the sensitive receptors locations there is negligible buffer distance and time to correct an abatement or ventilation system failure before there is the potential for a significant risk of unacceptable odour pollution at these receptors. The conclusion is that contingency plans to minimise odour levels in the event of such system failures would have to be implemented immediately. We consider it highly improbable that in any circumstances such contingency plans could be actioned immediately given the limitations of the time to allow for pig movement and rectification of ventilation /abatement system failures.

Whilst we understand that some final matters of detail may need to be refined during final design the Applicant needed to provide enough detail for us to be satisfied that in principle there will be adequate measures in place to prevent an unacceptable risk of odour pollution beyond the installation boundary. The Applicant has not done that. The deficiencies in the application are so significant and the buffer distance between the Installation and receptors is so small that based on the information submitted there are no conditions that could be included in a permit that could make the proposals acceptable.

Anaerobic digestion plant

Overview

The proposals for odour management for the AD plant are contained within the Odour Management Plan submitted in the latest Schedule 5 response received 24/10/14 We have reviewed the plan and for the reasons set out below we do not have confidence in the Applicant's control measures to prevent an unacceptable risk of odour pollution beyond the installation boundary.

- Inventory of odorous materials

Odorous materials are not separately identified in the OMP. The 'odour sources' listed in section 4.1 of the document are actually locations, and activities associated with some odorous materials. This list does not adequately describe the odorous materials involved. For example, the quantity, age and odour potential of Maize Silage are not discussed.

Furthermore, section 4.1 of the OMP does not include all materials on site and only considers them to be relevant under planned conditions that would expose them. Even for this purpose it is incomplete. Treated digestate liquor in particular is not included, despite its use to flush manure from the pig houses. Unless this material consistently has a low odour potential (it is not clear how this will be achieved), the flushing process could result in episodic loading of the piggery containment and abatement systems.

Digestate cake is a common source of odour at AD sites. Section 5.2 of the OMP states that 'storage is also required for the cake. . .'. Later in this section it states 'separated cake is stored offsite and as such is not covered by this OMP.' Then, the site plan between pages 31 and 32 of the OMP identifies an area to the east of the pig houses and within the permitted boundary as 'digestate cake storage'. Therefore we do not know whether or how much digestate cake will be stored on site, how odorous it might be or under what conditions it might be stored.

It is understandable that the operator wants to keep open a number of options for management of whole digestate, liquid digestate and cake. However, these options must be thoroughly considered in plans for operating the site and controlling odour.

The lack of complete accounting for odorous materials means it is not clear that all odorous sources have been considered and therefore we cannot fully assess the adequacy of the process and emission control measures.

- Reducing odour potential of materials

Section 5.1 of the OMP identifies that the odour potential of materials can be reduced by about 85% through anaerobic digestion. Only one academic reference, which could not be verified, is cited in support of this claim. While we accept the basic premise of this statement, the operator has provided no information to support the claim that a similar level of odour reduction will be achieved in this process.

Furthermore, the odour reduction figure of 85% is not clearly defined and only described as 'typical'. There is no suggestion that the operator intends to achieve or monitor against odour reduction targets. Without any clear definition of what is meant, along with specific process control commitments, we can draw no conclusions about the likely odour potential of finished digestate. This raises concern as there are no proposals to incorporate an odour control unit into the design of the digestate cake collection store. Also, we do not know how odorous condensate will be managed or whether it will be returned to the process.

- Process monitoring and control

Loss of process control can result in highly odorous finished materials, odorous fugitive emissions and the need for exceptional maintenance procedures that would compromise containment of the sealed system. Therefore, monitoring needs to be targeted and clearly lead to decisions relating to process control. Sampling of large tanks can also be quite difficult due to incomplete mixing and natural stratification.

A number of parameters are planned to be routinely monitored throughout the process. However, there is no information regarding how these samples will be taken, how representative they will be of materials sampled or how decisions will be informed by analytical results. Statements like '. . .will be used to evaluate the general health and stability of the digester.' are not adequate.

A number of potential process control problems are also apparent, all of which could lead to loss of process control and could result in odour:

i. There is no discussion of how the carbon to nitrogen ratio will be monitored and maintained at an optimum level. Failure to maintain optimum carbon:nitrogen ratios can result in the digestate containing increased amounts of unstabilised feedstock which would increase its odour potential.

ii. We do not have clarity on how materials will be pre-treated to remove grit and other contaminants which might block the process, inhibit digestion or cause foaming. These issues can lead to incomplete digestion resulting in odorous digestates. Foaming can also result in significant operational problems resulting in the need for unplanned maintenance of digestors and gas collection systems which could increase the risk of odorous releases. Re-circulating surplus activated sludge could also result in foaming.

iii. Contingency arrangements are necessary to ensure that any loss of process control can be quickly corrected and these are not adequately covered in the application.

- Localised containment features

The Applicant plans to operate a range of containment systems. Sealed systems will be used for produced gas, semi-sealed or localised containment for some tanks and building containment. However, while it appears from the application that these systems will be relatively complex, no details are provided and we are therefore unable to make a proper assessment of whether these systems will be effective in preventing odorous emissions.

The biogas system will be fitted with pressure relief valves as expected. Therefore, any activation of these valves would vent odorous gases to atmosphere. This may be acceptable as an emergency measure, but there is no description of how pressures will be managed to reduce the probability of emergency conditions arising which would make this necessary.

- The main building as a containment feature

The main reception building cannot serve as a containment feature as the doors will regularly be opened. Intermittent exposures caused by episodic release will cause a disproportionate annoyance response in sensitive receptors.

- Air flow design and control

In each case, it is necessary to consider whether appropriate engineering controls have been put in place to ensure that the air handling systems perform as intended. For example, a communal ventilation system for covered tanks would need to ensure that the flow of ventilation air is appropriately distributed throughout the many individual abstraction points. There is no evidence of any specific objectives, engineering input or monitoring controls for these systems. For some key aspects of the process such as the storage area for separated digestate solids on the east side of the site and the slurry and silage blending equipment, no localised containment features or containment performance specifications are mentioned.

The level of professional engineering input for containment and ventilation must be proportionate to the size and complexity of the system involved. That does not appear to be the case here.

- Abatement

The abatement system is specified as an acid scrubber for ammonia removal, followed by a trickling biofilter. This may be satisfactory in principle, but no performance criteria or assessment measures are provided. Some monitoring is mentioned as being 'likely', but there is no indication of how this information will be used to inform management decisions.

Section 6.7 of the OMP provides no relevant design parameters for the system, such as capacity or residence time. As it is a trickling biofilter, it is also important to understand whether water will be used once or re-circulated.

It appears that the abatement system will be required to treat ventilation air from a variety of individual tanks or containment units. However, there does not appear to be any consideration of how air from these sources might vary in their chemical or physical characteristics, or their odour concentration. This assessment is important for optimising the suitability and performance of any abatement system. Concentrated (high volatile organic compounds or high odour) low volume air streams are often more effectively treated separately or with some sort of pre-treatment prior to the main abatement system.

- Enhanced dispersion

Emissions from the abatement system are proposed to be released from a single stack. However, the height of the stack is not mentioned and it does not appear that the site is relying on enhanced dispersion as part of its odour control strategy.

Summary

In summary the Applicant has not provided sufficient information to demonstrate that in principle odours from the anaerobic digestion plant could be effectively controlled at this location. As discussed above, there is a high degree of uncertainty over the design and operation of some of the key odour control systems. We are therefore not satisfied that odour will be controlled so as to prevent unacceptable pollution at nearby sensitive receptors. Whilst we understand that the Applicant may want to refine the proposals during final design they need to provide enough detail now for us to be satisfied that in principle there will be adequate measures in place to prevent an unacceptable risk of odour pollution beyond the installation boundary. They have not done that.

Feed Mill

Overview

The proposals for odour management for the Feed Mill are contained within the OMP submitted in the latest Schedule 5 Notice response received on the 24/10/14. We have reviewed the plan and do not consider that the types and odour potential of the feeds have been adequately defined. This is important as the level of control should be proportionate to the odour potential, it is therefore not possible to assess the appropriateness of the proposed control measures without this information. For example it is proposed that the displaced air from co product tank is released to air unabated during filling. We are unable to assess whether this is acceptable without understanding the odour potential from the feed.

In summary, whilst we accept that the Feed Mill is unlikely to be as significant a source of odour as the pig rearing and AD activities, it still has the potential to contribute to the overall odour from site. With this in mind, for the reason detailed above the proposals lack sufficient detail to give us full confidence that odours will be effectively controlled from the Feed Mill.

Odour risk assessment

As well as Odour Management Plans the Applicant also submitted an Odour Impact Assessment to quantify the likely impact on receptors. The impact assessment included complex dispersion modelling. Our modelling specialists have audited the Applicant's assessment. The following are details of the findings of our audit.

The Applicant submitted an odour impact assessment as part of the application. The assessment was updated during the determination with the final version of the assessment submitted with the Schedule 5 notice response received 24/10/14.

The Applicant's odour impact assessment assessed the predicted impacts of odour emissions from the proposed Installation against benchmark odour levels taken from Environment Agency H4 Guidance (Odour Management - How to comply with Your Environmental Permit March 2011), and potential impact upon human health. These assessments predicted the potential effects on local air quality from the Installation's point source odour emissions using the AERMOD dispersion model, which is a commonly used computer model for regulatory dispersion modelling. The models used 5 years (2004 - 2008) of meteorological data collected from East Midlands Monitoring Station located approximately 27km east southeast of the site. The impact of the terrain surrounding the site upon plume dispersion was considered in the dispersion modelling.

The assessment predicted odorous releases from 15 separate release points. These correspond with the exhaust stacks from the proposed odour abatement systems that serve the pig rearing houses and the proposed service building on the anaerobic digestion plant. The modelled release concentrations were based on odour level measurements taken from a pilot

operation of the proposed abatement systems at an operational pig rearing facility at Wheaton Aston Farm, which is operated by the Applicant, Midland Pig Producers Limited.

The Applicant modelled the predicted odour levels at 19 receptors, including the nearby Prison and nearby residential properties. The levels were compared to a benchmark odour level of 3ouE/m^3 (odour units), which is considered the level at and above which odours of the type likely to be emitted from the proposed activities are likely to be considered offensive and therefore cause significant pollution.

The Applicant modelled the predicted impacts from 4 different operational scenarios in an attempt to show worst case impacts on receptors, they predicted no exceedence of the 3ouE/m^3 benchmark at any receptors. The assessment concluded 'that the proposed primary odour control techniques will provide effective odour abatement for the generated odours to ensure that the pig unit/AD facility will not result in unacceptable levels of impact on the surrounding area'.

However, the way in which the Applicant used the dispersion model, its selection of input data, and the assumptions it made have been reviewed by the Environment Agency's Air Quality Modelling Assessment Unit (AQMAU) to establish the robustness of the Applicant's impact assessment. Our review of the Applicant's assessment leads us to disagree with the Applicant's conclusions.

We undertook significant sensitivity analysis using a range of meteorological data (not considered in the Applicant's assessment, but considered to be equally representative) from the surrounding area (Watnall East Midlands and Coleshill) as well as modelled Numerical Weather Prediction (NWP) data centred on Foston. We also tested sensitivity using alternative pig numbers to those used by the Applicant, but potentially equally representative, calculating emission rates based on an even distribution of the pigs amongst the appropriate houses. We used emission rates based on both potential odour concentrations of 500ouE/m^3 and 800ouE/m^3 for the Pigs houses and 1000ouE/m^3 and 2000ouE/m^3 for the AD Plant service building, as the Applicant did in their assessment. Note that the higher odour concentration of 800ouE/m^3 is based on this being the highest odour emission concentration recorded during sampling at Wheaton Aston Farm. As a result of our checks, we found that when using the odour concentration of 500ouE/m^3 exceedences of the 3ouE/m^3 benchmark are unlikely, however, when modelling was completed using the odour concentration of 800ouE/m^3 exceedences of the benchmark are likely (as a worst case) at the closest sensitive receptors.

However, it must be noted there are high uncertainties in this type of odour modelling. For example there was a high divergence of predictions between the meteorological data and between years. As such our conclusions are viewed as indicative only that odour annoyance may be likely if this plant were permitted. That being said we also have significant uncertainty about the reliability of the odour emission concentrations used in the assessment.

Despite explicitly requesting it, no analysis has been made of the variation in odour emissions linked to actual range of pig house air temperatures and pig number and type variations between pig rearing buildings.

No clear justification has been given to the validity of odour data from the pilot plant trials and whether the fixed pig numbers and temperature conditions used actually represent worst case odour levels for the farming activity proposed, in the light of the fact that there are potentially significant seasonal variations in pig house temperatures throughout the year and pig numbers in different pig rearing buildings.

Overall there is considerable uncertainty in the accuracy of the pilot plant data reflecting actual emissions from the range of pig houses and pig rearing conditions within these houses proposed in the application. Hence, we believe the Applicant has not reflected the full range of operating scenarios in their modelling assessment and therefore actual odour levels could potentially be higher than those modelled as the full range of worst case conditions have not been considered.

It must also be noted that the Applicant has not modelled any fugitive emissions. The Applicant's modelled emission rates for the pig houses are based on air extraction rates that have been derived to ensure pig welfare. We have no way of knowing whether these extraction rates are sufficient to ensure negative pressure in the rearing houses to prevent and minimise fugitive emissions. Therefore we have not been given confidence there will not be any significant fugitive releases. This then leads to further uncertainty that odour modelling outputs reflect worst case normal operating scenario and therefore there is the potential for the Installation to operate at elevated odour levels relative to levels modelled in the Applicant's odour impact assessment.

In summary, it is our view that the Applicant's odour impact assessment does not demonstrate that emissions from the proposed activities will not cause significant odour pollution at nearby sensitive receptors. The odour modelling has high uncertainties associated with it and given the deficiencies in the odour management techniques we have little confidence that data used by the Applicant will represent the actual conditions on site.

Our assessment of the modelling is that it demonstrates that odour is likely to be a significant issue for this site and whilst the Applicant's assessment shows that in normal operating conditions the odour benchmark will not be exceeded at receptors, the Applicant has not provided sufficient evidence to give us confidence that their proposed odour control measures can achieve the odour levels used in the assessment.

Overall Summary

Our experience from other similar permitted activities show that activities of the type proposed have a significant potential to release odour in such quantities as to cause significant pollution at nearby receptors. There are a number of sensitive receptors located very close to the proposed site. It is

highly likely that due to this close proximity any failures in odour management will result in significant pollution at receptors. Therefore we expect the Applicant's proposals to be BAT for odour management and provide a high level of odour control at all times for this site.

Our assessment of the proposed odour management techniques for the site identified a significant number of deficiencies and uncertainties in the proposals which means we are not satisfied the proposals are BAT and have little confidence in the Applicant's ability to effectively control odour on site at all times. We are also not confident that the Applicant's assumptions on achievable odour levels used in odour impact assessment can be relied upon to provide a realistic view on the levels of odour that will be experienced at receptors.

It is therefore our view that, based on the information provided to us, we do not have confidence in the Applicant's control measures to prevent an unacceptable risk of odour pollution beyond the installation boundary.

Also given that dispersion between odour release points and receptor is important in reducing odour impact, the close proximity of the Installation to sensitive receptors means that odour released from this Installation would have little chance to disperse before it reaches receptors. For this reason we cannot give the Applicant any comfort that in this location any proposals would reduce the risk of odour pollution to an acceptable level.

Part D: Issues still to be resolved

The application has been refused, however the following issues remain unresolved and would also need to be addressed before a permit could be granted for this site in the future. As we have decided to refuse the application it seemed unreasonable to put the Applicant to the expense of trying to resolve the issues at this time.

Ammonia assessment – ecological receptors

Linked to the management of odour on site is the potential impact on nearby habitat sites due to emissions of ammonia from the proposed facility. There is the potential for significant amounts of ammonia in the pig slurry to be released into the environment and have an adverse impact on nearby sensitive habitat sites. For this reason we have carried out an assessment of the risk.

There are no Special Areas of Conservation (SAC), Special Protection Areas (SPA) or Ramsar sites located within 10 kilometres of the Installation. There are no Sites of Special Scientific Interest (SSSI) located within 5 km of the Installation. However there are several other nature conservations sites which are Local Wildlife Sites (LWS) and an ancient woodland (AW).

Conservation sites are protected in law by legislation. The Habitats Directive provides the highest level of protection for SACs and SPAs, domestic legislation provides a lower but important level of protection for SSSIs. Finally the Environment Act provides more generalised protection for flora and fauna rather than for specifically named conservation designations. It is under the Environment Act that we assess other nature conservation sites (such as local wildlife sites and ancient woodland) which prevents us from permitting something that will result in significant pollution; and which offers levels of protection proportionate with other European and national legislation. However, it should not be assumed that because levels of protection are less stringent for these other sites, that they are not of considerable importance. Local sites support and link EU and national nature conservation sites together and hence help to maintain the UK's biodiversity resilience.

For SACs SPAs, Ramsars and SSSIs we consider the process contribution (PC) and the background levels in making an assessment of impact. In assessing these other sites under the Environment Act we look at the impact from the Installation alone in order to determine whether it would cause significant pollution. This is a proportionate approach, in line with the levels of protection offered by the conservation legislation to protect these other sites (which are generally more numerous than Natura 2000 or SSSIs) whilst ensuring that we do not restrict development.

Critical levels and loads are set to protect the most vulnerable habitat types. Thresholds change in accordance with the levels of protection afforded by the legislation. Thus the thresholds for SAC, SPA and SSSI features are more stringent than those for other nature conservation sites.

Therefore we would generally conclude that the Installation is not causing significant pollution at these other sites if the PC is less than the relevant critical level or critical load, provided that the Applicant is using BAT to control emissions.

The nature conservation site assessment takes into account the United Nations Economic Commission for Europe (UNECE) critical levels (CLe) for ammonia, which have been applied as follows:

- Sites with sensitive Lichen or Bryophyte interest and habitats for which sensitive lichens and bryophytes are an integral part: 1µg/m^3
- Other vegetation: 3µg/m^3

The assessment also considers the deposition of ammonia resulting in nutrient enrichment (and acidification) against relevant critical loads (CLo). However, where a critical level of 1µg/m^3 is assigned, the level is protective of deposition impacts and so following our guidance no deposition assessments are necessary in this instance.

As part of the initial pre-application discussions with the Applicant, an ammonia screening was completed by the Environment Agency based on the original application details for the pig farm. At that time there were 5 nature conservations sites designated within 2km namely Conygreave and Rough Woods LWS, Sudbury Willow Carr LWS, The Coppice LWS, Pennywaste Wood LWS and an unnamed area of ancient woodland, which were all assigned a CLe of 3µg/m^3.

The PCs of ammonia, nitrogen and acid deposition on these local nature conservation sites were predicted to be below the screening threshold (100%), based on the pig housing abatement system reducing ammonia emissions by 80%, and therefore the Applicant was not required to submit detailed ammonia modelling with their application.

Subsequent revision of livestock numbers, confirmed in the first Schedule 5 response received 10/06/13 (in response to question 9), resulted in a further ammonia screening check being completed by us, which again showed predicted ammonia impacts to be below the screening threshold, based on abatement proposals reducing ammonia emissions by 80%. These assessments were based on livestock numbers of:

- 2,100 sows
- 400 farrowers
- 14,000 production pigs > 30kg (this includes 500 maiden gilts)
- 4,000 weaner pig of weight 7 – 15kg
- 4,000 grower pigs of weight 15 – 30 kg;
- 22 boars (on straw)

However, on receipt of the second Schedule 5 response (24/10/14), a further check was completed which showed the presence of two newly designated local wildlife sites (LWS). Puddingbag Covert LWS is located on the south

boundary of the installtion, with Fishpond Plantation and the Churchleys LWS located to the south east of the installation boundary. On further investigation, these sites were assigned a CLe of 1µg/m^3.

Under normal circumstances if a nature conservation site is situated within 250m of the installation boundary this would trigger the requirement for the Applicant to complete detailed ammonia modelling in support of their application. The Environment Agency have undertaken a basic modelling assessment to provide an indication of whether there would be an impact on these local sites from the Installation. The results have shown the potential for a significant extensive exceedance of the threshold without the abatement system. Taking the abatement into account assuming an 80% reduction of ammonia emissions, we predict a slight and very localised exceedence of the ammonia CLe of 1µg/m^3 at both Puddingbag Covert LWS and Fishpond Plantation and the Churchleys LWS. Due to our lack of confidence in the Applicant's abatement system for the Pig rearing houses (as discussed earlier) it is likely that this impact can be considered a best case scenario.

We would therefore normally require the Applicant to complete a detailed modelling assessment of the potential impact from ammonia on Puddingbag Covert, Fishpond Plantation and Churchleys local wildlife sites. As the application has been refused we consider that it would not be appropriate to ask the Applicant to complete the assessment at this time. Should another application be made for this site in the future this assessment would be required.

Also, with reference to our assessment of the other ecological sites it should be noted that the assessments were based on the pig house abatement systems achieving 80% ammonia removal. Based on the information submitted we do not have confidence in the proposed abatement system (as discussed in Part C) achieving this level of ammonia removal. This means our assessment that the impacts on the other ecological sites is acceptable is valid only if it can be clearly demonstrated that the chosen abatement system can achieve 80% ammonia removal. The Applicant has not done this. Therefore a detailed modelling assessment of the potential impact from ammonia on the other ecological sites may be required for any future application if the proposed abatement system ammonia removal efficiency is less than 80%.

The Applicant submitted an ecological report (FOS 13) on 24/10/14 which does not include these two sites.

Clarification of livestock numbers

The original Schedule 5 response (received 10/06/13) confirmed the following maximum number of permitted pigs on site as follows:

- 2,100 sows
- 400 farrowers
- 14,000 production pigs > 30kg (this includes 500 maiden gilts)
- 4,000 weaner pig of weight 7 – 15kg

- 4,000 grower pigs of weight 15 – 30 kg;
- 22 boars (on straw)

Revising the order and grouping together the served gilts with the sows, the odour modelling report FOS13 (submitted 24/10/14) states the numbers as:

- 2,090 sows (dry sows and gilts)
- 400 farrowers (gestating sow)
- 14,000 production pigs > 34kg (34 – 68kg, 68 – 100kg)
- 5,500 pigs of weight 5 – 14kg
- 5,500 pigs of weight 14 – 34 kg;
- 10 boars

We would therefore require the Applicant to confirm whether the latter is now the maximum permitted numbers applied for and the numbers used in the modelling submitted. Clarity on the pig numbers is important for any assessments of releases of odour and ammonia to air from the Installation.

We would expect these numbers in the following livestock type/weight ranges, and revise any risk assessments affected by the change in numbers:

- Number of sows (dry sows and served gilts)
- Number of farrowers
- Number of production pigs > 30kg (including not served gilts)
- Number of pigs of weight 7 – 15kg
- Number of pigs of weight 15 – 30 kg
- Boars:

The livestock type and weight range are required in the format above to enable the ammonia assessment to be completed in line with our established emission factors for these types and weight ranges and to determine the livestock numbers given in the listed activities and directly associated activities table in a permit should it be granted in the future.

However, as the application has been refused we consider that it would not be appropriate to ask the Applicant to provide this information at this time. Should another application be made for this site in the future this assessment would be required.

Bioaerosols

The Applicant has produced a Bioaerosol Risk Assessment as part of the application. The assessment looked at the potential for bioaerosol releases from the pig rearing and anaerobic digestion plant. The conclusions from the assessment were that the assessment indicated that there was a ‘low to very low risk of impact due to the containment and abatement afforded to all potential significant sources of bioaerosol generation at the site coupled with the effective prevention’ and that ‘the concerns of the opponents to the

scheme are unfounded in relation to significant risk of MRSA and other disease resistant bacteria'.

To help us assess the Applicant's proposals and conclusions the Assessment was sent to Public Health England (PHE) for comment. PHE provided a response which summarises their assessment of the Applicant's risk assessment as follows:

'the Applicant has identified that emissions of bioaerosols may occur from a number of sources in the proposed Installation. Mitigation is proposed through a combination of working practices as well as control measures and abatement fitted to point source emissions to atmosphere. Provided that these can be installed and operated to the standards suggested in the application, that any potential for secondary bioaerosol emissions from the biofilters themselves can be mitigated and that a satisfactory arrangement for the controlled transfer of waste material from the piggery to the AD facility exists, the bioaerosol risk from the Installation should be low because sources of emissions will be enclosed and emissions will be subject to abatement.'

We agree in principle with PHE that based on the Applicant's proposals, bioaerosol risk from the Installation should be low because sources of emissions will be enclosed and emissions will be subject to abatement, mainly achieved by the wet scrubber systems proposed as part of the odour abatement for the pig houses. However, as discussed earlier we do not have confidence in the reliability and effectiveness of the proposed abatement systems to mitigate against odour. Whilst bioaerosols are different to odour, it remains the case that a reliable and robust system is required to be in operation at all times to effectively control potential bioaerosol releases from the pig houses and AD Plant . Therefore for the reasons discussed in Part C we cannot yet conclude that the risks from bioaerosols emitted from site are low.

Should another application be made for this site in the future, the Applicant would need to demonstrate the adequacy of the abatement system in abating emissions of bioaerosols from the pig houses.

Point Source emissions to controlled waters and land

The Applicant has proposed the collection of surface water from surface drains and roof collections system. This would have been collected in a rain water collection tank via interceptors, from which it would be reused for pig slurry flushing and other process purposes. With regards to the Applicant's proposals to deal with excess water, it remains unclear. Despite requests to clarify the proposals the Application contains conflicting information. Section 36 of the non technical summary proposes that the excess rainwater would be ultimately drained to Dale Brook via 2 attention ponds and land drains. However the document titled 'Responses to EA Schedule 5 Permitting Document' dated 10/10/14 proposes that the rainwater will be discharged to land via a single attenuation pond.

Therefore we would require an assessment on the potential impact of the discharge to water quality in Dale Brook, if that was the chosen discharge route. However, we consider that it would not be appropriate to ask the Applicant to provide this information at this time. Therefore should another application be made for this site in the future additional information and further assessment would be required.

Impact of emissions of ammonia on human health

The Applicant did not carry out an assessment of the potential impact on human health from the proposed Installation. We however have carried out an assessment. We based the assessment on the data used in the odour dispersion modelling, from this we calculated indicative predictions for the impacts at nearby sensitive receptors. The ammonia levels predicted were then compared to the EAL values for human health from H1 with an annual EAL of 180ug/m3 and short term EAL of 2500ug/m3. Our assessment indicated that neither the short term nor long-term impact is likely to exceed the EAL's at any sensitive receptors. The assessment however was based on the assumption that the proposed odour abatement systems reduced ammonia emissions by 80%.

As discussed in Part C above we have identified a significant number of deficiencies and uncertainties in the proposals surrounding the abatement systems and we are not satisfied that the proposed system could achieve the 80% reduction. Therefore we cannot yet conclude that the risks from ammonia emissions on human health from site are not significant. For this reason should another application be made for this site in the future we would require the Applicant to submit their own robust health impact assessment that assesses the risk to human health from emissions of ammonia from the installation.

Part E: Other considerations

Control of the facility

The Application has been refused. However, had it been granted, we are satisfied that the Applicant is the person who would have had control over the operation of the facility after the grant of the permit. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator.

Applicable directives

All applicable European directives have been considered in the determination of the application:

The EPR 2010 and related directives

The EPR delivers a number of European and national requirements.

Schedules 1 and 7 to the EPR 2010 – IED Directive

The requirements of the IED are considered in the body of this document.

There is one requirement not addressed, which is that contained in Article 5(3) IED. Article 5(3) requires that "In the case of a new installation or a substantial change where Article 4 of Directive 85/337/EC (the EIA Directive) applies, any relevant information obtained or conclusion arrived at pursuant to articles 5, 6 and 7 of that Directive shall be examined and used for the purposes of granting the permit."

- Article 5 of EIA Directive relates to the obligation on developers to supply the information set out in Annex IV of the Directive when making an application for development consent.
- Article 6(1) requires Member States to ensure that the authorities likely to be concerned by a development by reason of their specific environmental responsibilities are consulted on the Environmental Statement and the request for development consent.
- Article 6(2)-6(6) makes provision for public consultation on applications for development consent.
- Article 7 relates to projects with transboundary effects and consequential obligations to consult with affected Member States.

The grant or refusal of development consent is a matter for the relevant local planning authority. The Environment Agency's obligation is therefore to examine and use any relevant information obtained or conclusion arrived at by the local planning authorities pursuant to those EIA Directive articles.

In determining the Application we have considered the following documents: -

- The Environmental Statement submitted with the planning application (which also formed part of the Environmental Permit Application).
- The response of the Environment Agency to the local planning authority in its role as consultee to the planning process.

We have complied with our obligation under Article 9(2) so far as we are able in that no conclusion has yet been arrived at. From consideration of the Environmental Statement and our response as consultee to the planning process we are satisfied that there is nothing that changes our decison.

The Environment Agency has also carried out its own consultation on the Environmental Permitting Application which includes the Environmental Statement submitted to the local planning authority. The results of our consultation are described elsewhere in this decision document.

Schedule 9 to the EPR 2010 – Waste Framework Directive

As the Installation involves the treatment of waste, it is carrying out a *waste operation* for the purposes of the EPR 2010, and the requirements of Schedule 9 therefore apply. This means that we must exercise our functions so as to ensure implementation of certain articles of the WFD.

We must exercise our relevant functions for the purposes of ensuring that the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste and that any waste generated is treated in accordance with Article 4 of the Waste Framework Directive.

The Application has been refused. However, had it been granted, the conditions of the permit would have ensured that waste generation from the facility was minimised and where the production of waste could not have been prevented it would have been recovered wherever possible or otherwise disposed of in a manner that minimises its impact on the environment. This would have been in accordance with Article 4.

We must also exercise our relevant functions for the purposes of implementing Article 13 of the Waste Framework Directive; ensuring that the requirements in the second paragraph of Article 23(1) of the Waste Framework Directive are met; and ensuring compliance with Articles 18(2)(b), 18(2)(c), 23(3), 23(4) and 35(1) of the Waste Framework Directive.

Article 13 relates to the protection of human health and the environment. This requirement has not been met, as discussed above.

The Application has been refused. However, had it been granted, and had a permit been issued then:

Article 23(1) requires the permit to specify:

(a) the types and quantities of waste that may be treated;
(b) for each type of operation permitted, the technical and any other requirements relevant to the site concerned;

(c) the safety and precautionary measures to be taken;
(d) the method to be used for each type of operation;
(e) such monitoring and control operations as may be necessary;
(f) such closure and after-care provisions as may be necessary.

These would have all been covered by permit conditions.

The permit would have not allowed the mixing of hazardous waste so Article 18(2) is not relevant.

From the point of view of environmental protection, Article 23(3) does apply, and Article 13 has not been met therefore the permit has been refused.

Energy efficiency is dealt with elsewhere in this document but we consider the conditions of the permit, if it had been granted, would have ensured that the recovery of energy take place with a high level of energy efficiency in accordance with Article 23(4).

Article 35(1) relates to record keeping and its requirements would have been delivered through permit conditions, had it have been granted.

Schedule 22 to the EPR 2010 – Groundwater, Water Framework and Groundwater Daughter Directives

To the extent that it might lead to a discharge of pollutants to groundwater (a "groundwater activity" under the EPR 2010), the Permit, had it been issued, would have been subject to the requirements of Schedule 22, which delivers the requirements of EU Directives relating to pollution of groundwater. The Permit would have required the taking of all necessary measures to prevent the input of any hazardous substances to groundwater, and to limit the input of non-hazardous pollutants into groundwater so as to ensure such pollutants do not cause pollution, and satisfies the requirements of Schedule 22.

No releases to groundwater from the Installation would have been permitted, other than the release of uncontaminated surface water. The Permit also would have required material storage areas to be designed and maintained to a high standard to prevent accidental releases.

Directive 2003/35/EC – The Public Participation Directive

Regulation 59 of the EPR 2010 requires the Environment Agency to prepare and publish a statement of its policies for complying with its public participation duties. We have published our public participation statement.

This Application has been consulted upon in line with this statement, as well as with our guidance RGN6 on Sites of High Public Interest, which addresses specifically extended consultation arrangements for determinations where public interest is particularly high. This satisfies the requirements of the Public Participation Directive.

Our decision in this case has been reached following a programme of extended public consultation. The way in which this has been done is set out in Part A. A summary of the responses received to our consultations and our consideration of them is set out in Annex 2.

Directive 92/43/EEC – Habitats Directive

This Directive covers the conservation of habitats and wild flora a fauna. Part D contains details of how we have considered this Directive in our determination.

Site condition report

The operator has provided a description of the condition of the site.

We consider this description is satisfactory. The decision was taken in accordance with our guidance on site condition reports and baseline reporting under IED – guidance and templates (H5).

However had the permit been issued we would have included a pre operational condition to provide final design and construction proposals for the AD plant containment bunding, surfacing and bentonite/geotextile layer (see below).

Biodiversity, heritage, landscape and nature conservation

The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.

A basic assessment of the application and its potential to affect the sites has been carried out as part of the permitting process.

Please see Part D above.

Environmental risk and control measures

We have reviewed the operator's assessment of the environmental risk from the facility.

Point source emissions to air (excluding odour and ammonia).

The application proposed to utilise the biogas produced by the AD process to generate electricity via the burning of the biogas in a Combined Heat & Power gas engine; and they also proposed the operation of a standby flare that will be utilised in emergency situations. The Applicant provided an assessment that predicted impact from emissions of combustion gases from the CHP engine and flare on nearby sensitive receptors. The key pollutants assessed were nitrogen dioxide, particulates, carbon monoxide and sulphur dioxide.

The assessment concluded that emissions would not lead to any exceedances of relevant air quality standards at nearby sensitive receptors. Our review of the Applicant's assessment leads us to agree with the Applicant's conclusions. The permit had it been granted would have contained requirements for periodic monitoring of emissions of relevant pollutants from the CHP emissions.

Based upon the information in the application, if a permit had been granted we would have been satisfied that emissions of the pollutants assessed would not have given rise to significant pollution and therefore the operating techniques for the flare and CHP are considered BAT. Also based on the information in the application we are satisfied that there would not be any other pollutants released to air from a point source at levels that required assessment.

Fugitive emissions to air (excluding odour)

The primary fugitive releases to air from the proposed activities is considered to be odour (including Ammonia), for which the Applicant's control measures have been discussed above for the AD plant, pig rearing operation and feed mill.

Therefore other potential significant releases are considered to be dust and bioaerosols. The potential sources of dust are also sources of bioaerosols for the AD plant and Pig rearing activity, the Applicant has completed a Bioaerosol Risk Assessment for these activities, which can also be considered an assessment of dust. This is discussed in part D.

The risk of fugitive releases of dust from the feed mill activity has been considered, the Applicant's primary control measure was that the mill is contained with a fully enclosed building with a door policy in place to ensure doors are closed at the time of milling to minimise dust. Self cleaning dust filters and screen cleaners are also proposed. Regular cleaning and vacuuming is also proposed.

Based upon the information in the application, if a permit had been granted we are satisfied that the appropriate measures would have been in place to prevent or where that is not practicable to minimise dust and to prevent pollution from dust from the feed mill activity.

Point source emissions to controlled waters and land

Discussed in Part D above.

Point source emissions to sewer

The Applicant's proposals include a Liquors Treatment Plant. The chosen treatment method proposed was biological treatment using a tank- based Sequential Batch Reactor System (SBR). It would have been primarily used to treat excess liquid digestate from the AD process. It was proposed that

following treatment of the liquors a proportion of this will be discharged to sewer for further treatment at the nearby waste water treatment works. The remaining liquor would have been utilised on site for cleaning. The Applicant has provided an assessment of the potential impact of the discharges on controlled waters. The assessment concludes that there will be no significant impact on downstream water quality. We have reviewed their assessment and agree with their conclusions.

Based upon the information in the application, if a permit had been granted we would have been satisfied that the chosen method treatment was appropriate for the site and the emissions to sewer would not have given rise to significant pollution.

Fugitive emissions to water & land

The Applicant has assessed the risk of releases of potential polluting substances to water and land. The key risk from the anaerobic digestion plant is from loss of containment from the tanks and vessels on site. The Application proposals include bunding of above ground tanks and vessels to contain 110% of the largest tank or 25% of the total tankage. Also all bunds and sumps will be impermeable. The underground digesters will be constructed from concrete and conform to relevant standards. Also the entire AD plant will lined by a bentonite and geotextile layer. An inspection programme for regular inspection of pipework, tanks, bunds and surfacing has been proposed.

We consider that in principle the control measures are acceptable and constitute BAT, however there remains some uncertainty about the extent of the impermeable surfacing proposed and the construction proposals for the bentonite & geotexile layer that underlie the site. The permit had it been granted would have contained a pre operational condition for the Operator to provide, for approval, the final detailed design and construction proposals for the bunding and impermeable surfacing and of the proposed bentonite/geotextile layer.

With regards to fugitive emissions to water and land from the pig rearing and feed mill activities we are satisfied, if a permit had been issued, that the Applicant’s control measures would have been BAT.

Noise

The Application has been refused. However, had it been granted, we would have required additional information via pre-operational condition requiring the operator to conduct a noise assessment based on the detailed plant design.

A review of information provided indicated that the proposals are not expected to result in a significant noise impact provided it is built using the mitigation

proposed in the application and so are acceptable in principle. However, as the detailed design of the facility is not yet finalised a further assessment to confirm this would be required.

The application contained a noise impact assessment which identified local noise-sensitive receptors, potential sources of noise at the proposed plant and noise attenuation measures. Measurements were taken of the prevailing ambient noise levels to produce a baseline noise survey and an assessment was carried out in accordance with BS4142 to compare the predicted plant rating noise levels with the established background levels.

The Applicant's assessment submitted with the application described the proposed noise mitigation techniques that will be employed at the Installation, these included:

- Pigs are fully enclosed within rooms inside pig sheds and movement of pigs between pens is internal.
- Grain deliveries carried out within buildings.
- Building fans located within buildings and regularly maintained and cleaned.
- CHP unit enclosed within sound proof container unit.

Odour

Discussed in Part C above.

Accidents that may cause pollution

The Application has been refused. However, had it been granted, we would have included a pre operational condition in the permit for the operator to submit an updated Accident Management plan for approval by the Environment Agency. This is because the plan that has been submitted with application is incomplete and subject to change dependent on the final design of the Installation, but acceptable in principle.

Energy efficiency

The Application has been refused. However, had it been granted, we are satisfied that the Applicant's proposals represent BAT for energy efficiency for this Installation. The key technique proposed is the treatment of slurry to produce biogas which will then be used to generate electricity that will either be used for onsite power needs or exported off site to the national grid. In addition excess heat produced from the CHP gas engines will be utilised to serve the heating requirements within the AD process. Other measures included:

- Fully insulated houses
- Temperature control in houses
- Use of high efficiency motors for pumps and fans

- Low energy lighting for houses and operational area
- Equipment servicing and maintenance programmes for heaters and fans

The permit would have included a condition requiring the Operator to review and record every 4 years whether there are suitable opportunities to improve the energy efficiency of the activities on site.

Raw materials

The Application has been refused. However, had it been granted, we are satisfied that the Applicant's proposals represent BAT for efficient use of raw materials. The key techniques include the collection and recycling of rainwater from surface water drains and roofs for flushing pig houses and for cleaning; use of nipple drinking systems to minimise water use,

The permit would have included a condition requiring the Operator to review and record every 4 years whether there are suitable opportunities to improve the efficiency of raw material and water use on site.

Operating techniques

We have reviewed the techniques used by the Applicant and compared these with the relevant guidance notes. The proposed techniques/ emission levels for priorities for control are in line with the benchmark levels contained in the technical guidance note and we consider them to represent appropriate techniques for the facility, with the exception of those relating to odour control as discussed in Part C.

Waste types

The Application has been refused. However, had it been granted, we would have specified in the permit that the following permitted waste types descriptions and quantities for the AD plant.

Waste Codes	**Description**
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, AND HUNTING, FISHING, FOOD PREPARATION AND PROCESSING**
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 01	sludge from washing and cleaning – vegetables, fruit and other crops
02 01 03	plant tissue waste - husks, cereal dust, waste animal feeds, off-cuts from vegetable and fruit and other

	vegetation waste
02 01 06	animal faeces, urine, manure including spoiled straw
02 05	**Wastes from the dairy products industry**
02 05 01	biodegradable materials unsuitable for consumption or processing (other than those containing dangerous substances) − solid and liquid dairy products, milk, food processing wastes, yoghurt, whey from dairies
02 05 02	sludge from dairies effluent treatment

The total tonnage of waste would have been limited to 67,000 tonnes per annum.

Pre-operational conditions

The Application has been refused. However, had it been granted, we consider that we would have imposed pre-operational conditions.

i. A condition requiring the Operator to provide final design and construction proposals for the AD plant containment bunding, surfacing and bentonite/geotextile layer would have been required for approval by the Environment Agency.

Reason: The Applicant provided an overview of the design, extent and construction of the proposed containment for the AD Plant which we consider acceptable in principle. However due to the significant quantities of waste and digestate that will be stored and therefore risk of pollution in the event of a failure of the proposed containment, we require details of their final proposals to ensure they will provide the required level of protection.

ii. A condition requiring the provision of a commissioning plan for the AD plant, Liquor Treatment plant and Pig rearing abatement systems would have been required for approval by the Environment Agency.

Reason: For complex plant such as the AD plant proposed the commissioning phase is considered vital in proving the plant can operate safely and without causing significant pollution. A commissioning plan was not submitted as part of the application.

iii. A condition requiring that a review of the design, construction and integrity of bunds surrounding above grounds tanks, sub surface digesters and the entire site containment is carried out by a qualified structural engineer. A written report of the findings and recommendations would have been required to be submitted to the Environment Agency for approval.

Reason: Due to the proposed quantities of waste and digestate that will be treated and stored on site we require assurance that the containment and storage/treatment vessels are fit for purpose.

iv. A condition requiring the Operator to make available to Environment Agency for inspection before commissioning of the AD plant, Liquor Treatment plant and Pig rearing abatement systems operational, training and maintenance manuals for the site.

Reason: The Applicant has provided an overview of the proposed operation procedures and training for the proposed AD plant which we consider acceptable in principle (other than those aspects relating to odour control as detailed in Part C above). Owing to the relatively high risk nature of the activities we would have required confirmation that suitable systems were indeed in place prior to operation had a permit been granted.

v. A condition requiring the Operator, before the commissioning of the AD plant, Liquor Treatment plant and Pig rearing abatement systems, to submit an assessment of the consequences of fire on site, but not limited to, quantitative consideration of fire fighting water and other materials.

Reason: The Applicant has provided an overview of the proposed fire prevention techniques which we consider acceptable in principle . They have not provided details of their proposals to contain fire water. Due to the storage of combustible gases on site, and therefore risk of fire we would have needed to ensure appropriate techniques were in place prior to operation of the plant had a permit been granted.

vi. A condition requiring the Operator to submit to the Environment Agency for approval an updated accident management plan for the AD facility.

Reason: The Applicant has submitted an accident management plan that, although incomplete, we consider acceptable in principle (other than those aspects relating to odour control as detailed in Part C above). An updated and complete plan would have been required prior to operation.

vii. A condition requiring the Operator to submit to the Environment Agency for approval an updated Noise assessment based on the final design of the Installation.

Reason: See section on noise above.

Had we have been satisfied in principle with the odour control measures on site further pre operational conditions may have been required.

Improvement conditions

The Application has been refused. However, had it been granted, we consider that we would have imposed the following improvement conditions.

i. A condition requiring the Operator to carry out a noise survey with 12 months of the start of operations on site and submit a report to the Environment agency that compares the results with the predictive calculations presented in the application.

Reason: This would have been required to validate the predictions in the noise assessments.

ii. A condition requiring the Operator to submit a post commissioning report to the Environment Agency within 9 months of the start of the commissioning of the AD plant, Liquor Treatment plant and Pig rearing abatement systems.

Reason: This would have been required so we could have evidence that the plant and abatement systems had been commissioned and details of the findings and any changes to the process as a result.

Had we have been satisfied with the odour control measures on site further improvement conditions may have been required.

Incorporating the application

The Application has been refused. However, had it been granted, we would have specified within any permit those parts of the application , including additional information received as part of the determination process that we would have required the Applicant to operate in accordance with. Where we were not satisfied with the Applicant's proposals we would have had to impose prescriptive controls in place of incorporating parts of the application into the permit.

Emission limits

The Application has been refused. However, had it been granted we would have decided that emission limits should have been set for the parameters listed below in the permit.

Emission Limits for Gas Engine:

Oxides of Nitrogen = 500mg/m^3

Carbon Monoxide = 1400mg/m^3

Total VOCs = 1000mg/m^3

Sulphur Dioxide = 350mg/m^3

Emissions limit for discharge to surface water may have been required, however the Applicant has not clarified how excess surface water will be disposed of. Therefore we cannot at this stage set any emissions, or decide whether they are required.

Also, it may have been the case that an emission limit on odour from the proposed abatement systems may have been required, however this would have been subject to further in information from the Applicant.

Monitoring

The Application has been refused. However, had it been granted, we would have required monitoring to be carried out for the following:

- Emissions to air from AD gas engine – oxides of nitrogen, carbon monoxide, total VOCs, sulphur dioxide – annually
- Emissions to air monitoring of flare – oxides of nitrogen –annually; hours of operation – continuously
- Pressure relief valves (AD Plant) – weekly visual or remote monitoring to ensure valves are correctly seated
- Process monitoring of anaerobic digestors
- Biogas from digester and storage tanks – flow, methane & hydrogen sulphide – continuously
- Process input – daily
- Tanks and vessels – Integrity checks – weekly
- Representative sample of each digester – volatile fatty acid concentration, alkalinity and carbon:nitrogen ratio – weekly

It is also the case that monitoring requirements for the operation and maintenance of the odour abatement systems would have been included in the permit.

Monitoring requirements for the discharge of surface water to controlled water may also have been included in the permit. As discussed in this document this would have been dependent on further information from the Applicant.

Environment management system & technical competence

The Application has been refused. However, had it been granted, we are satisfied that, with the exception of the facilities for minimising and controlling odour, appropriate management systems and management structures would have been in place for the Installation and that sufficient financial, technical and manpower resource would have been available to the Operator to ensure compliance with any permit condition, with the exception of those relating to odour.

The Applicant stated in the application that the site would have a compliant management system in place that will meet the conditions set out in our

guidance (How to Comply with your Environmental Permit; and Horizontal Guidance Note 6 – Environmental Management Systems) and with specific reference to the operation of the AD Plant a technically competent person on site with an appropriate Certificate of Technical Competence (WAMITAB Level 4 in Waste Management Operations). The Applicant also stated that that an appropriate training programme would be put in place.

Relevant convictions

The Environment Agency national enforcement database has been checked and there are no relevant convictions.

Annex 1: Consultation responses

As discussed in Part A we undertook 2 separate rounds of formal advertising and consultation of the application. The following provides a summary of responses received and the way in which we have taken these into account in the determination process:

Responses from public bodies

Response received from
Public Health England (PHE) – They were initially consulted on the application as a whole and then more specifically on the Bioaerosol Risk Assessment (received as part of the Schedule 5 response on 24/10/ 14).
Brief summary of issues raised
Response to consultation on the application as a whole: PHE highlighted the proximity of sensitive receptors to the site and that the application contains insufficient information for them to fully judge the potential risk to nearby receptors associated with emissions to air of particulate matter and, particularly, bioaerosols. They will consider any further information that the Environment Agency or the Applicant are able to provide to address these points. Response to consultation on the bioaerosol risk assessment: The following is an extract from the PHE response which summarises their assessment of the Operator's risk assessment: *'the Applicant has identified that emissions of bioaerosols may occur from a number of sources in the proposed Installation. Mitigation is proposed through a combination of working practices as well as control measures and abatement fitted to point source emissions to atmosphere. Provided that these can be installed and operated to the standards suggested in the application, that any potential for secondary bioaerosol emissions from the biofilters themselves can be mitigated and that a satisfactory arrangement for the controlled transfer of waste material from the piggery to the AD facility exists, the bioaerosol risk from the Installation should be low because sources of emissions will be enclosed and emissions will be subject to abatement.'*
Summary of actions taken or show how this has been covered
The Environment Agency notes and shares the concerns over the potential impact on sensitive receptors from bioaerosols. Following the initial response from the PHE we requested a bioaerosol risk assessment as part of a Schedule 5 Notice request. This was received on the 24/10/14 and a copy was sent to PHE for further consultation. The findings of the Applicant's Bioaerosol Risk Assessment concluded the risk from bioaerosols as low to very low. Whilst the PHE response agreed in principle, it was if the proposed mitigation ' can be installed and operated to the standards suggested in the application'. We cannot be satisfied this is the case and therefore we cannot be satisfied that there will not be a potential significant impact at this time. Should another application be made for this site in the future, the Applicant would need to demonstrate the adequacy of the abatement system in abating emissions of bioaerosols from the pig houses. See Part D for further information.

Response received from
Health and Safety Executive
Brief summary of issues raised
No issue raised
Summary of actions taken or show how this has been covered
No action required

Response received from
Local Planning Authority – South Derbyshire District Derbyshire Council
Brief summary of issues raised
No issue raised
Summary of actions taken or show how this has been covered
No action required

Response received from
Severn Trent Water
Brief summary of issues raised
1. No formal application for a consent to discharge has been made. 2. If a trade effluent request is made, this is subject to consultation within Severn Trent with relevant departments.
Summary of actions taken or show how this has been covered
No action required

Response received from
Animal Health
Brief summary of issues raised
No issues raised
Summary of actions taken or show how this has been covered
No action required

Response received from
Ministry of Justice (owns and operates HMP Foston Hall)
Brief summary of issues raised
They have identified the following areas of concern: 1.Operational traffic. 2. Odour. 3. Noise (including traffic). 4. Impact on listed Foston Hall and curtilage. 5. Operational implications of emergency procedures should the farm site be locked down. They object to the proposal on the above grounds until such time that they are satisfied that the issues are addressed and can ensure the safe operation of the prison.
Summary of actions taken or show how this has been covered
1. Consideration of the impact from traffic (other than from on site movements) does not form part of the Environmental Permit decision, but is considered in the planning process. However increased emissions would have an impact on background levels for relevant pollutants such as nitrogen oxides and this would be relevant if background levels were likely to breach any limits. However, this is not the case here. With regards to onsite traffic, the principle impact for this site is through noise and accidents. Both these considerations are discussed in Part E of this document. 2. The Environment Agency also has concerns over the potential impact from odour on nearby sensitive receptors, as discussed in Part C. 3. As discussed in Part E, the Environment Agency are satisfied following a review of information provided by the Applicant that the proposals, had a permit been granted, were not expected to have resulted in a significant noise impact provided it was built using the mitigation proposed in the application and so would have been acceptable in principle. However, as the detailed design of the facility was not yet finalised a further assessment to confirm this would have been required. 4. With regards to the potential for damage to buildings as a result of emissions from the site, the potential pollutant concentrations in emissions to air (principally ammonia) from a facility of this type are unlikely to result in damage to buildings. Wider issues such as visual amenity on the buildings and their curtilage would be matters for the planning process. 5. Any lock down would be for animal health reasons and not related to any permit and so this would be a land use planning consideration.

In addition the Foods Standards Agency, Derbyshire County Council Planning Dept, Derbyshire County Council Environmental Health, South Derbyshire District Council Environmental Health and the Director of Public Health were consulted but no responses were received.

Representations from local MP, Assembly Member (AM), councillors and parish / town / community councils

Response received from
Chris Williamson MP – Derby North
Brief summary of issues raised
1. Concern raised about potential harm to human health from bioaerosols, antibiotic resistant bacteria, MRSA and particulate emissions released from the installation. 2. Concerns also raised about the impact from odour, noise and vibration. 3. Concern raised about impact from increased traffic and vehicle emissions.
Summary of actions taken or show how this has been covered
1. The Environment Agency also have concerns over the potential impact on sensitive receptors from bioaerosols and have not on the information submitted been able to assess the risk is acceptable. See Part D above. 2. As discussed in Part E, the Environment Agency are satisfied following a review of information provided by the Applicant that the proposals, had a permit been granted, were not expected to have resulted in a significant noise or vibration impact provided it was built using the mitigation proposed in the application and so would have been acceptable in principle. However, as the detailed design of the facility was not yet finalised a further assessment to confirm this would have been required. 3. Consideration of increased traffic congestion does not form part of the Environmental Permit decision, but is considered in the planning process. However increased emissions would have an impact on background levels for relevant pollutants such as nitrogen oxides, and this would be relevant if background levels were likely to breach any limits. However, this is not the case here.

Response received from
Foston and Scropton Parish Council
Brief summary of issues raised
1. Concern has been raised about the potential for adverse impact from light and noise pollution on local residents. 2. Concern has been raised about the potential effects of polluted run- off into Foston Brook. 3. Concern has been raised about the increased traffic congestion. 4. Concern has been raised about the Applicant's emergency planning contingencies; they are not thorough or informed enough for this facility to be properly prepared to deal with potentially dangerous scenarios. 5. Concern has been raised that the Application is for a greenfield site when a brownfield site is available locally.
Summary of actions taken or show how this has been covered
1. As discussed in Part E, the Environment Agency are satisfied following a review of information provided by the Applicant that the proposals, had a permit been granted, were not expected to have resulted in a significant noise impact provided it was built using the mitigation proposed in the application and so would have been acceptable in principle. However, as the detailed design of the facility was not yet finalised a further assessment to confirm this would have been required. The impact from light would be considered by the relevant planning authority. 2. The Environment Agency notes and shares the concerns over the potential impact from run-off. The Applicant has submitted information on the design and operation of the vessels and secondary containment, which we have assessed and have accepted in principle. However as detailed in Part E, had we granted a permit we would have set a pre operational condition for the Operator to submit final design and constructions proposals for approval. 3. Consideration of increased traffic congestion does not form part of the Environmental Permit decision, but is considered in the planning process. 4. The Applicant has submitted an accident management plan that, although incomplete, we consider acceptable in principle (other than those aspects relating to odour control as detailed in Part C above). An updated and complete plan would have been required prior to operation. 5. This a matter for consideration during the planning process and does not form part of the Environmental Permit decision.

Representations from community and other organisations

Response received from
Foston Community Forum.
Brief summary of issues raised
1. Concern raised about potential harm to human health from bioaerosols, antibiotic resistant bacteria and potential MRSA emissions released from the installation. They have cited reports by the Health Council of the Netherlands which suggests that no intensive farm should be built within 250m of human residents. 2. Concern raised about adverse impact on property values. 3. Concern raised about the effectiveness of the scrubber used to reduced odour emissions. 4. Concern raised about the risk of slurry leaking from underground pipes and vessels. 5. Concern raised about the risk of noise pollution from the installation. 6. Concern raised about traffic congestion and associated pollution. 7. Concern raised about the risk of insect and vermin infestations in local area.
Summary of actions taken or show how this has been covered
1. The Environment Agency also have concerns over the potential impact on sensitive receptors from bioaerosols and have not on the information submitted been able to assess the risk is acceptable. See Part D above. 2. Consideration of the impact on property values does not form part of the Environmental Permit decision. 3. The Environment Agency notes and shares the concerns over the effectiveness of the proposed odour abatement system, due to lack of detail on the design and operation we are unable to determine that the Applicant's proposals are acceptable as discussed in Part C of this document. 4. The Environment Agency notes and shares the concerns about the potential for leakage from underground vessels. The Applicant has submitted information on the design and operation of the vessels and secondary containment, which we have assessed and have accepted in principle. However as detailed in Part E, had we granted a permit, we would have set a pre operational condition for the Operator to submit final design and constructions proposals for approval. 5. As discussed in Part E, the Environment Agency are satisfied following a review of information provided by the Applicant that the proposals, had a permit been granted, were not expected to have resulted in a significant noise impact provided it was built using the mitigation proposed in the application and so would have been acceptable in principle. However, as the detailed design of the facility was not yet finalised a further assessment to confirm this would have been required. 6. Consideration of increased traffic congestion does not form part of the Environmental Permit decision, but is considered in the planning process. 7. The Applicant has assessed the risk of pests and we are satisfied with the proposals.

Response received from
Comments from Friends of the Earth and the Soil Association
Brief summary of issues raised
1. Concern has been raised about sensitive receptors, exposure to unwanted odours and resulting stress induced symptoms. 2. Concern has been raised about the risk to health locally from bioaerosols in particular releases of drug resistant pathogens such as salmonella, clostridium difficile, campylobacter and E Coli originating from the facility.
Summary of actions taken or show how this has been covered
1. The reasons for refusal are based on the potential for the activity to cause unacceptable pollution due to odour. See Part C for further details. 2. The Environment Agency also have concerns over the potential impact on sensitive receptors from bioaerosols and have not on the information submitted been able to assess the risk is acceptable. See Part D above.

Representations from individual members of the public

Over 100 responses were received from individual members of the public. These raised many of the same issues as previously addressed. Only those issues additional to those already considered are listed below:

Brief summary of issues raised.	**Summary of action taken / how this has been covered.**
Concern raised about the explosion risk from the Anaerobic Digester.	It is a requirement for the operator to have an accident management plan in place. As it stands the Applicant does not have an accident plan in place that complies with our guidance. However, if we had issued a permit we would have set a pre-operational condition to submit such a plan. We are satisfied that any such plan could have adequately addressed this risk.
Concerns over the adequacy of the Applicant's contingency plan to deal with an outbreak of foot and mouth disease. Concern that infected animals will be incinerated on site and resulting smoke will affect local residents.	The primary regulator for animal health is the Animal Health and Veterinary Laboratories Agency (AHVLA), whose primary purpose is to help safeguard animal health and welfare and public health. Therefore they are primarily responsible for ensuring the farming industry has measures in place to effectively deal with any disease outbreaks on site. Despite this procedures and contingencies for managing disease outbreak would have been covered included with the site management system. We are therefore satisfied that the

	Applicant would have adequately addressed this risk.
Concern has been raised about the competence of the Operator to safely operate the facility.	Had the Applicant been able to satisfy us on odour and the other outstanding issues detailed in Part D above we would have been satisfied that the Applicant was technically competent and had appropriate management systems in place to safely operate the facility
Concern has been raised about the risk of fires at large scale pig farms, as experienced in the USA.	It is a requirement for the operator to have an accident management plan in place. As it stands the Applicant does not have an accident plan in place that is complete. However, if we had issued a permit we would have set a pre-operational condition to submit such a plan. We are satisfied that any such plan could have adequately addressed the risk of fire.
Concern has been raised about potentially fatal concentrations of hydrogen sulphide and ammonia being emitted from the site.	The main risk of hydrogen sulphide formation is from the storage of slurry in tanks, and human exposure to high concentration when entering the tanks if adequate ventilation has not been provided. It is proposed for this site that slurry will not be stored in tanks but will will be flushed from beneath buildings directly into the AD plant for treatment. The pig buildings are provided with ventilation for animal welfare reasons. Therefore, the formation of hydrogen sulphide in concentrations that may harm human health within buildings is not considered a significant risk. Our assessment of the risk to human health from ammonia is detailed in Part D above. In summary we have not on the information submitted been able to assess whether the risk is acceptable.
Concern has been raised about adequacy of the Applicant's proposed odour/ammonia abatement system. Concern about the validity of the test results demonstrating the efficiency of the system and concern about long term management and maintenance of the system.	The reasons for refusal are based on the potential for the activity to cause unacceptable pollution due to odour, particularly our lack of confidence in the adequacy of the proposed odour abatement systems. See Part C for further details.
Concern has been raised about potential adverse impact from growing the large volumes of maize needed to feed the AD plant on nearby grassland and arable land.	This is not an issue that the Environment Agency is able to consider in the determination of this Environmental Permit.
Concern has been raised about ammonia	Part D of this documents discusses how we have

emissions and its impact on local wildlife site and habitats, and human health.	assessed the impacts on nearby habitat sites. Part D also discusses how we have assessed the impacts on ammonia on human health.
Concern has been raised about the levels of methane that will be produced from the pigs. The installation cannot be considered as environmentally friendly with regards to green house gases.	The Environment Agency also have concerns over the potential impact from odorous releases from the pig houses (including biogenerated methane) on nearby receptors. As discussed in this document we are not satisfied with the Operator's proposals to manage and abate the odorous releases from the pig houses (including biogenerated methane) and therefore the application has been refused. If an application is made in the future for this site then the Applicant would need to demonstrate that their odour (including biogenerated methane) management techniques are BAT. In relation to the reduction of green houses gases we are satisfied that the Applicant's proposals represent BAT for energy efficiency for this Installation (as discussed in Part E). The key measures including the burning of biogas to produce electricity (which would have been used on site and exported) which is generated through the digestion of the pig slurry. This is significant in reducing the overall carbon foot print for the installation.
Concern has been raised that potentially deadly superbugs can be spread by flies from pigs farms.	The applicant has assessed the risk of release of MRSA and other disease resistant bacteria as part of their bioaerosol risk assessment. We have consulted with Public Health England on this document. Details of their response and how we have considered this is shown earlier in this section.
Concerns raised over the financial viability of the proposals.	Consideration of financial viability of the proposal does not form part of the Environmental Permit decision. However we have no reason to consider that they would not have been financially capable of complying with any permit.
Concerns raised over animal welfare.	Consideration of animal welfare does not form part of the Environmental Permit decision. The primary regulator for animal health is the Animal Health and Veterinary Laboratories Agency (AHVLA), whose primary purpose is to help safeguard animal health and welfare and public health.
Concern raised over flooding - Leathersley Lane (southern tip of the proposal area) has previously	The Environment Agency provides advice and guidance to the local planning authority on flood

been known to flood.	risk in our consultation response to the local planning authority. Our advice on these matters is normally accepted by both Applicant and Planning Authority. When making permitting decisions, flood risk is still a relevant consideration, but only in so far as it is taken into account in the accident management plan and that appropriate measures are in place to prevent pollution in the event of a credible flooding incident. The application has been refused, however had it been issued we would have included a pre operational condition in the permit for the operator to submit an updated Accident Management plan for approval by the Environment Agency. This is because the plan that has been submitted with application is incomplete and subject to change dependent on the final design of the Installation, but it is acceptable in principle.
Concern has been raised about the suitability of the proposed location and ability to amend existing sites in Foston.	Location is relevant but only in so far as it is has a potential to have an adverse environmental impact on receptors which we have assessed. Other considerations are for the planning authority. The proposal to create a new facility rather than amend existing units is a matter for the Applicant only.
Concern about the waste types listed as being imported, in both the first and second planning applications.	The application has been refused, however had it been issued we would have specified waste types in the permit. the waste would have been suitable for treatment in the proposed AD plant. See Part E.
Concern raised over what will happen if the Environmental Permit is breached in any way? Is the Applicant held liable if human health is impacted?	The application has been refused, however had it been issued compliance with the Environmental Permit will be monitored by the Environment Agency's local Environment Management team. Any breach in permit conditions is an offence and would be subject to appropriate enforcement action in accordance with the Environment Agency's enforcement and sanctions statement.
Concern raised about the visual impact of the proposed installation.	This is an issue for the planning authority, and consideration of this does not form part of the Environmental Permit decision.
Devaluation of homes located near to the proposal.	Consideration of the effect on house prices does not form part of the Environmental Permit

	decision.
Impact of the proposals on human rights.	We have considered potential interference with rights addressed by the European Convention on Human Rights in reaching our decision
Concerns that the development will obliterate a productive Greenfield site, whilst Brownfield sites are nearby and that building work will have a negative effect on nearby roosting bats.	Impacts during the construction phase of the development are an issue for the planning authority as is the choice of site with respect to it being Greenfield or Brownfield.

Annex 2: Map showing location of the proposed Installation and surrounding area