

Determination of an Application for an Environmental Permit under the Environmental Permitting (England & Wales) Regulations 2016

Decision document recording our decision-making process

The Permit Number is: EPR/JP3532DH

The Applicant is: A.B. Produce PLC

The Installation is located at: AD Enterprise House Measham
Westminster Industrial Estate
Repton Road
Measham
Derbyshire
DE12 7DT

What this document is about

This is a decision document, which accompanies a permit.

It explains how we have considered the Applicant's Application, and why we have included the specific conditions in the permit we are issuing to the Applicant. It is our record of the decision-making process, to show how we have taken into account all relevant factors in reaching our position. Unless the document explains otherwise, we have accepted the Applicant's proposals.

We try to explain our decision as accurately, comprehensively and plainly as possible. Achieving all three objectives is not always easy, and we would welcome any feedback as to how we might improve our decision documents in future. A lot of technical terms and acronyms are inevitable in a document of this nature: we provide a glossary of acronyms near the front of the document, for ease of reference.

Preliminary information and use of terms

We gave the application the reference number EPR/JP3532DH/A001. We refer to the application as "the **Application**" in this document in order to be consistent.

The number we have given to the permit is EPR/JP3532DH. We refer to the permit as "the **Permit**" in this document.

The Application was duly made on 7 November 2016.

The Applicant is A.B. Produce PLC. We refer to A.B. Produce PLC as “the **Applicant**” in this document. Where we are talking about what would happen after the Permit is granted, we call A.B. Produce PLC “the **Operator**”.

A.B. Produce PLC’s facility is located at AD Enterprise House Measham, Westminster Industrial Estate, Repton Road, Measham, Derbyshire, DE12 7DT. We refer to this as “the **Installation**” in this document.

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Glossary of acronyms used in this document

AD	Anaerobic digestion
ADQP	Anaerobic Digestion Quality Protocol
APIS	Air Pollution Information System
BAT	Best Available Technique(s)
Bref	BAT Reference Note
CHP	Combined heat and power
CIRIA	Construction Industry Research and Information Association
CROW	Countryside and rights of way Act 2000
DAA	Directly associated activity – Additional activities necessary to be carried out to allow the principal activity to be carried out
DD	Decision document
EIAD	Environmental Impact Assessment Directive (85/337/EEC)
ELV	Emission limit value
EMS	Environmental Management System
EPR	Environmental Permitting (England and Wales) Regulations SI 2016 No.1154
ES	Environmental Standard
EWC	European waste catalogue
HRA	Human Rights Act 1998
IED	Industrial Emissions Directive (2010/75/EU)
LADPH	Local Authority Director(s) of Public Health
MSW	Municipal Solid Waste
OMP	Odour management plan
Opra	Operator Performance Risk Appraisal
PC	Process Contribution
PEC	Predicted Environmental Concentration
PHE	Public Health England
PPS	Public Participation Statement
PR	Public Register
SAC	Special Area of Conservation
SCR	Site condition report
SHPI(s)	Site(s) of High Public Interest
SSSI(s)	Site(s) of Special Scientific Interest

TGN	Technical guidance note
WAMITAB	Waste Management Industry Training & Advisory Board
WFD	Waste Framework Directive (2008/98/EC)

1 Our decision

We have decided to grant the Permit to the Applicant. This will allow them to operate the Installation, subject to the conditions in the Permit.

We consider that, in reaching that decision, we have taken into account all relevant considerations and legal requirements and that the permit will ensure that a high level of protection is provided for the environment and human health.

This Application is to operate an Installation which is subject principally to the Industrial Emissions Directive (IED) and Waste Framework Directive (WFD).

The Permit contains many conditions taken from our standard Environmental Permit template including the relevant Annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the permit, we have considered the Application and accepted the details are sufficient and satisfactory to make the standard condition appropriate. This document does, however, provide an explanation of our use of “tailor-made” or installation-specific conditions, or where our Permit template provides two or more options.

2 How we reached our decision

2.1 Receipt of Application

The Application was duly made on 7 November 2016. This means we considered it was in the correct form and contained sufficient information for us to begin our determination but not that it necessarily contained all the information we would need to complete that determination (see below).

The Applicant made no claim for commercial confidentiality. We have not received any information in relation to the Application that appears to be confidential in relation to any party.

2.2 Consultation on the Application

We carried out consultation on the Application in accordance with the EPR and our statutory PPS. We consider that this process satisfies, and frequently goes beyond the requirements of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, which are directly incorporated into the IED, which applies to the Installation and the Application. We have also taken into account our obligations under the Local Democracy, Economic Development and Construction Act 2009 (particularly Section 23). This requires us, where we consider it appropriate, to take such steps as we consider appropriate to

secure the involvement of representatives of interested persons in the exercise of our functions, by providing them with information, consulting them or involving them in any other way. In this case, our consultation already satisfies the Act's requirements.

We advertised the Application by a notice placed on our website (GOV.UK and Citizen Space) on 30 November 2016. The notice contained all the information required by the IED, including telling people where and when they could see a copy of the Application. We also placed an advertisement in the Burton Mail on 30 November 2016. The consultation period started on 30 November 2016 and concluded on 6 February 2017.

We made a copy of the Application and all other documents relevant to our determination (see below) available to view on our Public Register at Trentside Offices, Scarrington Road, West Bridgford, Nottingham, NG2 5BR. Anyone wishing to see these documents could do so and arrange for copies to be made.

We sent copies of the Application to the following bodies, which includes those with whom we have "Working Together Agreements":

- Leicestershire County Council – Planning Department
- North West Leicestershire District Council – Environmental Protection
- North West Leicestershire District Council – Planning Department
- Health & Safety Executive (HSE)
- Public Health England (PHE)
- Director of Public Health (Leicestershire County Council)
- Highways Agency
- National Grid
- Leicestershire Fire & Rescue
- Natural England

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly.

In addition to our advertising the Application, we ran a public drop-in session on 17 January 2017 at Measham Leisure Centre, High Street, Measham, DE12 7HR. The purpose of the event was to answer questions from the public and provide advice on how to make relevant representations with regards to the Application. Details along with a summary of consultation comments and our response to the representations we received can be found in Annex 3. We have taken all relevant representations into consideration in reaching our determination.

2.3 Requests for further information

Although we were able to consider the Application duly made, we did in fact need more information in order to determine it, and issued an information

notice on 15 February 2017. A copy of the information notice was placed on our public register.

In addition to our information notice, we received additional information during the determination from the Applicant as follows:

- Confirmation of storage of digestate using above-ground tank option – received 16 January 2017
- Further information regarding long term storage of digestate using above-ground tank option – received 10 February 2017
- Information regarding odour and bund water management, removal of centrifuge from use and use of pasteurisers for treatment of whole digestate only – received 6 April 2017
- Revised site plan – received 7 April 2017
- Further information regarding bund water management – received 8 April 2017
- Site drainage plan – received 11 April 2017
- Confirmation of “zero contamination” status beneath the site – received 14 April 2017
- Revised flow diagrams (Figures 1 and 2) – received 15 May 2017

We made a copy of these information available to the public in the same way as the response to our information notice.

3 The legal framework

The Permit will be granted, under Regulation 13 of the EPR. 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 is:

- a *waste installation* as described by the IED;
- an *operation* covered by the WFD, and
- subject to aspects of other relevant legislation which also have to be addressed.

We address some of the major legal requirements directly where relevant in the body of this document. Other requirements are covered in a section towards the end of this document.

We consider that, in granting the Permit, it will ensure that the operation of the Installation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

4 The Installation

4.1 Description of the Installation and related issues

4.1.1 The permitted activities

The Installation is subject to the EPR because it carries out an activity listed in Part 2 of Schedule 1 to the EPR:

- Section 5.4 A(1) (b) (i) – Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 100 tonnes per day involving biological treatment

An Installation may also comprise “directly associated activities”, which at this Installation include:

- Storage of wastes pending recovery or disposal;
- Physical treatment for the purpose of recycling;
- Heat and electrical power supply
- Emergency flare operation;
- Raw material storage;
- Gas storage and handling;
- Storage of digestate; and
- Surface water collection and storage

Together, the listed activity and directly associated activities comprise the Installation – a regulated facility.

4.1.2 The Site

The facility is located approximately 1.5 km south of Measham, Derbyshire at National Grid reference SK 31662 12026. The site is bordered to the north and west by the A42 with agricultural land beyond; to the south by the River Mease and agricultural land and to the east by an adjacent vegetable processing factory and Westminster Industrial Estate beyond.

The River Mease is a Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) and is located within 50 metres of the Installation. There are thirty-two non-statutory sites located within 2 km of the Installation.

The Applicant submitted a plan which we consider is satisfactory, showing the site of the Installation and its extent. A plan is included in Schedule 7 to the Permit, and the Operator is required to carry on the permitted activities within the site boundary.

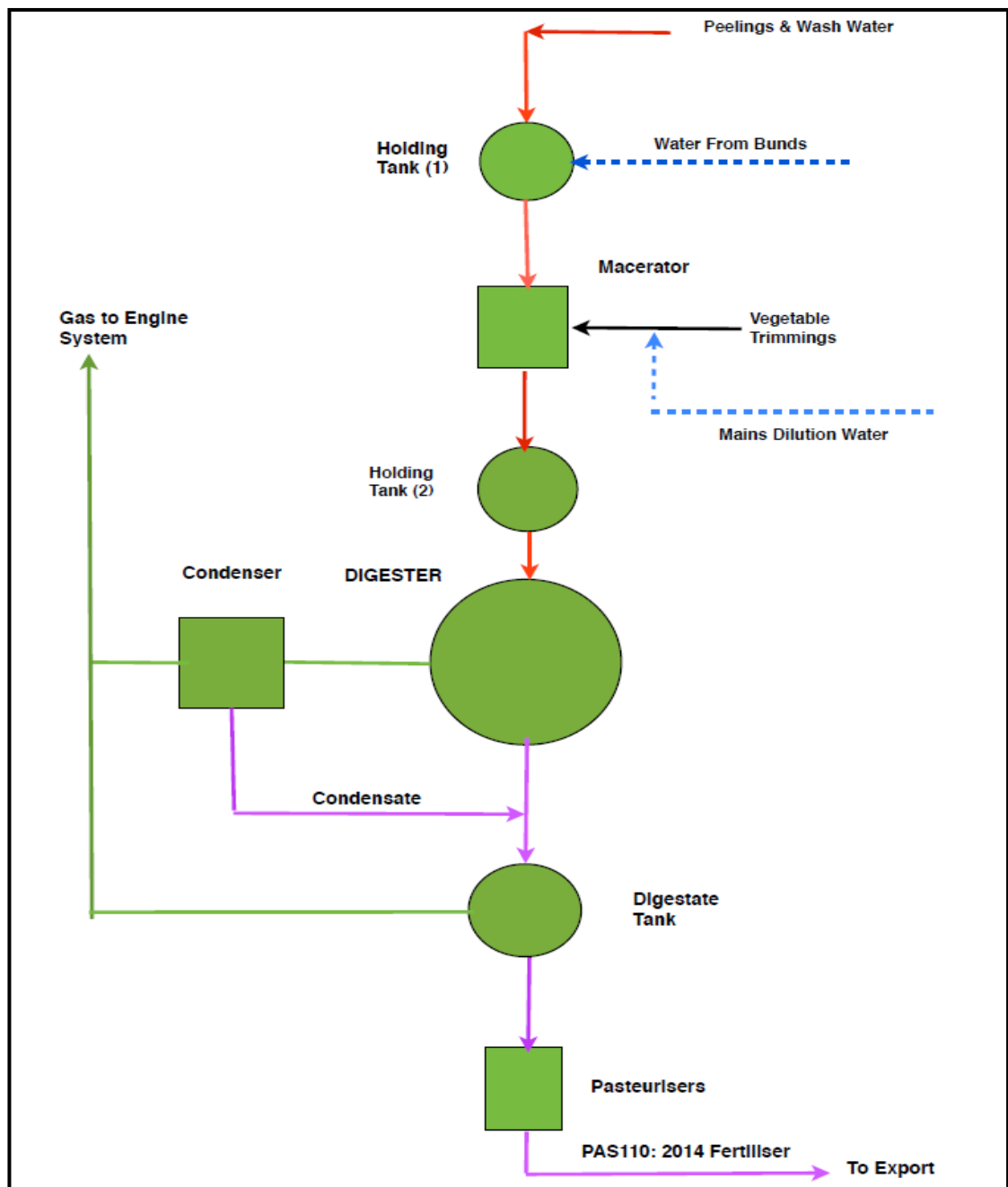
Further information on the site is provided in section 4.2 below.

4.1.3 What the Installation does

The key features of the Installation can be summarised as follows:

The facility will process up to 40,000 tonnes per annum of non-hazardous biodegradable waste and will comprise the following operations:

- Anaerobic digestion plant (one digester);
- Storage tanks (two feedstock tanks and one digestate storage tank)
- Combustion plant consisting of two combined heat and power (CHP) engines and two emergency flares; and
- Other ancillary plant (centrifuge, pasteurisers, pipework)



Deliveries of vegetable wastes to the AD facility will be by pipeline transfer from the adjacent vegetable processing factory to two holding tanks. Vegetable wastes will be stored in two enclosed tanks temporarily and will be transferred to the digester by pipeline. The final feedstock will undergo anaerobic digestion at temperatures between 35°C and 40°C for up to 35 to 45 days. Any liquid spills from the treatment process will be collected and fed back into the AD system.

Biogas drawn from the digester will be used to generate electricity and heat from the two CHP engines with an aggregated thermal input of 2.38 MW. A small proportion of the electricity produced will be used to power the AD facility and the adjacent vegetable processing factory, with the remainder fed to the National Grid.

The digestion tank is fitted with a variable speed vertical mixer to ensure efficient mixing and digestion. Temperature will be continuously monitored in the digester.

The by-product from the AD process (whole digestate) will be transferred to the four pasteurisers for treatment to achieve the PAS 110 Quality Protocol status. The resultant digestate will be stored in an enclosed tank temporarily prior to removal off-site by tanker. This environmental permit does not authorise the storage of digestate on site (other than in an enclosed tank) or the spreading of digestate (solid or liquid) on land.

4.1.4 Key Issues in the Determination

The key issues arising during this determination were the impact of emissions of odour on human receptors and landspreading concerns. We therefore describe how we addressed these issues in this document.

4.2 The site and its protection

4.2.1 Site setting, layout and history

The site is located in an industrial area within the Westminster Industrial Estate. The surrounding area comprises mainly agricultural land. The entire site has an area of approximately 3 hectares. The topography generally falls towards the River Mease.

The site consists of a large vegetable processing factory, with large areas of hardstanding concrete used for heavy vehicle access and unloading alongside car parking, as well as areas used for storage of materials. The factory processes vegetables, particularly potatoes. It distributes a bespoke range of potatoes and prepared vegetables for the wholesale, retail, processing, catering and food service supply chain.

There has been a history of odour complaints from residents in the surrounding area with respect to the storage of effluent from the vegetable processing factory in existing open storage lagoons.

4.2.2 Proposed site design: potentially polluting substances and prevention measures

The Applicant reports that all treatment and storage tanks will be provided with appropriate secondary containment. Bunds will be constructed to appropriate standards and lined with materials that are impervious to the content of the material which they hold. Procedures will be in place to deal with any spillages, including inspection records of all pollution prevention measures. All internal operational areas will be located on hardstanding with sealed drainage to prevent pollution of surface water and groundwater.

Under Article 22(2) of the IED, the Applicant is required to provide a baseline report containing at least the information set out in paragraphs (a) and (b) of the Article before starting operation.

The Applicant has submitted a site condition report which does not include a report on the baseline conditions as required by Article 22. We have reviewed that report and consider that it does not adequately describe the condition of the soil and groundwater prior to the start of operations.

A site condition report (SCR) is required for any facility regulated under the EPR, where there may be a significant risk to land or groundwater. The SCR should include a baseline report, which is an important reference document in the assessment of contamination that might arise during the operational lifetime of the regulated facility and at cessation of activities.

At the definitive cessation of activities, the Operator has to satisfy us that the necessary measures have been taken so that the site ceases to pose a risk to soil or groundwater, taking into account both the baseline conditions and the site's current or approved future use. To do this, the Operator has to apply to us for surrender, which we will not grant unless and until we are satisfied that these requirements have been met.

The Applicant reports that the site is "agricultural land" with no evidence of historical contamination. The Applicant has confirmed that there is 'zero contamination' beneath the site. This means that when the Operator applies to surrender the Permit, any contamination by substances used at, produced or released from the facility would be considered to have resulted from the operation of the facility. This is in accordance with the Environment Agency Guidance H5 – Site Condition Report.

4.2.3 Closure and decommissioning

Having considered the information submitted in the Application, we are satisfied that the appropriate measures will be in place for the closure and decommissioning of the Installation. Pre-operational condition 1 requires the Operator to have an Environmental Management System in place before the Installation is operational, and this will include a site closure plan.

4.3 Operation of the Installation – general issues

4.3.1 Administrative issues

The Applicant is the sole Operator of the Installation. We are satisfied that the Applicant is the person who will have control over the operation of the Installation after the granting of the Permit; and that the Applicant will be able to operate the Installation so as to comply with the conditions included in the Permit.

We are satisfied that the Applicant's submitted Opra profile is accurate. The Opra score will be used as the basis for subsistence and other charging, in accordance with our Charging Scheme. Opra is the Environment Agency's method of ensuring application and subsistence fees are appropriate and proportionate for the level of regulation required.

4.3.2 Management

The Applicant has stated in the Application that they will implement an Environmental Management System (EMS). Pre-operational condition 1 is included in the Permit which requires the Operator to provide the full EMS prior to commissioning of the Installation and to make available for inspection all EMS documentation.

We are satisfied that appropriate management systems and management structures will be in place for this Installation, and that sufficient resources are available to the Operator to ensure compliance with all the Permit conditions.

The treatment of biodegradable waste by anaerobic digestion requires a Technically Competent Manager (TCM) under an approved scheme. The Applicant provided evidence that they have a TCM that holds a relevant qualification at the Installation. During our consultation on the draft decision, we were advised that the current TCM will be withdrawn on 18 July 2017. We have therefore set pre-operational condition 4 which requires the Operator to provide evidence to the Environment Agency for approval, showing that there is a TCM on site prior to commissioning of the Installation with waste feedstock.

4.3.3 Site security

Having considered the information submitted in the Application, we are satisfied that appropriate infrastructure and procedures will be in place to ensure that the site remains secure.

4.3.4 Accident management

The Applicant has submitted an Accident Management Plan. Having considered the plan and other information submitted in the Application, we are satisfied that appropriate measures will be in place to ensure that accidents

that may cause pollution are prevented but that, if they should occur, their consequences are minimised.

4.3.5 Off-site conditions

We do not consider that any off-site conditions are necessary.

4.3.6 Operating techniques

We have specified that the Applicant must operate the Installation in accordance with the following documents contained in the Application:

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	<p>Technical description of Anaerobic Digester Plant (excluding Figures 1 and 2); Calculation of bund capacity; Environmental risk assessment; Raw materials input; Basic measures for improving efficiency; Constituents of AD plant feedstock; monitoring of AD plant; site drainage arrangements; Rainwater storage for digester /digestate tank (including addendum); Attenuation tank diagrams; Waste production and disposal.</p> <p>The following references are excluded:</p> <ul style="list-style-type: none"> • storage of adjacent factory effluent and digestate in the existing open lagoons; • Pre-treatment of waste feedstock using pasteurisers prior to anaerobic digestion; and • use of centrifuge on site 	07/11/16
Response to Schedule 5 Notice dated 15/02/17	Response to questions 1 (interim and long term solution for digestate), question 2 (environmental risk assessment), questions 3 to 18 (site infrastructure) and question 24 (volume of digestate produced).	15/03/17
Additional information	Management of bund water.	06/04/17 & 08/04/17
Additional information	Site drainage plan.	11/04/17
Additional information	Revised figure 1 and 2	15/05/17

The details set out above describe the techniques that will be used for the operation of the Installation that have been assessed by the Environment

Agency as BAT; they form part of the Permit through Permit condition 2.3.1 and Table S1.2 in the Permit Schedules.

4.3.7 Waste types

Article 23 of the WFD requires that a Permit for any establishment or undertaking intending to carry out waste treatment must include the types and quantities of waste which may be treated. The Application contains one waste stream coded by the European Waste Catalogue (EWC) number, which the Applicant will accept at the Installation and which the Installation is capable of treating in an environmentally acceptable way. We have specified the permitted waste type, description and quantity which can be accepted at the Installation in Table S2.2.

We are satisfied that the Applicant can accept the waste contained in Table S2.2 of the Permit because:

- The waste stream is categorised as non-hazardous in the European Waste Catalogue;
- The waste stream is unlikely to contain harmful components that cannot be safely processed at the Installation;
- The waste stream (02 03 01) is specified in our standard rules permit templates for anaerobic digestion.
- It is considered amenable to biological treatment; and
- It will produce outputs that can be used as a feedstock for other biowaste treatment plants or as a soil conditioner.

We have limited the waste capacity of the AD facility to 40,000 tonnes per annum. This is based on the designed capacity of the Installation.

4.3.8 Energy efficiency

We have considered the issue of energy efficiency i.e. the use of energy within and generated by the Installation which are normal aspects of all EPR permit determinations. This issue is dealt with in this section.

The Application details a number of measures that will be implemented at the Installation in order to maximise energy efficiency, as set out in Section 7 of the Technical description document received as part of the Application. The Applicant reports that the CHP engine cooling is kept separate from the heat recovery system. This allows the temperature to be kept at a constant value. Heat is recovered from the exhaust gases through a water-cooled heat exchanger. Water is circulated through the heat exchanger and pumped to the digester and pasteurisers' heating systems. There is provision for surplus heat to be used for space heating, water heating, etc. in the adjacent vegetable processing factory. Maintenance and housekeeping procedures will be implemented on site to ensure efficient operation of all plant.

There is no specific BAT requirement to reduce the energy consumption to a set level for the Waste Treatment Sector. There is no Climate Change Agreement (CCA) in place at the Installation. The Installation is not subject to

a Greenhouse Gas Permit under EU ETS. The Applicant's commitment to ensure efficient operation of all plant is considered to be BAT. Reporting of energy usage is required in the Permit under Schedule 4.

Having considered the information submitted in the Application, we are satisfied that appropriate measures will be in place to ensure that energy is used efficiently within the Installation.

There are no site-specific considerations that require the imposition of standards beyond indicative BAT and so the Environment Agency accepts that the Applicant's proposals represent BAT for this Installation.

4.3.9 Efficient use of raw materials

Having considered the information submitted in the Application, we are satisfied that the appropriate measures will be in place to ensure the efficient use of raw materials and water.

We have specified the following limits and controls on the use of raw materials and fuels:

Raw Material or Fuel	Specifications	Justification
Fuel oil	< 0.1% sulphur content	As required by Sulphur Content of Liquid Fuels Regulations.

The Applicant will store diesel, oils and lubricants on site for operational use. All storage tanks will be appropriately bunded in accordance with the Environment Agency's Draft Technical Guidance Note for Anaerobic Digestion, CIRIA C736 – Containment Systems for the Prevention of Pollution – secondary, tertiary and other measures for industrial and commercial premises or other relevant industry standard.

The Operator will minimise fresh water use where possible. The site is designed to collect uncontaminated water for re-use on site. The Operator is required to report with respect to raw material and water usage under condition 1.3 and Schedule 4 of the Permit.

4.3.10 Avoidance, recovery or disposal with minimal environmental impact of wastes produced by the activities

This requirement addresses wastes produced at the Installation and does not apply to the waste being treated there. The principal waste streams the Installation will produce are process waters and digestate.

The first objective is to avoid producing waste at all. There will be minimal amounts of waste generated at the AD facility as feedstock will undergo pre-treatment at the adjacent vegetable processing factory. Waste production will be avoided by re-using uncontaminated waters and process waters whenever possible in the AD system. Whole digestate will be stored in an enclosed tank prior to removal off-site by tankers.

Having considered the information submitted in the Application, we are satisfied that the waste hierarchy referred to in Article 4 of the WFD will be applied to the generation of waste and that any waste generated will be treated in accordance with this Article.

We are satisfied that waste from the Installation that cannot be recovered will be disposed of using a method that minimises any impact on the environment. Standard condition 1.4.1 will ensure that this position is maintained.

5 Minimising the Installation's environmental impact

Regulated activities can present different types of risk to the environment. The risks include odour, noise and vibration; accidents, fugitive emissions to air and water; as well as point source releases to air, discharges to ground or groundwater, generation of waste and other environmental impacts. All these factors are discussed in this and other sections of this document. For an Installation of this kind, the principal emissions are those to air, although we also consider those to land and water.

The next sections of this document explain how we have approached the critical issue of assessing the likely impact of the emissions to air from the Installation on the environment and human health and what measures we are requiring to ensure a high level of protection.

5.1 Environmental Risk Assessment

A methodology for risk assessment of point source emissions to air, which we use to assess the risk of applications we receive for permits, is set out in our Guidance on Risk Assessment and has the following steps:

- Describe emissions and receptors
- Calculate process contributions
- Screen out insignificant emissions that do not warrant further investigation
- Decide if detailed air modelling is needed
- Assess emissions against relevant standards
- Summarise the effects of emissions

The risk assessment uses a concept of “process contribution (PC)”, which is the estimated concentration of emitted substances after dispersion into the receiving environmental media at the point where the magnitude of the concentration is greatest. The guidance provides a simple method of calculating PC primarily for screening purposes and for estimating process contributions where environmental consequences are relatively low. It is based on using dispersion factors. These factors assume worst case dispersion conditions with no allowance made for thermal or momentum plume rise and so the process contributions calculated are likely to be an overestimate of the actual maximum concentrations. More accurate calculation of process contributions can be achieved by mathematical dispersion models, which take into account relevant parameters of the release and surrounding conditions, including local meteorology – these techniques are expensive but normally lead to a lower prediction of PC.

The Applicant submitted a risk assessment in accordance with our Guidance on Risk Assessment covering odour, dust, noise and accidents. We have reviewed the assessment of the environmental risk from the facility and consider that it is satisfactory. The assessment shows that, applying the

conservative criteria in our guidance on Environmental Risk Assessment, all emissions may be categorised as environmentally insignificant.

5.2 Assessment of impact on air quality

The Applicant's assessment of the impact of site activities on air quality is set out in the Application. The assessment comprises the:

- dispersion modelling of emissions to air from the operation of two CHP engines and emergency flares; and
- study of the impact of emissions on nearby sensitive habitat /conservation sites.

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the stack and its impact on local air quality and conservation sites. These assessments predict the potential effects on local air quality from the Installation's stack emissions using the ADMS (version 5.1) dispersion model, which is a commonly used computer model for regulatory dispersion modelling.

Meteorological data for the assessment comprises five years continuous monitoring (2011 to 2015) from East Midlands Airport. The Applicant considered this weather station as the most suitable source of meteorological data due to its proximity to the facility (approximately 26 km from the facility). The impact of the terrain surrounding the site and buildings upon plume dispersion was considered in the dispersion modelling. As well as calculating the peak ground level concentration, the Applicant has modelled the concentration of key pollutants at a number of specified locations within the surrounding area.

The pollutants considered in the assessment are those associated with combustion activities, namely nitrogen oxides, sulphur dioxide, carbon monoxide and total volatile organic compounds (VOCs). We are satisfied that there is no need to consider any other pollutants, as the fuel is biogas derived from vegetable wastes and non-wastes (energy crops).

The Applicant's modelling predictions indicate the predicted peak ground level exposure to pollutants in ambient air. We have made our own simple verification of the percentage process contribution /deposition and predicted environmental concentration submitted by the Applicant. Our figures may be very slightly different to those shown in the Application. Any such minor discrepancies do not materially impact on our conclusions.

Table 1 shows the maximum modelled concentration of nitrogen oxides and sulphur dioxide from the operation of the CHP engines and emergency flares at the most sensitive human receptor. We have not reported emissions of total VOCs and carbon monoxide in this document as these were shown to be insignificant.

Table 1 Maximum modelled concentrations of nitrogen oxides and sulphur dioxide at the most sensitive human receptor (Dysons Close)

Pollutant	ES	Background concentration	Process Contribution (PC)		Predicted Environmental Concentration (PEC)	
	µg/m ³	µg/m ³	µg/m ³	% of ES	µg/m ³	% of ES
NO ₂ (annual)	40	13.2	0.8	2.0	14.0	35.0
NO ₂ (1-hour)	200	[1]	6.8	3.4	[1]	[1]
SO ₂ (15-min mean)	266	[1]	15.1	5.6	[1]	[1]
SO ₂ (1-hour mean)	350	[1]	12.4	3.5	[1]	[1]
SO ₂ (24-hour mean)	125	[1]	3.2	2.56	[1]	[1]
Note [1] – Where the PC is less than 1% of the long term Environmental Standard or less than 10% for a short term Environmental Standard, the impact is considered to be insignificant. In these cases, we consider that examination of the PEC is not necessary.						

From the table above, nitrogen oxides cannot be screened out as insignificant, in that the process contribution exceeds 1% of the long term ES (NO_x only). Although the pollutants did not screen out as insignificant, we consider that it is unlikely that the emissions will give rise to significant pollution in that the predicted environmental concentration (PEC) is well below 100% (taking expected modelling uncertainties into account) of both the long term and short term ES. We have carefully scrutinised the Applicant's proposals to ensure that they are applying the Best Available Techniques (BAT) to prevent and minimise emissions of all pollutants released from the facility into the environment.

5.3 Impact on Habitats sites, SSSIs and other conservation sites

5.3.1 Sites considered

The following Habitat site (i.e. Special Areas of Conservation, Special Protection Areas and Ramsar) is located within 10 km of the Installation:

- River Mease

The following Site of Special Scientific Interest is located within 2 km of the Installation:

- River Mease

The following non-statutory local wildlife and conservation sites are located within 2 km of the Installation:

- Saltersford Wood
- Donisthorpe Cemetery
- Grassland south of Ramscliffe Avenue
- Fishing Lake

- Oakthorpe and Donisthorpe Hedge
- Acresford Plantation
- Veteran Oak
- Saltersbrook Pastures and Stream
- Saltersbrook, Grassland & Scrub
- Saltersford Wood, Lakes, Grassland A
- Oakthorpe Woodland
- Saltersford Wood, Lakes, Grassland B
- Saltersford Wood, Lakes, Grassland
- Saltersford Wood, Lakes, Grassland C
- Saltersford Wood, Lakes, Grassland – Lake B
- Saltersford Wood, Lakes, Grassland D
- Saltersford Lake
- Greater Spearwort Pond
- Measham Grassland 2
- Measham Pond
- Measham, land off New Street
- Measham, Pot Kiln Farm Fishing Pond
- Moxon's Plantation
- Stretton Woodland
- A444 Roadside Verge, Bank Grassland
- River Mease Grassland, Measham
- Measham Industrial Estate Pond
- Measham Grassland 1
- Measham, Atherstone Rd, Mature oak
- Mature Ash
- Measham Dismantled Railway
- Hobday Hills Plantation

5.3.2 Assessment of impact on ecological receptors

Toxic contamination

Table 2 below shows the critical levels for the protection of vegetation and ecosystems based on the Environment Agency Guidance on Air Quality Assessment.

Table 2 – Critical levels for the protection of vegetation and ecosystems

Critical level	NO ₂ (µg/m ³)	SO ₂ (µg/m ³)
Long term	30	10 ¹ , 20 ²
Short term	75	--
Note 1: annual mean for sensitive lichen communities & bryophytes and ecosystems where lichens & bryophytes are an important part of the ecosystem's integrity.		
Note 2: annual mean for all higher plants (all other ecosystems).		

The whole length of the River Mease runs immediately south of the proposed site and is designated a SAC primarily for spined loach and bullhead but with the additional qualifying features of the presence of otters, white-clawed crayfish and water crowfoots that provide floating riverine vegetation that in turn provides shelter and food for fish and invertebrates. The River Mease is also designated as a SSSI as it represents a lowland clay river that supports nationally significant populations of spined loach and bullhead, which are two internationally notable species of native freshwater fish with a restricted distribution in England.

The Applicant identified a series of discrete receptor points to represent the various habitat types and to demonstrate spatial variation in pollutant concentrations and deposition rates throughout the designated site. Tables 3 and 4 show the Applicant's comparison of process contribution against the relevant critical levels for the protection of vegetation and ecosystems.

Table 3 – Maximum modelled concentrations of NO_x at River Mease SAC /SSSI

Habitat Site	Parameter	Background concentration (µg/m³)	PC (µg/m³)	PC as % of CLe	PEC	PEC as % of CLe
River Mease SAC /SSSI	NO ₂ (long term)	22.78	0.02 [note 1]	0.06	[note 3]	[note 3]
			4.18 [note 2]	13.90	22.68	75.6
	NO ₂ (short term)	45.56	0.02 [note 1]	0.03	[note 3]	[note 3]
			4.12 [note 2]	5.49	[note 3]	[note 3]
<p>Note 1: Lowest PC recorded (receptor E35)</p> <p>Note 2: Highest PC recorded (receptor E36)</p> <p>Note 3: Where the PC is less than 1% of the long term critical level or less than 10% of the short term critical level, the impact is considered to be insignificant. In these cases, we consider that the examination of the PEC is not necessary.</p>						

The modelling information provided by the Applicant has predicted that emissions of NO_x exceeded 1% of the long-term critical level at the discrete receptor E36 (located 50 metres from the A42 motorway). At discrete receptor E36, the predicted environmental concentration (PEC = process contribution plus background concentration) did not exceed the long term critical level of 30 µg/m³ (see Table 3). It is noted that the current background concentration of NO_x exceeds the process contribution from the proposed AD facility.

Table 4 – Maximum modelled concentrations of SO₂ at River Mease SAC /SSSI

Habitat Site	Parameter	Background concentration (µg/m³)	PC (µg/m³)	PC as % of CLe	PEC	PEC as % of CLe
River Mease SAC /SSSI	SO ₂ (long term)	3.54 [note 1]	0.01	0.05	[note 3]	[note 3]
		3.54 [note 2]	2.77	13.85	6.31	31.55
<p>Note 1: Lowest PC recorded (receptor E35)</p> <p>Note 2: Highest PC recorded (receptor E36)</p> <p>Note 3: Where the PC is less than 1% of the long term critical level or less than 10% of the short term critical level, the impact is considered to be insignificant. In these cases, we consider that the examination of the PEC is not necessary.</p>						

Table 4 shows that the predicted sulphur dioxide emissions exceeded 1% of the long-term critical level at the discrete receptor E36. At discrete receptor E36, the predicted environmental concentration (PEC = process contribution plus background concentration) did not exceed the long term critical level of 20 µg/m³. As with NO_x emissions, the current background concentration of sulphur dioxide exceeds the process contribution from the proposed AD facility.

Nutrient nitrogen enrichment

The River Mease SAC /SSSI falls under the freshwater European Nature Information System (EUNIS) habitat category. Critical loads for nitrogen nutrient deposition are not available. The Applicant therefore used a precautionary indicative critical load range (5 – 10 kgN/ha/yr) for comparison. The critical load range would normally be applied to land-based habitats where particularly sensitive species are present such as lichens & bryophytes and are therefore likely to be very much over-precautionary, but nevertheless they do provide a benchmark range.

Table 5 below represents the predicted nitrogen deposition rates at the respective sites. The lower range of the critical load (5 kgN/ha/yr) has been used to assess deposition at the habitat site. The background concentrations for nutrient nitrogen for River Mease SAC /SSSI were obtained from the UK Air Pollution Information System (APIS) website.

Table 5 – Modelled nitrogen nutrient deposition rates for the protection of vegetation and ecosystems at River Mease SAC /SSSI

Site	Critical Load (CLO) kgN/ha/yr	Background N deposition kgN/ha/yr	PC deposition kgN/ha/yr	PC as % of CLO	PEC deposition kgN/ha/yr	PEC as % of CLO
River Mease SAC /SSSI	No specified critical load	12.6	0.003 [note 1]	0.06	[note 3]	[note 3]
	5-10 kgN/ha/yr (assumed)		0.614 [note 2]	12.28	13.21	264.2
Note 1: Lowest PC recorded (receptor E35) Note 2: Highest PC recorded (receptor E36) Note 3: Where the PC is less than 1% of the long term critical load or less than 10% of the short term critical load, the impact is considered to be insignificant. In these cases, we consider that the examination of the PEC is not necessary.						

The modelled process contributions to nutrient nitrogen deposition rates are above 1% of the indicative critical load at a number of discrete receptors that represent the River Mease SAC /SSSI, including E36. Indeed, even though the process contribution is insignificant at receptor E35, the high background concentration results in the PEC exceeding 100% of the indicative critical load (see Table 5).

Acidification

With respect to acid deposition, each of the fauna for which the River Mease SAC /SSSI is designated are indirectly sensitive to acidity due to potential acid deposition impacts on their broad floral habitat that supports them (i.e. the presence of floating river vegetation and water crowfoot). The Applicant obtained the acidity critical loads for the receptors representing the River Mease SAC /SSSI from the Concentration Based Estimated Deposition (CBED) plots that are based on measured-interpolated data for a 3 year average of 2012–2014 through the ‘search by site relevant critical loads’ function within APIS.

Table 6 – Modelled acid deposition rates for the protection of vegetation and ecosystems at River Mease SAC /SSSI

Site	Critical Load (CLO) keq/ha/yr	Background acid deposition keq/ha/yr	PC deposition keq/ha/yr	PC as % of CLO	PEC deposition keq/ha/yr	PEC as % of CLO
River Mease SAC /SSSI	No specified critical load CLmaxS:	Nitrogen: 1.5 Sulphur: 0.39 Total: 1.89	0.002 [note 1]	0.16	[note 3]	[note 3]
			0.371 [note 2]	30.6	2.26	186.7

	0.40 CLminN: 0.81 CLmaxN: 1.21					
Note 1: Lowest PC recorded (receptor E35) Note 2: Highest PC recorded (receptor E36) Note 3: Where the PC is less than 1% of the long term critical load or less than 10% of the short term critical load, the impact is considered to be insignificant. In these cases, we consider that the examination of the PEC is not necessary.						

The modelled process contributions of acid deposition rates are above 1% of the indicative critical load at a number of discrete receptors that represent the River Mease SAC /SSSI, including E36. An examination of the background concentrations result in PEC exceeding the indicative critical load at some receptor locations including E36. The Applicant reports that the exceedances are a result of the existing high background acid deposition rates, which already exceed the indicative critical load as a base condition.

Applicant's conclusion

The Applicant reports that the modelled impacts for the ecological receptors have been predicted based on conservative assumptions that the proposed CHP plant will operate continuously at full capacity, with emissions of the key pollutants being emitted at the maximum permitted emission limit values. The flare stack system has also been modelled in a precautionary way on the assumption that it will operate over 520 hours per year, when in fact it is unlikely to operate for more than 400 hours each year.

The Applicant states that there is no designated critical load for the watercourse receptors considered in the assessment (the River Mease SAC /SSSI) and notes that the dilution and dispersion effects of moving water will be important mitigation factors. The highly precautionary indicative critical loads that have been used for these freshwater designations were based on a number of "worst case" assumptions. In particular, the critical loads applied are normally used for the most sensitive soil growing flora for land-based impacts rather than for these specific watercourses.

In addition, the Applicant notes that no account has been taken of the significant dilution effects of moving water over submerged receptor species. Therefore, the predicted atmospheric concentrations and deposition impacts do not equate to any direct potential for effects on submerged vegetation. As such, predicted pollutant deposition rates are likely to be a very significant overestimation of any potential for adverse impacts. The Applicant concludes that the proposed CHP plant and associated flare stack system are not anticipated to result in a significant adverse effect on air quality at the receptors considered in the assessment.

Our assessment

The Applicant's dispersion modelling was reviewed by the Environment Agency's technical specialists for modelling, air quality, conservation and ecology technical services, who agreed with the assessment's conclusions, that the proposal is unlikely to damage the special features of the SAC /SSSI. Our observations are as follows:

- We used our air quality screening tool and were able to replicate the Applicant's predicted NO_x and SO₂ concentrations at the ecological receptors identified in the report.
- We checked the Applicant's deposition calculations and compared their estimates against the relevant critical levels and critical loads and found that their predictions were robust.
- The Applicant has not used the correct critical load for nutrient nitrogen or acid deposition. They have also not used the correct methodology to compare against acid deposition critical loads. However our check calculations confirm that these observations do not affect the conclusions of the modelling report.
- We note that the process contribution plus background concentration (i.e. PEC) is less than 100% of the appropriate environmental criterion. In addition, the background concentration currently exceeds the indicative critical load used in the assessment and the new process contribution will cause an additional small increase. Given the above points, we can conclude that there will be no adverse effect.
- We are satisfied that the application is low risk. The Environment Agency can conclude no likely significant effect from exceedances of the relevant critical levels for NO_x or SO₂ and critical loads for nutrient nitrogen and acid deposition at the River Mease SAC /SSSI.

Assessment of other conservation sites

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 sites (such as local wildlife sites) 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 link and support 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 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, therefore the thresholds for SAC, SPA and SSSI features are more stringent than those for other nature conservation sites. 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 Applicant has assessed the dispersion of important pollutants against critical level criteria for the protection of vegetation and ecosystems which is summarised in the following tables. The values shown represent the worst for any of the receptors for each pollutant.

Table 7 – Modelled concentrations of NO₂ and SO₂ for the protection of vegetation and ecosystems at worst affected non-statutory site

Pollutant	CLe (µg/m ³)	PC (µg/m ³)[1]	PC as % of CLe
SO ₂	20 (LT)	2.5	12.5
NO _x	75 (ST)	52.2	69.6
	30 (LT)	3.6	12.0
Note [1] PC is given as the worst case of results for all conservation sites within 2 km of the AD facility – Measham Industrial Estate Pond.			

The Applicant has assessed the critical loads for nitrogen and acid deposition against critical load criteria for sites as obtained from APIS which is summarised in the following table. The values shown represent the worst for any of the receptors for each parameter.

Table 8 – Modelled nutrient nitrogen and acid deposition rates for the protection of vegetation and ecosystems at worst affected non-statutory site

Pollutant	CLo	PC[1]	PC as % of CLo
Nitrogen deposition	10 kg N/ha/yr	1.04 kg N/ha/yr	10.4
Acid deposition	1.21 keq/ha/yr	0.07 keq/ha/yr	5.7
Note [1] PC is given as the worst case of results for all conservation sites within 2 km of the AD facility – Measham Industrial Estate Pond.			

The tables above show that the PCs are below the critical levels or loads. We are satisfied that the Installation will not cause significant pollution at the sites. As modelling and assessment has demonstrated that the predicted ground

level environmental concentrations of pollutants in the area even at a maximum will not compromise any Air Quality Standards, then we are satisfied that the operation of the AD facility will not compromise the integrity of the above sites. The Applicant is required to prevent, minimise and control emissions using BAT. This is considered further in Chapter 6.

6 Application of Best Available Techniques

We have reviewed the operating techniques proposed by the Applicant and compared these with the relevant guidance as set out in the Environment Agency's Draft Technical Guidance Note for Anaerobic Digestion (Reference LIT 8737), (which is our current understanding of BAT or "appropriate measures" for anaerobic digestion). Where necessary, we have requested further information from the Applicant.

The Installation will be designed, constructed and operated using BAT for the treatment of the permitted waste stream. We are satisfied that the operating techniques are BAT for this type of waste. Our assessment of BAT is set out below.

6.1 Best Available Techniques – Anaerobic Digestion

6.1.1 Waste pre-acceptance and acceptance procedures

Following delivery of vegetables to the adjacent processing factory, the vegetables are washed and then transferred to the abrasive peelers which are used to remove the outer skins. Peeling is an integral part of the vegetable preparation process and generates an effluent containing a significant amount of organic matter. The majority of the peeling process takes place within temperature-controlled buildings and transported to customers on a daily basis. The peeling process is confined to a defined timescale to comply with shelf life tests for customers.

There are two main sources of vegetable wastes to the AD facility:

- Root crop peelings from the peelers; and
- Vegetable trimmings from the prep room.

The peeler waste has the characteristics of peelings mulch. The large pieces are removed by a screw press, centrifuged and added to the vegetable trimmings. The solids content of the mulch is about 5% and the dry matter 2%. The Applicant reports that there are sufficient nutrients in this material to feed the digester at approximately 50% capacity.

The vegetable trimmings and larger peelings are currently exported for animal feed. Export of this material will cease, once the digester is operational, and it will be put through a macerator and fed into the peeling mulch. This material will bring the solids content up to approximately 12%, providing the additional nutrients to allow the digester to be run at full capacity. The dry matter of the vegetable trimmings will be close to 20%. The vegetable trimmings and larger peelings are reduced in size to <10 mm. This feedstock is classed as a low solids waste.

The AD facility has been designed to be a completely contained system. There are no open receptors such as feed bays or waste reception facility. The feedstock for the AD facility exits the adjacent vegetable processing factory in

sealed pipes, enters sealed storage tanks and fed through pipes to the digester.

The feedstock for the digester is from a single source (adjacent vegetable processing factory) and therefore is consistent. The Applicant reports that the composition of the feedstock will be easily verified and checked on a regular basis. The characteristics of the feedstock will be checked at least once a month, or more regularly if changes in the vegetables being processed occur. Analysis will be in accordance with the Draft Technical Guidance Note for Anaerobic Digestion (Reference LIT 8737). It is not anticipated that any additional nutrients will be required. No waste will be imported from off-site sources.

6.1.2 Storage of wastes

The feedstock is held in two existing glass-fused steel panel tanks. Each tank is capable of holding >125 m³. The tanks have single skin roofs and are each fitted with mixers to prevent settlement of the solid fraction. The level control in each storage tank is set at 120 m³. The fill and extraction pipework and valves allows individual or joint use. The tanks have a maximum of 2.5 days storage, which is sufficient capacity to cover weekends and bank holidays but is small enough to minimise the risk of biodegradation and any potential for odours.

All liquid storage and treatment tanks will be designed to be fit for purpose and will be provided with appropriate secondary containment that can accommodate at least 110% of the volume of the largest vessel or 25% of the total tankage volume, whichever is the greater. External bunds will be regularly inspected to ensure that rainwater is regularly emptied and all connections and fill points will be within the bunded area with no pipe work penetrating the bund wall.

During the determination, the Applicant changed their proposals to exclude the use of the existing lagoons for the storage of factory effluent and resultant digestate from the AD facility. Following treatment in the digester, the digestate will be transferred to an enclosed digestate storage tank temporarily prior to despatch off-site for land-spreading.

We have inserted Improvement condition 1 which requires the Operator to submit a written report to the Environment Agency on the progress made towards the construction and installation of a second storage tank and expected timescales for implementation. This is to ensure that the Operator complies with the proposals to remove the existing lagoons from the storage of digestate.

6.2 Other Emissions to the Environment

6.2.1 Emissions to Water

Rainwater will be harvested from site surface and from the roof of the digester and digestate storage tank and stored in two attenuation tanks. This water

stream will be used on site and in the adjacent vegetable processing factory. Excess uncontaminated rainwater will be discharged to the River Mease after passing through the reed bed. The Applicant reports that an oil interceptor will be installed prior to the final outfall to the River Mease. We have imposed monitoring requirements at the outfall to ensure that only uncontaminated water is discharged to the River Mease.

6.2.2 Fugitive emissions to air, land and water

The IED specifies that plants must be able to demonstrate that they are designed in such a way as to prevent the unauthorised and accidental release of polluting substances into soil, surface water and groundwater. In addition, storage requirements for waste and for contaminated water must be arranged.

All waste received at the Installation will be stored within enclosed storage tanks. Feedstock material is expected to be moist at all stages of the anaerobic treatment process and is therefore unlikely to result in emissions to air.

The waste treatment operations will benefit from a number of process control features to prevent the development of abnormal operating conditions. Operations will be controlled and monitored using the Supervisory Control and Data Acquisition (SCADA) system which creates documentation that can be accessed in remote locations. The system will provide a range of control and monitoring functions that automate and monitor actions throughout the plant. These procedures are designed to ensure the integrity of the plant throughout the life of the facility.

The Applicant has provided a drawing which shows areas on site that will have an impermeable surface which will prevent the release of potentially polluting liquids to surface water and groundwater.

Activities on site will be managed in accordance with the site's management systems. This will include regular inspections and maintenance of equipment to ensure they continue to operate at optimum conditions. All pipework will be inspected at least once a day and checked for liquid or gaseous leaks. In areas where there are gas pipes, or gas handling equipment, the atmosphere will be constantly monitored by gas detectors. In addition to the daily inspection by management, detailed inspection, servicing and testing will be included in the maintenance schedule.

Secondary containment will be provided for all tanks containing liquids whose spillage could be harmful to the environment. The proposed secondary containment is designed to hold a minimum of 110% of the capacity of the largest tank or 25% of total tank volume, whichever is the greater. The bunds are equipped with high level alarms and submersible pumps will be installed in sumps.

Operation of these pumps will be recorded in the data recording system and will be visibly displayed on the control panel visualisation screen. All pumps

and pipework will be checked daily for leaks and will be tested as part of the preventive maintenance scheme. All the pumps are fitted with over pressure alarms /cut- outs, to prevent burst pipes. Checks of the metered quantities and a mass balance gives early warning of possible small leaks, before they become serious. Alarms and cut-outs are fitted to pumps and pipelines and daily, or at critical points, twice daily inspections are carried out. All such inspections will be logged and where there is output from level sensors, meters etc., it will be automatically recorded on the data system.

We have included a Pre-operational condition for future development (Table S1.4B) which requires the submission of a report confirming that the construction and integrity of the secondary containment of the proposed digestate storage tank is fit for purpose and in accordance with industry standards prior to its use at the AD facility. This will ensure that the secondary containment is properly designed to reduce the risks of accidents and their consequences.

The Environment Agency considers that the Applicant has proposed appropriate measures to minimise any impact of fugitive emissions on nearby sensitive receptors. The proposed procedures satisfy the requirements as set out in the Environment Agency's Draft Technical Guidance Note for Anaerobic Digestion (Reference LIT 8737) and are considered BAT for this Installation. The permit conditions (3.2.1 to 3.2.3) are sufficient to ensure that emissions of substances not controlled by emission limits do not cause pollution. The Applicant is required to implement mitigation measures in line with an approved emissions management plan in the event activities on site are causing pollution.

Based upon the information provided in the application, we are satisfied that appropriate measures are in place to prevent fugitive emissions to air, land and water.

6.2.3 Pests, scavenging birds and animals

The impact of pests, scavenging birds and animals will be minimised by undertaking the storage, pre-treatment and treatment of waste within sealed tanks. Feedstock materials will be handled in a manner that will not attract any pests, scavenging birds or animals that may gain access to the site.

Activities on site will be operated in accordance with the site's management systems. The site will be inspected on a daily basis and any occurrences will be recorded and dealt with.

We have included condition 3.6.2 in the Permit. In the event that pests become an issue at the site, this condition requires the Operator to submit a management plan which identifies and minimises risks of pollution from pests to the Environment Agency for approval.

Based upon the information provided in the application, we are satisfied that appropriate measures are in place to prevent the presence of pests, scavenging birds and animals.

6.2.4 Litter

All wastes will be transferred via pipe work into sealed tanks. Based upon the information provided in the application, we are satisfied that appropriate measures are in place to prevent the presence of litter.

6.2.5 Emissions of Odour

6.2.5.1 Quantitative odour impact assessment

The Applicant's assessment of the impact of odour is set out in the Application. The assessment comprises dispersion modelling of odour emissions from the operation of the AD facility. This section of the decision document deals primarily with the dispersion modelling of odour emissions from the site and its impact.

The Applicant has assessed the Installation's potential odour emissions against the relevant Environment Agency benchmark for the most offensive odours (1.5 ouE/m³). This assessment predicts the potential effects on local air quality from the site emissions using the ADMS (version 5.1) dispersion model, which is a commonly used computer model for regulatory dispersion modelling.

Meteorological data for the assessment comprises five years continuous monitoring (2011 to 2015) from East Midlands Airport. The Applicant considered this weather station as the most suitable source of meteorological data due to its proximity to the facility (approximately 26 km from the facility). The impact of the terrain surrounding the site and buildings upon plume dispersion was considered in the dispersion modelling. As well as calculating the peak ground level concentration, the Applicant has modelled the odour concentration at a number of specified residential and non-residential locations within the surrounding area.

The odour impact assessment is based on the assumption that the Installation will operate continuously at the maximum permitted emission rate. We are in agreement with this approach. The assumptions underpinning the model have been checked and are reasonably precautionary. Odour emissions from the proposed AD facility have been quantified using emission rates based on data supplied by the technology provider and "library" data for effluents. The estimated emission rates were then used in atmospheric dispersion modelling in order to assess the potential impact of odour in the areas around the site.

The way in which the Applicant used the dispersion model, the selection of input data, use of background data and the assumptions made have been reviewed by the Environment Agency's modelling specialists to establish the robustness of the Applicant's odour impact assessment.

The Applicant's modelling predictions are presented in Table 9 below.

Table 9 Maximum ground level odour concentrations at all human receptors close to the AD facility

Receptor	Receptor Name	Mean 98 th percentile hourly mean odour concentration (ouE/m ³) ¹
R1	Wolseley Distribution Centre (non-residential) ²	0.34
R44	High Street (residential) ³	0.02
R65	Side Hollows Farm (residential) ⁴	0.13
Note 1 – The Environment Agency benchmark for the most offensive odours is 1.5 ouE/m ³ . Note 2 – Highest concentration for non-residential receptor Note 3 – Lowest concentration for residential receptor Note 4 – Highest concentration for residential receptor		

Even with all sources combined, the highest modelled odour concentration is 0.342 ouE/m³ at Receptor 1, which represents the nearest property to the AD facility (non-residential). The highest modelled odour concentration for all sources combined for a residential receptor is 0.129 ouE/m³ at Receptor 65.

Results from the modelling show that odour concentrations from the AD facility are less than the indicative criterion for the most offensive odour criterion (1.5 ouE/m³) at all human receptors (see Table 9 above). The emissions from the facility are predicted to be not significant and unlikely to give any reasonable cause for annoyance due to odour. The Applicant concludes that it is unlikely that odour emissions from the AD facility will have any significant impact at the human receptor locations considered in this assessment.

The Applicant's odour impact assessment was reviewed by the Environment Agency's technical specialists for modelling, air quality, conservation and ecology technical services, who agreed with the assessment's conclusions, that the proposal will not have a significant impact on nearby human receptors. This is based on the plant operating at the parameters quoted in the modelling report.

6.2.5.2 Management of odour emissions on site

The Applicant submitted an Odour Management Plan (OMP) with the Application. During the determination, we requested more information on the OMP from the Applicant. Consequently, the OMP has been revised a number of times in order to ensure it contains the technical information and operating techniques necessary to prevent odour pollution.

6.2.5.2.1 Inventory of materials

The Applicant reports that the feedstock will come from a single source and that this source is under the control of the same management team.

The quality control of the digester feedstock starts when the vegetables to be processed arrive at the adjacent factory. All incoming vegetables are checked and if they do not meet the required standard, they are rejected and immediately returned to the supplier. The basis for rejection could include, but are not limited to, contamination by foreign materials (such as stones, metal, glass etc.), initial signs of biodegradation and signs or evidence of disease.

The second stage of quality control comes during the washing process. All vegetables are washed to remove soil and other possible contaminants such as surface chemicals.

A large proportion of the vegetables throughput will then go through the abrasive peelers. The peelers generate much of the digester feedstock. Following washing and in most cases peeling, further quality checks are made and any substandard material is rejected. If suitable, and required, it is macerated and fed to the digester feedstock tanks. The unsuitable or unwanted material goes for animal feed. To comply with food hygiene standards, this waste material will be removed from site, as animal feed or macerated within 8 hrs. The material will not be held on site for more than 2.5 days.

The bulk of the digester feedstock is generated by peeling potatoes and is therefore consistent. If waste is generated, by processing vegetables with different biodegradation characteristics, the waste is likely to be as solids. It can either be despatched off-site as animal feed, or fed into the feedstock stream at such a rate that it will not upset digester stability. Even if the characteristics of individual waste streams do vary, the characteristics of the feedstock reaching the digester is relatively consistent as the feedstock tanks have mixers.

The third stage of quality control is the analysis of the feedstock. The feedstock pH and alkalinity is checked daily by hand-held instrument at the same time that the digester contents are checked. Ammonia, volatile organic acids and C:N ratio will be checked weekly by laboratory analysis. A more detailed analysis of the feedstock will be undertaken on a monthly basis, or more frequently if there is reason to believe there has been a significant change. It will be analysed for a number of parameters including metals, ammonia, ammoniacal nitrogen, biological oxygen demand (BOD), chemical oxygen demand (COD), pH and electricity conductivity.

We consider robust pre-acceptance procedures to be key to ensuring complete understanding of the odour potential of wastes accepted on site. The Applicant has provided pre-acceptance procedures in the Application that are in accordance with the Environment Agency's Draft Technical Guidance Note for Anaerobic Digestion (Reference LIT 8737).

6.2.5.2.2 Management of sources of odour on site

The Applicant has provided an inventory of odour sources according to the various stages of the anaerobic digestion process. The Applicant proposes to minimise the volumes and age of wastes held on site.

The Applicant reports that the potential for odours being created in the feedstock stream is very low for the following reasons:

- Reject incoming vegetables are returned to supplier within 8 hrs maximum.
- Reject washed/peeled vegetables are despatched off-site as animal feed or macerated normally within 8 hrs or 2.5 days as an exception.
- The peelings are transferred to the feedstock tank within 2 hrs maximum.
- The combined capacity of the feedstock tanks is 240 m³. Waste is generated at the rate of 100 m³/day. The maximum residence time is therefore 58 hrs.

The maximum time between the waste being generated and going into the digester will normally be 66 hrs and exceptionally 118 hrs. Even under exceptional circumstances, the time is less than the 5 day maximum BAT requirement. The sealed feedstock tanks will be stirred to prevent stratification and the development of significantly anaerobic layers forming.

The existing digestate storage tank has a capacity of approximately 200 m³. This means the maximum time that digestate can be stored is approximately 53 hrs. A second digestate storage tank is planned to be installed. This will have a capacity of 4,500 m³, increasing the total capacity to 4,700 m³. The maximum residence time will then be 1,244 hrs (52 days). Both these tanks will be gas tight and any gas given off by the digestate will be collected and combusted in the CHP engines. The increased capacity will cover prolonged periods of adverse weather, when digestate cannot be transported from site.

During the anaerobic digestion process, the Applicant proposes to carry out monitoring of key parameters to ensure that the digestion process is stable and working efficiently. We are satisfied that the process monitoring will be employed to maintain optimum conditions.

6.2.5.2.3 Containment and abatement of odorous emissions

Fugitive emissions to air are common at biowaste treatment facilities as a result of waste acceptance, treatment and storage. The Applicant confirms that the feedstock will have a COD of 10,000 mg/l so will have a high potential for odour emissions. It is anticipated treatment via AD will reduce the COD to 1,500 mg/l.

The Applicant has provided a complete inventory of sources of odour emissions from the AD facility. These are:

- Emissions from the pasteurisers;

- Biogas escape from the digester and digestate storage tank;
- Emissions from digestate centrifuge use;
- Emissions from digestate transfer and storage in the lagoons; and
- Emissions from fresh digestate loading into tankers

The Applicant has removed the open lagoons as a storage option. Digestate will now be transferred from the digester into the existing gas tight digestate tank. It will then be transferred from there to a second gas tight concrete digestate tank when it is installed. The tank will have a minimum capacity of 4,500 m³ and will be bunded. Digestate will be exported from both tanks to a temporary tank at the spreading site.

We received further information from the Applicant with respect to management of odour on 6 April 2017. The Applicant reports that discussions have been conducted with a technology provider with a proposal for controlling odour from the two emergency flares and the digester's pressure relief valves (PRVs). A system for spraying a surfactant to absorb the noxious elements of the discharge is proposed. The Applicant states that the system will be automatic and only operate when the PRVs lift, or when the flares are discharging unburnt gas, in the event there is ignition failure and before the "no flame" system shuts down.

The Applicant confirms that the centrifuge will no longer be used. The Applicant reports that samples of the digestate have been analysed and there is less than 2% solids content and it is likely that the solids loading will reduce further, once the digester is stabilised.

In addition, the Applicant confirms that the pasteurisation system has been altered. Originally, pasteurisation of the feedstock was proposed. However it was found that blockages were occurring in the heat recovery system. The Applicant proposes to load feedstock into the digester with no pasteurisation at this stage. Once the feedstock has undergone digestion, the whole digestate will be pasteurised. The Applicant states that the pasteurisers are sealed, therefore there is no potential of odour emissions.

The Applicant reports that in the event odour problems arise on site, they will investigate the possibility of installing a suitable odour abatement system. Consequently no odour abatement for emissions from the pasteurisers was proposed. Untreated emissions from the pasteurisers will be vented into the atmosphere.

We consider that where digestate undergoes treatment, the process should take place within an enclosed building which is kept under negative air pressure or via an enclosed system with appropriate odour abatement. Fast-acting roller shutter doors should be provided for access and egress. Abatement is required for exhaust air from areas processing digestate prior to discharge to atmosphere.

We consider that the Applicant has not demonstrated a commitment to prevent and minimise emissions of odour from leaving the site boundary. The

above proposal is reactive and is not an appropriate measure for the management of odour emissions at an AD facility. Consequently, the requirement for appropriate measures for the containment and abatement of odorous emissions on site has not been met in this case.

In addition, the Applicant has not attempted to address odour emissions from the following activities on site:

- Biogas escape from the digestate storage tank; and
- Emissions from handling /transfer of digestate.

6.2.5.2.4 Emergencies and incidents

The Applicant has considered the impact of emergencies and incidents on odour emissions. We are satisfied that contingency actions will be taken should there be any plant breakdown. We are satisfied with the timescales that the Applicant has proposed for plant or parts repair or replacement and the Applicant's commitment to reduce digester feeding in the event of plant breakdown.

6.2.5.2.5 Our assessment

Although the recent version of the OMP (version 2) submitted in support of the application is an improvement on the previous version, we consider that there are some aspects that require attention.

The Applicant's management of odour at the AD facility relies on applying effective house-keeping measures to reduce the impact of odour emissions, robust pre-acceptance of feedstock procedures and process monitoring.

The Applicant provided a complete inventory of all sources of odour emissions that could have an impact on human receptors. The removal of the use of the existing lagoons for the storage of digestate /factory effluent is welcomed.

There are no details of appropriate measures to contain and abate odour emissions from key activities especially pasteurisation and digestate handling /transfer. These activities have the potential to give rise to odour emissions especially where no containment and/or abatement is proposed. The Applicant reports that an odour abatement system will be installed if it is considered necessary. Given the history of odour complaints from the adjacent factory, we consider that the details need to be finalised prior to the commencement of commissioning of the AD facility with waste.

We consider that current measures in the OMP (as it stands) do not comply with BAT for biological treatment facilities:

- Waste Treatment Bref Notes (section 4.2.2 which requires a robust containment feature and air extraction to an abatement system);
- Draft Technical Guidance for Anaerobic Digestion; and
- H4 – Odour Management.

Consequently, we cannot approve the OMP in its current state.

Whilst we are not satisfied with the content of the OMP (version 2), we have included pre-operational condition 2 in the permit to address the outstanding issues. The pre-operational condition will require the Operator to provide a revised OMP which addresses all the points raised in our review dated 10 April 2017. The Operator is not permitted to accept waste for commissioning and/or treatment at the AD facility unless the OMP is approved by the Environment Agency in writing.

6.2.6 Noise and vibration

Based upon the information in the application, we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise noise and vibration and to prevent pollution from noise and vibration outside the site.

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 to compare the predicted plant rating noise levels with the established background levels.

The application did not contain a noise management plan. We have therefore included condition 3.4.2 which requires the Operator to, if notified by us that the activities are giving rise to pollution outside the site due to noise and vibration, submit to us for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration.

6.3 Commissioning

The proposed Installation will undergo a period of commissioning before becoming fully operational. The IED and the conditions set out in the permit cover activities at the Installation once operational – accepting wastes for treatment.

At the commissioning stage, Operators are required to demonstrate that the plant (including any odour abatement system) is working effectively and that appropriate measures are in place to protect the environment and human health during this period (prior to the commencement of operations). As the plant is undergoing construction, we have included pre-operational condition 3 in the permit which requires the Operator to submit a commissioning plan to us for approval.

The commissioning plan will include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the measures to be taken to protect the environment and report to us in the event that actual emissions exceed

expected emissions. Commissioning can only be undertaken in accordance with the approved commissioning plan. As the impact of odour emissions was the main concern during the determination, we expect the Applicant to pay particular attention to this issue in the commissioning plan.

6.4 Monitoring

We have specified that monitoring should be carried out for the parameters listed in Schedule 3 table S3.2 and S3.3 in the permit using the methods and to the frequencies in those tables.

Visual monitoring has been specified in the permit to ensure early detection of contaminated water entering the River Mease via the off-site reed bed (see Table S3.2 in the permit).

We have specified monitoring of the AD process as a whole (see Table S3.3 in the permit). Monitoring parameters include temperature, pH, daily olfactory checks and structural integrity checks of the digesters and storage tanks. These monitoring checks are imposed as a measure of the stability of the anaerobic digestion process and to ensure that any malfunction of plant /equipment on site is detected early to prevent significant pollution.

Based on the information in the Application and the requirements set in the conditions of the permit, we are satisfied that the Operator's techniques, personnel and equipment will have either MCERTS certification or MCERTS accreditation as appropriate.

6.5 Reporting

We have specified the reporting requirements in Schedule 5 of the permit either to meet the reporting requirements set out in the IED, or to ensure data is reported to enable timely review by the Environment Agency and to monitor the efficiency of material use and energy recovery at the Installation.

7 Other legal requirements

In this section, we explain how we have addressed other relevant legal requirements, to the extent that we have not addressed them elsewhere in this document.

7.1 The EPR 2016 and related Directives

The EPR delivers the requirements of a number of European and national laws.

7.1.1 Schedules 1 and 7 to the EPR 2016 – IED Directive

We address the requirements of the IED in the body of this document above.

There is one requirement not addressed above, 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 decision of Leicestershire County Council to grant planning permission on 16 July 2015. From consideration of the decision, the Environment Agency considers that no additional or different conditions are necessary.

The Environment Agency has also carried out its own consultation on the Environmental Permitting Application. The results of our consultation are described elsewhere in this decision document.

7.1.2 Schedule 9 to the EPR 2016 – Waste Framework Directive

As the Installation involves the treatment of waste, it is carrying out a *waste operation* for the purposes of the EPR 2016, 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 (see also section 4.3.10).

The conditions of the permit ensure that waste generation from the facility is minimised. Where the production of waste cannot be prevented, it will be recovered wherever possible or otherwise disposed of in a manner that minimises its impact on the environment. This is 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. These objectives are addressed elsewhere in this document.

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 are all covered by permit conditions.

We consider that the intended method of waste treatment is acceptable from the point of view of environmental protection so Article 23(3) does not apply. Energy efficiency is dealt with elsewhere in this document but we consider the conditions of the permit ensure that the recovery of energy takes place with a high level of energy efficiency in accordance with Article 23(4).

Article 35(1) relates to record keeping and its requirements are delivered through permit conditions.

7.1.3 Schedule 22 to the EPR 2016 – 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 2016), the Permit is subject to the requirements of Schedule 22, which delivers the requirements of EU Directives relating to pollution of groundwater. The Permit will require 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 are permitted. The Permit also requires material storage areas to be designed and maintained to a high standard to prevent accidental releases.

7.1.4 Directive 2003/35/EC – The Public Participation Directive

Regulation 60 of the EPR 2016 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 is being consulted upon in line with this statement, 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, on the original application. The way in which this has been done is set out in Section 2.2. A summary of the responses received to our consultations and our consideration of them is set out in Annex 3.

7.2 National primary legislation

7.2.1 **Environment Act 1995**

(i) Section 4 (Pursuit of Sustainable Development)

We are required to contribute towards achieving sustainable development, as considered appropriate by Ministers and set out in guidance issued to us. The Secretary of State for Environment, Food and Rural Affairs has issued *The Environment Agency’s Objectives and Contribution to Sustainable Development: Statutory Guidance (December 2002)*. This document:

“provides guidance to the Agency on such matters as the formulation of approaches that the Agency should take to its work, decisions about priorities for the Agency and the allocation of resources. It is not directly applicable to individual regulatory decisions of the Agency”.

In respect of regulation of industrial pollution through the EPR, the Guidance refers in particular to the objective of setting permit conditions “*in a consistent*

and proportionate fashion based on Best Available Techniques and taking into account all relevant matters...". The Environment Agency considers that it has pursued the objectives set out in the Government's guidance, where relevant, and that there are no additional conditions that should be included in this Permit to take account of the Section 4 duty.

(ii) Section 5 (Preventing or Minimising Effects of Pollution of the Environment)

We are satisfied that our pollution control powers have been exercised for the purpose of preventing or minimising, remedying or mitigating the effects of pollution.

(iii) Section 6(1) (Conservation Duties with Regard to Water)

We have a duty to the extent we consider it desirable generally to promote the conservation and enhancement of the natural beauty and amenity of inland and coastal waters and the land associated with such waters, and the conservation of flora and fauna which are dependent on an aquatic environment. We consider that no additional or different conditions are appropriate for this Permit.

(iv) Section 6(6) (Fisheries)

We have a duty to maintain, improve and develop fisheries of salmon, trout, eels, lampreys, smelt and freshwater fish. We consider that no additional or different conditions are appropriate for this Permit.

(v) Section 7 (Pursuit of Conservation Objectives)

This places a duty on us, when considering any proposal relating to our functions, to have regard amongst other things to any effect which the proposals would have on sites of archaeological, architectural, or historic interest; the economic and social well-being of local communities in rural areas; and to take into account any effect which the proposals would have on the beauty or amenity of any rural area.

We considered whether we should impose any additional or different requirements in terms of our duty to have regard to the various conservation objectives set out in Section 7, but concluded that we should not.

(vi) Section 39 (Costs and Benefits)

We have a duty to take into account the likely costs and benefits of our decisions on the applications ('costs' being defined as including costs to the environment as well as any person). This duty, however, does not affect our obligation to discharge any duties imposed upon us in other legislative provisions. In so far as relevant, we consider that the costs that the permit

may impose on the applicant are reasonable and proportionate in terms of the benefits it provides.

(vii) Section 108 Deregulation Act 2015 – Growth duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

(viii) Section 81 (National Air Quality Strategy)

We have had regard to the National Air Quality Strategy and consider that our decision complies with the Strategy, and that no additional or different conditions are appropriate for this Permit.

7.2.2 Human Rights Act 1998

We have considered potential interference with rights addressed by the European Convention on Human Rights in reaching our decision and consider that our decision is compatible with our duties under the Human Rights Act 1998. In particular, we have considered the right to life (Article 2), the right to a fair trial (Article 6), the right to respect for private and family life (Article 8) and the right to protection of property (Article 1, First Protocol). We do not believe that Convention rights are engaged in relation to this determination.

7.2.3 Countryside and Rights of Way Act 2000 (CROW 2000)

Section 85 of this Act imposes a duty on Environment Agency to have regard to the purpose of conserving and enhancing the natural beauty of the area of

outstanding natural beauty (AONB). There is no AONB which could be affected by the Installation.

7.2.4 Wildlife and Countryside Act 1981

Under section 28G of the Wildlife and Countryside Act 1981, the Environment Agency has a duty to take reasonable steps to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which a site is of special scientific interest. Under section 28I, the Environment Agency has a duty to consult Natural England in relation to any permit that is likely to damage SSSIs.

We assessed the Application and concluded that the Installation will not damage the special features of any SSSI. This was recorded on a CROW Appendix 4 form.

The CROW assessment is summarised in greater detail in section 5.3 of this document. A copy of the full Appendix 4 assessment can be found on the public register.

7.2.5 Natural Environment and Rural Communities Act 2006

Section 40 of this Act requires us to have regard, so far as is consistent with the proper exercise of our functions, to the purpose of conserving biodiversity. We have done so and consider that no different or additional conditions in the Permit are required.

7.3 National secondary legislation

7.3.1 The Conservation of Natural Habitats and Species Regulations 2010

The habitat assessment is summarised in greater detail in section 5.3 of this document.

7.3.2 Water Framework Directive Regulations 2017

Consideration has been given to whether any additional requirements should be imposed in terms of the Environment Agency's duty under regulation 3 to secure the requirements of the Water Framework Directive through (inter alia) EP permits, but it is felt that existing conditions are sufficient in this regard and no other appropriate requirements have been identified.

7.4 Other relevant legal requirements

7.4.1 Duty to Involve

S23 of the Local Democracy, Economic Development and Construction Act 2009 require us where we consider it appropriate to take such steps as we consider appropriate to secure the involvement of interested persons in the exercise of our functions by providing them with information, consulting them

or involving them in any other way. S24 requires us to have regard to any Secretary of State guidance as to how we should do that.

The way in which the Environment Agency has consulted with the public and other interested parties is set out in section 2 of this document. The way in which we have taken account of the representations we have received is set out in Annex 3. Our public consultation duties are also set out in the EP Regulations, and our statutory Public Participation Statement, which implement the requirements of the Public Participation Directive. In addition to meeting our consultation responsibilities, we have also taken account of our guidance, the Environment Agency's Building Trust with Communities toolkit.

ANNEX 1: Pre-Operational Conditions

Based on the information on the Application, we consider that we do need to impose pre-operational conditions. These conditions are set out below and referred to, where applicable, in the text of the decision document. We are using these conditions to require the Operator to confirm that the details and measures proposed in the Application have been adopted or implemented prior to the operation of the Installation.

Pre-operational measures	
Reference	Pre-operational measures
1	<p>At least 2 weeks (or any other date as agreed with the Environment Agency) prior to commissioning of the installation using waste feedstock, the operator shall submit a written copy of the site Environmental Management System (EMS) and make available for inspection all documents and procedures which form part of the site EMS.</p> <p>The EMS shall cover all activities at the Installation and shall be in accordance with the Environment Agency Guidance – How to develop a management system: environmental permits and section 8.2.1 of the Environment Agency Draft Technical Guidance for Anaerobic Digestion (Reference LIT 8737, November 2013). The EMS shall include the techniques the operator relies upon to manage the operation, accidents (including flooding), closure and decommissioning of the site. The documents and procedures set out in the EMS shall form the written management system referenced in condition 1.1.1 (a) of the permit.</p> <p>No waste shall be accepted at the Installation unless the Environment Agency has given prior written permission under this condition.</p>
2	<p>At least 2 weeks (or any other date as agreed with the Environment Agency) prior to the commencement of commissioning of the Installation using waste feedstock, the operator shall submit a revised odour management plan to the Environment Agency and obtain the Environment Agency's written approval to it. The plan shall incorporate all the required detailed information as specified in the Environment Agency's review of the odour management plan dated 10 April 2017.</p> <p>The plan shall take into account the appropriate measures for odour control specified in section 7.6.5 of the Environment Agency Draft Technical Guidance for Anaerobic Digestion (Reference LIT 8737, November 2013) and the Horizontal Guidance H4 – Odour Management.</p> <p>No waste shall be accepted at the Installation unless the Environment Agency has given prior written permission under this condition.</p>
3	<p>At least 8 weeks (or any other date as agreed with the Environment Agency) prior to the commencement of commissioning of the Installation using waste feedstock, the operator shall provide a written commissioning plan (including timescales for completion) to the Environment Agency and obtain the Environment Agency's</p>

Pre-operational measures	
Reference	Pre-operational measures
	<p>written approval to it. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the measures to be taken to protect the environment and report to the Environment Agency in the event that actual emissions exceed expected emissions.</p> <p>No waste shall be accepted at the facility unless the Environment Agency has given prior written permission under this condition.</p>
4	<p>At least 4 weeks (or any other date as agreed with the Environment Agency) prior to the commencement of commissioning of the installation using waste feedstock, the operator shall provide written evidence to the Environment Agency of the Technically Competent Manager (TCM) at the proposed installation. The report shall confirm that the person(s) hold the relevant qualifications under the CIWM/WAMITAB scheme or other equivalent for the operation of the anaerobic digestion plant.</p> <p>No waste shall be accepted at the facility unless the Environment Agency has given prior written permission under this condition.</p>

Reference	Pre-operational measures for future development
Operation	Digestate storage tank (proposed)
1	<p>The operator shall ensure that a review of the design, method of construction and integrity of the secondary containment for the proposed digestate storage tank is carried out by a qualified civil or structural engineer.</p> <p>The review shall compare the secondary containment against the standards set out in section 7.9.1 of the Environment Agency Draft Technical Guidance for Anaerobic Digestion (Reference LIT 8737, November 2013) and CIRIA C736 – Containment Systems for the Prevention of Pollution - secondary, tertiary and other measures for industrial and commercial premises or other relevant industry standard.</p> <p>The review shall include:</p> <ul style="list-style-type: none"> • the physical condition of the secondary containment • the suitability for providing containment when subjected to the dynamic and static loads caused by catastrophic tank failure; • any work required to ensure compliance with the standards set out in CIRIA C736 or other relevant industry standard; and • a preventative maintenance and inspection regime <p>A written report of the review shall be submitted to the Environment Agency detailing the review's findings and recommendations. Remedial action shall be taken to ensure that the secondary</p>

Reference	Pre-operational measures for future development
Operation	Digestate storage tank (proposed)
	<p>containment meets the standards set out in the technical guidance documents and implement the maintenance and inspection regime.</p> <p>The digestate storage tank shall not be used for storage unless the Environment Agency has given prior written permission under this condition.</p>

ANNEX 2: Improvement Conditions

Based on the information in the Application, we consider that we need to set an improvement condition. This condition is set out below – justification for this is provided at section 6.1.2 of the decision document. We are using this condition to require the Operator to provide the Environment Agency with details that need to be established or confirmed after commissioning.

Reference	Improvement measure	Completion date
1	The operator shall submit a written report to the Environment Agency on the progress made towards the construction and installation of the second storage tank proposed as a long-term solution for the storage of digestate at the facility. The report shall include expected timescales for the completion of construction of the digestate storage tank.	31/12/17 or otherwise agreed in writing by the Environment Agency

ANNEX 3: Consultation, web publishing and newspaper advertising responses

A) Advertising and Consultation on the Application

The Application has been advertised and consulted upon in accordance with the Environment Agency's Public Participation Statement. The way in which this has been carried out along with the results of our consultation and how we have taken consultation responses into account in reaching our decision is summarised in this Annex. Copies of all consultation responses have been placed on the Environment Agency Public Register.

The Application was advertised on the Environment Agency website from 30 November 2016 to 6 February 2017 and in the Burton Mail on 30 November 2016. The Application was made available to view at the Environment Agency Public Register at Trentside Offices, Scarrington Road, West Bridgford, Nottingham, NG2 5BR.

The following statutory and non-statutory bodies were consulted:

- Leicestershire County Council – Planning Department
- North West Leicestershire District Council – Environmental Protection
- North West Leicestershire District Council – Planning Department
- Health and Safety Executive (HSE)
- Public Health England
- Director of Public Health (Leicestershire County Council)
- Highways Agency
- National Grid
- Leicestershire Fire & Rescue
- Natural England

1) Consultation Responses from Statutory and Non-Statutory Bodies

Response received from North West Leicestershire District Council dated 30/01/17	
Brief summary of issues raised	Summary of action taken / how this has been covered
Concerns regarding the quantitative odour impact assessment in particular inconsistencies in several places, emissions data used, odour criterion used and results of the modelling.	We have audited the Applicant's odour impact assessment (dispersion modelling) and agree that the conclusions drawn in the report are acceptable, that the facility will not give rise to annoyance from site activities.
Concerns regarding the suitability of the odour management plan, in particular odour releases from the AD process, odour inventory, proposed site meetings, role of technically competent manager, storage of digestate and odour monitoring on site.	We have not approved the OMP in its current state (see section 6.2.5). Whilst a majority of our concerns have been addressed, we have included pre-operational condition 2 in the permit to address the remaining points. The pre-operational condition requires the Operator to provide a revised OMP which addresses all the points raised in our review dated 10 April 2017.
	The Operator is not permitted to accept waste for

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	commissioning and/or treatment at the AD facility unless the OMP is approved by the Environment Agency in writing.
Concerns regarding the suitability of the designated technical competent manager (TCM).	We received further information from the Applicant with respect to the relevant TCM qualifications. We are satisfied that the named TCM has the appropriate qualifications to operate the AD facility.
Concerns regarding the storage of waste in existing lagoons.	The storage of digestate and/or effluent in the existing lagoons has been removed from the permit application. The Applicant has proposed enclosed tanks as the long-term storage option for the digestate produced on site. This issue is discussed in section 6.1.2 of this decision document. The existing lagoons will no longer be used for the storage of digestate and/or factory effluent. The use of the existing storage lagoons is not authorised under this environmental permit.

Response received from Public Health England dated 10/12/16

Brief summary of issues raised	Summary of action taken / how this has been covered
Given the history of complaints regarding odour from the site, PHE recommend that the Environment Agency should ensure that the efficiency of the abatement methods, such as biofilters, etc. is achievable and maintained as this may impact on any odour experienced at residential properties.	Please see response above. The impact of odour emissions is discussed in section 6.2.5 of this decision document.
Based on the information contained in the application supplied to us, Public Health England has no significant concerns regarding the risk to the health of the local population from the installation.	No further action.

Response received from Natural England dated 15/03/17	
Brief summary of issues raised:	Summary of action taken / how this has been covered
No issues raised. In respect of the Appendix 11 (Habitats) submission, Natural England agreed with the Environment Agency conclusions that there is no likely impact on the River Mease SAC from the AD facility.	No further action
In respect of the Appendix 4 (CROW Act form) submission, Natural England agreed with the Environment Agency conclusions that there is no likely impact on the River Mease SSSI from the AD facility.	No further action

2) Consultation Responses from Members of the Public and Community Organisations

The consultation responses received were wide ranging and a number of the issues raised were outside the Environment Agency's remit in reaching its permitting decisions. Specifically questions were raised which fall within the jurisdiction of the planning system, both on the development of planning policy and the grant of planning permission. Guidance on the interaction between planning and pollution control is given in the National Planning Policy Framework. It says that the planning and pollution control systems are separate but complementary. We are only able to take into account those issues, which fall within the scope of the Environmental Permitting Regulations.

b) Representations from Local MP, Councillors and Parish / Town / Community Councils

Representations were received from Measham Parish Council and a Local Councillor, who raised the following issues.

Response received from Measham Parish Council dated 25/01/17 & 06/02/17	
Brief summary of issues raised:	Summary of action taken / how this has been covered
Storage lagoons should be covered and lined.	See response to North West Leicestershire District Council above.
There should be improved preparation prior to spreading effluent onto permitted land, including signage and road cleansing equipment to be in place prior to work being carried out. The local authorities should be informed of the dates and times of planned work in order to manage any complaints.	This environmental permit does not authorise the landspreading of digestate on land. The Applicant has an existing land-spreading permit which authorises spreading. The permit has specified operating techniques which the Operator is expected to comply with.
Effluent should be stored in tanks after processing in the anaerobic digester.	The digestate will be stored in sealed tanks following biological treatment in the digester.

Response received from Elford Action Group dated 03/02/17	
Brief summary of issues raised:	Summary of action taken / how this has been covered
Concerns regarding the spreading of waste produce on land at Home Farm Elford. Questions were asked about matters relating to volume of waste applied on land; Environment Agency restriction of land to be spread; consultation with the Highways Department; assurance of no odour emissions from future deployments; Environment Agency monitoring of deployments; verification of statement in deployment application and a request for an Environment Agency meeting with Elford residents and other organisations.	<p>The application submitted to us by the Applicant (A.B. Produce PLC) is for the operation of an anaerobic digestion facility in Measham using waste from the adjacent vegetable processing factory and non-waste feedstock. The application also covers the storage of digestate in sealed storage tanks on site following biological treatment in the digester. The permit does not authorise the landspreading of digestate and/or effluent on any land.</p> <p>The landspreading of digestate and/or effluent is covered under a separate permit (permit reference – EPR/EB3430DR) held by the Applicant.</p> <p>All comments made with respect to the landspreading activity and any odour impacts on any human receptor have been compiled and will be addressed as a compliance matter under permit reference EPR/EPR/EB3430DR.</p> <p>The landspreading of digestate and/or effluent cannot be considered as a part of this determination.</p>
Potential increase in road accidents as a result of increased traffic from landspreading activities.	Vehicle movements outside the installation boundary are the responsibility of the local authority and not within the remit of the Environmental Permitting Regulations.

Response received from Elford Residents' Association dated 05/02/17	
Brief summary of issues raised:	Summary of action taken / how this has been covered
Concerns regarding the spreading of large volumes of digestate on land in Elford.	Please see response to Elford Action Group above.

b) Representations from Individual Members of the Public

A total of 20 responses were received from individual members of the public. The drop-in event was attended by about 30 persons, who were a mixture of local residents and the business community likely to be impacted by the proposed facility. Some of the issues raised were the same as those considered above. Only those issues additional to those already considered are listed below:

Response received from individual members of the public	
Brief summary of issues raised:	Summary of action taken / how this has been covered
The use of the AD facility to treat factory effluent to reduce the impact of odour emissions is welcomed.	No further action.
The Applicant is using Elford as a dumping ground for digestate and effluent.	The Applicant has an existing environmental permit which authorises the landspreading of waste for agricultural benefit. To spread waste on any land, the Applicant must notify the Environment Agency through a deployment application. If the deployment application is granted, the Applicant is required to comply with all the conditions specified in the permit.
The reports are highly technical. There should be a summary to draw the information together and present it in plain English.	The Applicant submitted a non-technical summary with the Application which we consider appropriate. The main part of the Application describes the proposals in more detail.
If the level of solids in the proposed digester is too high, it should go back into the system, not be "spread on land".	The Applicant reports that samples of the digestate have been analysed and will be less than 2 per cent solids.
Odour levels at and around the site should be automatically monitored. Any breaches of agreed odour levels should lead to a reduction in the plant's permitted handling capacity.	We have included odour conditions in the permit. We consider that the conditions in the permit are sufficient to ensure that odour emissions from the facility do not cause annoyance. Process monitoring conditions including weekly sniff tests at the site boundary will also ensure that emissions of odour are not causing annoyance. In the event that odour emissions are causing pollution, the permit conditions require the Operator to comply with the measures specified in the site's operating techniques and odour management plan (following approval).
There should be strict deadlines for work to start and finish and financial penalties, agreed beforehand, if they are missed.	The site's working hours is a consideration for the local planning authority.
Concerns regarding the production of biogas and the proximity of the AD facility to A42 and traffic carrying hazardous gas.	The Applicant has submitted an accident management plan which will form part of the site Environmental Management System. The site is also expected to undertake a DSEAR risk assessment under the Health & Safety Regulations. This risk assessment considers the impact of biogas explosions on site. We have consulted the Health & Safety Executive (HSE), Fire & Rescue Service and the Highways Agency as part of this determination. They have raised no objections or concerns in relation to the Application.
Concern regarding more volumes of waste (green waste and animal slurry) being added to the digester in order to generate more biogas.	The Applicant can only accept vegetable wastes from the adjacent vegetable processing factory and non-wastes (maize silage or crop residues). This is specified in Table S2.2 in the permit. Animal slurry is waste and it is not authorised for

	acceptance and treatment at the AD facility.
Concern regarding the residues left in the digestate especially fertilisers, pesticides and products used in the washing and packing of vegetables.	<p>Pre-treatment of the vegetables will occur at the vegetable process factory prior to transfer to the AD facility.</p> <p>In addition, the Applicant proposes to treat the resultant digestate through a pasteurisation process which is aimed at reducing any potential harmful residues in the digestate in accordance with the PAS 110 Quality Protocol standard.</p> <p>The purpose of PAS 110 is to ensure that digested materials are made using suitable inputs and effectively processed by anaerobic digestion for sufficient time and to ensure that the process has been well managed and monitored so as to produce digested material that meets market needs and protects the environment.</p> <p>The PAS 110 specifies controls on input materials and the management system for the process of anaerobic digestion and associated technologies and the minimum quality of whole digestate. The PAS 110 includes a range of test parameters for digested materials made from specific input materials. The PAS 110 requires the waste producer to undertake a Hazard Analysis and Critical Control Point (HACCP) planning and to implement and maintain a Quality Management System (QMS) that ensures digested materials meet the minimum quality requirements set and are fit for purpose.</p> <p>The Operator is required to sample the whole digestate after full treatment, when it is ready for use. Each final sample must be representative of the portion of production sampled. Each sample tested in order to demonstrate compliance with the standards shall be tested by a laboratory that has no conflict of interest with the producer.</p> <p>Before validation, claim of PAS 110 conformance to minimum quality requirements shall only be made in connection with the sampled portion(s) of digested material if the test results of the corresponding sample demonstrate that it is at least the minimum quality required in this PAS and it meets any additional quality characteristics the producer has committed to meeting in the quality policy.</p> <p>This gives us the confidence that the digestate output will contain no harmful residues.</p>
Concern regarding the life of the plant and its proper maintenance.	It is up to the Applicant to determine the life of the plant which is subject to market forces. For as long as the Applicant operates the plant, the site will be run using the Environmental Management System. This condition is specified

	in the permit (condition 1.1).
Concern regarding reporting and how the local community is informed of progress/ breaches etc. A recommendation was suggested that the Environment Agency work closely with the North West Leicestershire District Council.	Information about the site is available on our public register which is held at our Lichfield Office. The Environment Agency works closely with North West Leicestershire District Council with respect to the operation of the AD facility.
Recommendation for better understanding of the site history and problems by Environment Agency officers. A call for open, honest and accountable officers especially in the event of public complaints.	The Environment Agency local compliance team are conversant with the history of the site with respect to the odour emissions and complaints. They work very closely with the local authority officers.
The impact of odour on 455 new homes proposed to be built.	The impact of odour emissions on human receptors is discussed in section 6.2.5 in this decision document.
The AD plant locations should be allowed where there is no disruption to residential housing and damage to the environment and general amenity of an area.	<p>Emissions from the facility and their potential impacts on the environment and human health are discussed in Chapters 5 and 6 of this decision document. We also audited the Applicant's air quality and odour impact assessment and agree that the conclusions drawn in the reports are acceptable, that there would be no significant impact to the environment or human health. Monitoring conditions are specified in the permit which would enable compliance checks on emissions to air when the site is fully operational.</p> <p>Decisions over land use are matters for the Planning Authority. The location of the installation is a relevant consideration for Environmental Permitting, but only in so far as it's potential to have an adverse environmental impact on communities or sensitive environmental receptors. The environmental impact is assessed as part of the determination process and has been reported upon in the main body of this decision document.</p>

No comments or response received from the following organisations

- Leicestershire County Council – Planning Department
- North West Leicestershire District Council – Planning Department
- Health & Safety Executive (HSE)
- Director of Public Health (Leicestershire County Council)
- Highways Agency
- National Grid
- Leicestershire Fire & Rescue
- Natural England

B) Advertising and Consultation on the Draft Decision

This section reports on the outcome of the public consultation on our draft decision carried out between 19 June 2017 and 17 July 2017. Copies of the Draft Decision were placed on our website (GOV.UK), our consultation web page (Citizen Space) and on the Environment Agency Public Register at the Environment Agency Office, Sentinel House, 9 Wellington Crescent, Fradley Park, Lichfield, WS13 8RR. Anyone wishing to see Draft Decision could do so and arrange for copies to be made.

In some cases the issues raised in the consultation were the same as those raised previously and already reported in section A of this Annex. Where this is the case, the Environment Agency response has not been repeated and reference should be made to section A for an explanation of the particular concerns or issues.

a) Consultation Responses from Statutory and Non-Statutory Bodies

Further representations were received from Leicestershire County Council and North West Leicestershire District Council who raised the following issues:

Response received from Leicestershire County Council dated 17/07/17	
Brief summary of issues raised	Summary of action taken / how this has been covered
We support the exclusion of the lagoons from the permit and the prohibition of the importation of waste from off-site. The lagoons have been the main cause of complaints and to eliminate them as a source of odour would be a very positive move.	No further action

Response received from North West Leicestershire District Council (Environmental Protection) dated 17/07/17	
Brief summary of issues raised	Summary of action taken / how this has been covered
We have concerns that the revised odour management plan, although improved, still does not adequately address all potential odour sources. However, we are satisfied that this is addressed in the pre-operational condition. We are also pleased to see that the permit confirms that the process will be enclosed including both the production and the digestate storage. It is reassuring to see that the storage of digestate in the nearby lagoons is not permitted. Based on these points, the Environmental Protection Team at the District Council have no further comments.	No further action.

No comments or response received from the following organisations

- North West Leicestershire District Council – Planning Department
- Health & Safety Executive (HSE)
- Public Health England
- Director of Public Health (Leicestershire County Council)
- Highways Agency
- National Grid
- Leicestershire Fire & Rescue
- Natural England

b) Representations from Local MP, Councillors and Parish / Town / Community Councils

Representations were received from Elford and Measham Parish Councils who raised the following issues:

Response received from Elford Parish Council dated 12/07/17

Brief summary of issues raised	Summary of action taken / how this has been covered
Elford Parish Council feels that the Environment Agency has made an appropriate decision as far as the AD facility at Measham is concerned and as far as its understanding of this very technical report goes. It does feel however that large quantities of waste will be produced by the facility which should be dealt with on site and instead will be taken to Elford which will continue the current problems experienced there with excess traffic and unpleasant odours.	Waste will be processed on site via anaerobic digestion. However this process produces an output which has to be managed. Standard practice is to store digestate on site for re-circulation within the treatment process, despatch to third-party waste facilities and/or despatch for land spreading. With respect to land spreading in Elford, please refer to our response to comments made by Elford Action Group above.
The Parish Council does not agree that this waste product should be categorised as agricultural.	We have not classified the “waste product” as agricultural. The output from anaerobic digestion is referred to as “digestate”. The digestate which meets all the criteria specified in PAS 110 is no longer classified as waste and falls outside of regulatory control. If the product does not meet all the criteria in PAS 100, it will be regarded as “waste and will be subject to regulatory control. The spreading of such non-PAS 110 compliant digestate will be regulated under an environmental permit.
It also notes that the waste product must be stored in tankers at Measham to reduce the odour problems suffered by that community, yet the EA is prepared to accept that it can be stored in open lagoons in Elford. The Parish Council would therefore welcome the EA's comments on these concerns.	We are aware that the Operator is exploring storage options at the spreading locations. These discussions are on-going and will be taken forward as a compliance issue under the land spreading permit.

Response received from Measham Parish Council dated 14/07/17

Brief summary of issues raised	Summary of action taken / how this has been covered
Measham Parish Council have no objections to the draft permit and welcome and support note 1 on schedule 2 of the Permit.	No further action.