

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/HP3238AF/A001
The Applicant / Operator is: Omega Proteins Ltd.
The Installation is located at: Wildriggs, Penrith.

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 proposing to issue to the Applicant. It is our record of our 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/HP3238AF/A001**. We refer to the application as "the **Application**" in this document in order to be consistent.

The Application was duly made on **27/10/2016**.

The Applicant is **Omega Proteins Limited**. We refer to Omega Proteins Limited as "the **Applicant**" in this document. Where we are talking about what would happen after the Permit is granted (if that is our final decision), we call Omega Proteins Limited "the **Operator**".

The Omega Proteins Limited facility is located at Wildriggs, Greystoke Road, Penrith, Cumbria, CA11 0BX. We refer to this as "the **Installation**" in this document.

How this document is structured

- Glossary of acronyms
- Our proposed decision
- How we reached our decision
- The legal framework
- The Installation
 - Description of the Installation
 - The site and its protection
 - Operation of the Installation – general issues
- Key issues and assessment of BAT to minimise the environmental impacts
 - Key issue 1 – Odour
 - Key issue 2 – Point Source Emissions
 - Key issue 3 – Fugitive Emissions
 - Key Issue 4 – Noise and Vibration
- Assessing the impact of emissions on the environment and setting appropriate ELVs
 - Impact on Air Quality
 - Impact on Water Quality
 - Impact on Designated Sites
 - Monitoring
 - Reporting
- Other legal requirements
 - The EPR 2016 and related Directives
 - National primary legislation
 - National secondary legislation
- Annexes
 - Annex 1 – Improvement Conditions
 - Annex 2 – Pre-operational Conditions
 - Annex 3 - Consultation Reponses

Glossary of acronyms used in this document

(Please note that this glossary is standard for our decision documents and therefore not all these acronyms are necessarily used in this document.)

AQS	<i>Air Quality Strategy</i>
BAT	<i>Best Available Technique(s)</i>
BAT-AEL	<i>BAT Associated Emission Level</i>
BREF	<i>BAT Reference Note</i>
DAA	<i>Directly associated activity – Additional activities necessary to be carried out to allow the principal activity to be carried out</i>
DD	<i>Decision document</i>
EAL	<i>Environmental assessment level</i>
ELV	<i>Emission limit value</i>
EMS	<i>Environmental Management System</i>
EPR	<i>Environmental Permitting (England and Wales) Regulations 2016 (SI 2016 No. 1154) as amended</i>
ES	<i>Environmental standard</i>
EU-ETS	<i>European Union Emissions Trading System</i>
HRA	<i>Habitats Risk Assessment</i>
IED	<i>Industrial Emissions Directive (2010/75/EU)</i>
NOx	<i>Oxides of nitrogen (NO plus NO₂ expressed as NO₂)</i>
Opra	<i>Operator Performance Risk Appraisal</i>
PC	<i>Process Contribution</i>
PEC	<i>Predicted Environmental Concentration</i>
PPS	<i>Public participation statement</i>
RGS	<i>Regulatory Guidance Series</i>
SAC	<i>Special Area of Conservation</i>
SHPI(s)	<i>Site(s) of High Public Interest</i>
SPA(s)	<i>Special Protection Area(s)</i>
SSSI(s)	<i>Site(s) of Special Scientific Interest</i>

1 Our decision

We have decided to grant the Permit to the Applicant. This will allow it 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).

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.

2 How we reached our decision

2.1 Receipt of Application

The Application was duly made on 27/10/2016. 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 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.

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, our statutory PPS and our own internal guidance RGS Note 6 for Determinations involving Sites of High Public Interest. 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, which 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 Cumberland and Westmorland Herald on 26 November 2016.

We made a copy of the Application and all other documents relevant to our determination available to view on our Public Register and at the Ghyll Mount Environment Agency office in Penrith. 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":

- Eden District Council
- Public Health England
- Director of Public Health
- Animal and Plant Health Agency
- United Utilities Water Plc
- Health and Safety Executive

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly. Note under our Working Together Agreement with Natural England, we only inform Natural England of the results of our assessment of the impact of the installation on designated Habitats sites.

Further details along with a summary of consultation comments and our response to the representations we received can be found in Annex 3A.

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

The additional information received in response to our request is as follows:

- Schedule 5 Questions response received 26/06/17.
- Revised Air Dispersion Modelling report received 26/10/17.
- Revised site drainage plan and trailer wash details received 13/12/17.

These responses were placed on the public register.

Finally, we have consulted on our draft decision from 19/12/17 to 02/02/18. A summary of the consultation responses and how we have taken into account all relevant representations is shown in Annex 3B.

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 an *installation* as described by the IED.

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, if we grant, 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

4.1.1 The permitted activities

The Installation currently holds a Part A(2) permit, originally issued by Eden District Council in 2006, for the rendering process as prescribed in Section 6.8 Part A(2)(a), of Schedule 1 of the EPR. However, as the site undertakes blood drying and feather processing activities, it more appropriately falls to be regulated under Part A(1) of the regulations, as prescribed by our interpretation of these activities set out in Regulatory Guidance Note No. 2 (RGN 2), which states that “*Heat treatment activities such as "blood boiling" and hydrolysis of feathers with steam are not considered to be rendering, and will fall under Section 6.8 A(1)(c) if above the threshold*”. As these operations fall under Part A(1) of the regulations, the Installation requires a permit from the Environment Agency to operate. It is also noted that, as a result of the proposed changes as described in Section 4.1.3, the treatment of effluent arising from the site is also a listed activity under Section 5.4 Part A(1)(b)(i) “*Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day involving biological treatment*” and has been included as such.

On that basis, the Installation is subject to the EPR because it carries out the following activities listed in Part 1 of Schedule 1 to the EPR:

- Section 6.8 Part A(1)(c) - *Disposing of or recycling animal carcasses or animal waste, other than by rendering or by incineration falling within Section 5.1, at a plant with a treatment capacity exceeding 10 tonnes per day of animal carcasses or animal waste or both in aggregate.*
- Section 6.8 Part A(2)(a) - *Disposing of or recycling animal carcasses or animal waste by rendering at plant with a treatment capacity exceeding 10 tonnes per day of animal carcasses or animal waste or both in aggregate.*
- Section 5.4 Part A(1)(b)(i) - *Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day involving biological treatment.*

An Installation may also comprise “directly associated activities”, which at this Installation includes the operation of plant to generate steam and provide odour abatement plant. These activities comprise one installation, because the generation of steam and the operation of odour abatement equipment form part of an integrated activity. Together, these listed and directly associated activities comprise the Installation.

This permit will supersede the Part A(2) permit issued by Eden District Council and the activities undertaken at the Installation will be regulated by us.

4.1.2 The Site

Wildriggs is located off Greystoke Road in Penrith, Cumbria (site centred at NGR NY 50020 29627). The land directly surrounding the Installation is agricultural, with the M6 motorway approximately 300 metres to the east of the site. Castletown and Penrith Industrial Estate lie on the opposite side of the motorway, within approximately 250 metres of the site.

The River Eamont, a tributary of the River Eden, is approximately 1.4km to the south of the site and is designated as a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI). Myers Beck crosses the site, running west to east and is culverted under 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 and its protection is described in Section 4.2

4.1.3 What the Installation does

The installation is a Category 3 animal by-products processing plant which processes poultry and mixed species by-products (including offal, skin, carcass and off-cuts), poultry and mixed species blood, and poultry feathers to produce animal feed (meal) and oils (tallow).

Article 10 of Regulation (EC) 1069/2009 defines category 3 animal by-products. Category 3 materials are low risk materials. Category 3 material includes parts of animals that has been passed fit for human consumption in a slaughterhouse but which are not intended for consumption, either because they are not parts of animals that we normally eat (hides, hair, feathers, bones etc) or for commercial reasons.

The main processes at the Installation are:

Receipt of Raw Materials

The raw materials are designated as poultry (avian offal and meat), feather (avian feathers) and mixed species material (referred to as "PAP" - other Category 3 ABP such as meat, fat, bones and offal from mixed species). Raw materials are delivered in bulk trailers with a close-fitting cover sheet. The trailers are checked for leaks before use and upon arrival to site. The drivers carry a spill kit in case of a leak in transit. Liquids are transported in sealed tankers, which are subject to checks for integrity. The material is checked on arrival for the complete and correct paperwork. A quality check is also carried out (specification, freshness, contamination with foreign objects). The vehicle is then directed to a waiting area while arrangements are made to tip. Tankers delivering blood are emptied directly to the storage tank. Deliveries are scheduled to avoid long waiting times.

This permit application includes a new trailer shed to enable raw material bulk trailers to wait on site under cover prior to tipping.

Construction of the building will end the need to park trailers containing raw material outdoors. The building is of sufficient size to accommodate all foreseeable raw material trailer needs for the plant. Extraction ducts will be installed at high level in the building, providing 1 – 2 air changes per hour which will be ducted to the existing biofilters.

Tipping of Raw Materials

Trailers are reversed into the appropriate tipping shed (poultry, PAP or feather). The door is then closed and the hopper is opened. Once the raw material has been tipped, the hopper lid is closed and the trailer is washed out. On completion of washing, the door is opened and the trailer exits. The tipping building is extracted to the biofilters for odour abatement. Interlocks are in place to prevent opening of the hopper lids when the external doors are open.

Processing Mixed Species Material (PAP):

Raw material is fed into a crusher to reduce the particle size to 50mm before being fed via a closed pump feed to a Haarslev type HM 2554SS cooker, located in an adjacent building. The operating temperature is set to comply with the current regulations for processing ABP. The process is validated by the Competent Authority (APHA - Animal and Plant Health Authority) under Method 7 with the throughput (approximately 25-28 tonnes/hour) measured by the feed screw rate (not to exceed 80 Hz) and the minimum processing temperature of 120°C. The discharge screw will shut off if this temperature is not being reached. This line is validated to process Category 3 ABP material of any species. During the process the water fraction is evaporated off and extracted to the thermal oxidisers. The mixed oil and meal are removed from the cooker via a variable feed screw to the pressing operation. The oil is drained from the meal (greaves) in a screw conveyor with a perforated plate and then further extracted using presses. The oil is cleaned up using centrifuges (decanters) and pumped to externally located storage tanks via the day tank within the processing building. All storage tanks are bunded. Once pressed the meal is transferred via screw conveyors to the milling area for sieving and size reduction. Metal detection removes foreign objects. Oversize product is re-worked. The finished product is transferred to the adjacent building for loading into containers or bags for despatch. All transfer conveyors are covered. Bins of re-work material are covered before being transferred manually to the tipping shed.

Processing Mixed Species Blood:

Category 3 blood is delivered to site in a vacuum tanker and unloaded into an externally located storage tank. To process, the blood is pumped into a Haarslev coagulator located in the PAP process building via a macerator that reduces particle size to 50mm. The feed rate is equivalent to 7–8 tonnes/hour. The blood is heat treated to sterilise it in a closed loop system. The treatment process is validated by the Competent Authority (APHA) under Method 7. The material is heated to a core temperature of not less than 133°C for at least 20 minutes at a pressure of at least 3 bar produced by saturated steam. Once treated it is pumped to a storage tank adjacent to the raw blood tank. Heat is supplied by steam injection, the steam being raised via the operation of the thermal oxidisers.

Sterilised blood is dosed with sodium hydroxide as it is loaded for despatch, a requirement of the ABP regulations, to adjust the pH and make it unpalatable for animals. The storage tanks and sodium hydroxide container are kept in bunded areas. The storage tanks vent into the ducting which takes the air to the biofilters for abatement.

Processing Poultry Blood:

Category 3 avian blood is delivered to site in a vacuum tanker and unloaded into an externally located storage tank. To process, the blood is pumped into a Haarslev coagulator located in the feather process building via a macerator that reduces particle size to 50mm. The process is validated by the Competent Authority (APHA) under Method 7. The blood is heat treated to sterilise it in a closed loop system at a rate of 7-8 tonnes/hour.

Once treated, it is pumped to an externally located storage tank. Heat is supplied by steam injection, the steam being raised via the operation of the thermal oxidisers.

Sterilised blood is dosed with sodium hydroxide as it is loaded for despatch, a requirement of the ABP regulations, to adjust the pH to 9.0 (approximate rate 75 litres of NaOH per 25 tonne load). The storage tanks and sodium hydroxide container are kept in bunded areas. The storage tanks vent into the feather tipping shed which takes the air to a biofilter for abatement. The tanker loading blood for despatch vents to a line in the biofilter ducting within the feather process building, which takes the air to a biofilter for abatement.

Processing Poultry Material:

Offal and carcase material is pumped through a sieve via closed pipes into a crusher from the reception hopper. The particle size is reduced to less than 125mm in the crusher. The material is processed in a Haarslev cooker type HM255SS located in the adjacent building. The process is validated by the Competent Authority (APHA) under Method 7 with an input feed rate not to exceed 22 tonnes per hour and a minimum temperature of 120°C. The discharge screw will shut off if this temperature is not reached. During the process the water fraction is evaporated off and extracted to the thermal oxidisers.

The mixed oil and meal are removed from the cooker via a variable feed screw to the pressing operation. The oil is drained from the meal (greaves) in a screw conveyor with a perforated plate and then further extracted using presses. The oil is cleaned up using centrifuges (decanter) and pumped to

externally located storage tanks via the day tank within the processing building. All storage tanks are bunded.

Once pressed the meal is transferred via screw conveyors to the milling area for sieving and size reduction. Metal detection removes foreign objects.

Oversized product is re-worked. The finished product is loaded into bags for despatch. All transfer conveyors are covered. Bins of re-work material are covered being before transferred manually to the tipping shed.

Processing Feathers:

Feathers are fed from the reception hoppers, via a screw conveyor, to a Sunrise single pass hydrolyser which fluidises and hydrolyses the feathers by application of steam and pressure. The process is validated by the Competent Authority (APHA) under Method 7 with an input feed rate not greater than 11.6 tonnes per hour and a minimum pressure of 3.2 bar. The steam pressure ensures a minimum temperature of 145.2°C. The resultant slurry is pressed and then fed to the Haarslev disc dryer to remove more water by indirect steam heating.

The vapours from this drier are passed to an evaporator for odour abatement and waste heat recovery. The evaporator is in turn used to concentrate the water from the feather press. The non-condensable gases are directed to the thermal oxidisers for incineration. Waste water is treated in the on-site effluent treatment plant. The remaining feather water from the pressing of the material exiting the drier is collected in a holding tank and despatched from site in vacuum tankers. The tankers vent back into the ducting in the process building that takes it to a bio filter for abatement. All storage tanks are bunded. The dried and pressed material is a high protein meal and is conveyed to the mill building for sieving and size reduction. Metal detection removes foreign objects. Oversize product is reworked. The finished product is loaded into bags for despatch. All transfer conveyors are covered. Bins of re-work material are covered being before transferred manually to the tipping shed.

Blood Drying:

This process is applied to avian blood, following heat treatment. Once the blood has been processed it is pumped into two decanters. The purpose of the decanters is to separate the solid fraction of the blood from the liquid. The separated liquid will then be pumped into an external storage tank. The remaining solids from the decanter are then screw fed into a Haarslev drier at a plant throughput of approx. 9-10 tonnes/hour.

Once the product has been dried to the required level, it is again fed by screws to the shaker. The shaker separates the meal and oversized product is re-worked.

The final product is then loaded into bags ready for dispatch. The decanted liquid is dispatched from site in vacuum tankers. The tankers vent back into the ducting in the feather process building that takes it to a biofilter for abatement. Both the holding tank and external tanks are vented into the offal processing buildings for extraction to a biofilter for abatement.

The process air from the driers and decanters is extracted to the thermal oxidisers. The room air from the blood mill is extracted to a biofilter for abatement. All storage tanks are bunded.

Storage of Meal:

Storage of meal on the site is limited to 1 or 2 days production and is quickly removed from site (to the customer) or taken to a purpose built meal store to await collection. Storage is in 1 tonne bags, except for a smaller amount of mixed species meal (PAP) which is collected in bulk containers under cover.

Tallow / Poultry Oil Storage:

The tallow tanks are kept warm by use of steam coil heating (prior to loading) to enable emptying into transport tankers. There is a steam trap for safety purposes. The tanks have level indicators which are shown on the control panel in the process building showing the percent tank filled. This is monitored by the operator and alarms on the screen indicate when the tanks cannot receive any more material. The tanks are bunded and the bunds and tanks are subject to a weekly inspection for cleaning and minor repairs and an annual inspection by maintenance staff.

Blood Storage:

These tanks are sealed and vented into a building (tipping or processing, depending on the area) and subsequently extracted to a biofilter for odour abatement. The tanks have level indicators which are shown on the control panel in the process building showing the percentage of tank filled. This is monitored by the operator and alarms on the screen indicate when the tanks cannot receive any more material. The tanks are bunded and the bunds and tanks are subject to a weekly inspection for cleaning and minor repairs and an annual inspection by maintenance staff.

Cleaning:

Pressure washers are provided for cleaning plant and equipment – these are located in all areas. Operatives are instructed on the most effective way to clean specific areas, for example dry sweeping and collection of dry product such as meal, scraping up fat and meat residue before hosing down an area. They are also trained on good housekeeping practices such as ‘clean as you go’ and segregation of waste. The adoption of good cleaning and working practices as routine is recognised as a way of reducing the potential for fugitive emissions. Cleaning schedules are documented and reviewed annually, with cleaning checks carried out by the QA department. Hygiene swabs are taken on a 3 monthly basis.

This permit application includes a new trailer wash which will allow raw material vehicles to be cleaned in an enclosed building following tipping.

Effluent Treatment:

Current treatment is achieved with a dissolved air flotation (DAF) plant using a combination of ferric chloride, sodium hydroxide and flocculant to treat the waste water. The effluent stream includes wash water (buildings, raw material trailers, yard areas), dirty water from bunds, biofilter run off water, yard run off water and condensate (from the air cooled condensers and the waste heat evaporator in the feather plant). Solid material is prevented from entering the effluent collection system by the use of 3mm static screens.

The effluent then goes through a 1mm rotary screen prior to collection in a balance tank. Effluent is pumped from the balance tank to the DAF unit and treated first with ferric chloride. If the pH needs further adjustment, sodium hydroxide is added. The sludge is brought to the top of the tank and removed. Water is removed by means of a decanter, adding polymer to assist the process. Sludge is stored in an external tank and the dried sludge is removed from site.

The treated liquid effluent is discharged to an off-site water treatment works (Penrith Wastewater Treatment Works) for further treatment, under a Trade Effluent Consent issued by United Utilities. All tanks are bunded and storage tanks are sealed. Interceptors and effluent collection sumps are subject to weekly visual checks, regular cleaning and annual maintenance checks.

Clean roof water is collected separately for re-use or discharged to the adjacent water course (Myers Beck). The yard water is directed to the effluent plant for treatment. Some drains are blocked off on site to prevent surface water that may be contaminated going to the water course. There is a procedure in place to ensure that there is no inadvertent direction of contaminated yard water to the water course. There are no point source emissions to groundwater.

The room air from the effluent plant is ducted to a biofilter for abatement. There is a sampling programme in place for suspended solids and COD to ensure that these parameters are compliant with the Trade Effluent Consent. Samples are tested in the on-site laboratory and the water re-treated prior to discharge if the results exceed the set limits.

This permit application includes a new system, adding biological treatment by an activated sludge process and membrane filtration to the existing DAF unit. This will reduce the ammonia content of the treated effluent and improve the overall quality to allow re-use as grey water for washing and biofilter irrigation. Further treatment by reverse osmosis will be used for preparing water for use in the steam raising boilers. The treated effluent from the existing DAF plant is pumped to a new balance tank and then pumped to the anoxic zone, where it is subjected to biological treatment using activated sludge. The next stage of treatment is aeration where fine bubble diffusers introduce oxygen to de-nitrify the influent. From here the sludge is filtered through flat plate membrane cassettes (the membrane bio-reactor (MBR) system).

The permeate is then suitable for re-use as grey water. Permeate intended for use as boiler water is further subjected to treatment in a Reverse Osmosis (RO) plant to produce de-ionised water. Reject water from the RO plant plus any excess permeate water will be discharged to sewer under a Trade Effluent consent. In order to avoid any issues with the plant should high strength or non-standard effluent be produced, a divert tank is fitted so that this material can be stored until the plant chemicals can be adjusted to treat it, or removed for alternative treatment.

As for the existing plant all tanks will be bunded. All areas, except for the aeration process, will be covered to prevent fugitive odour emissions. The balance tank will be covered and have a passive carbon filter for odour abatement.

Effluent Containment and Drainage Systems:

A drainage plan is in place that shows the effluent and surface water distribution and the discharge points. Effluent from processing areas, contaminated yard water and water from bunds is directed to the effluent plant. Clean rain water/roof water is directed to the water course via a different system so there is no cross contamination. A rain water collection tank is in place for the harvesting of rainwater to irrigate the biofilters. Should there be accidental contamination (or a potential for contamination) of the watercourse, a procedure is in place to deal with such an incident.

There is a procedure in place for the control of fire water, using designated bunds for storage before disposal via the effluent system. The drainage system is subject to survey and a maintenance plan implemented as required. There is a cleaning regime in place for all drains and sumps, which includes a visual integrity inspection. A risk assessment of the drainage system has been carried out and is subject to periodic review.

Odour Abatement:

In summary, the high intensity process odours and those containing incondensable gases are treated by incineration in one of two thermal oxidisers. Less intense odours are vented to three biofilters. The two thermal oxidisers are the main arrestment plant, with two air cooled condensers and a steam raising boiler as back up plant. Blood storage tanks are vented to the biofilters via a process or tipping building. Tankers collecting blood vent to the biofilters.

Operation of the biofilters:

Three biofilters serve the processes as follows:

- Biofilter 1 (BF1) treats extracted air from the mammalian (PAP) tipping shed, process area, mill and blood tank.
- Biofilter 2 (BF2) treats extracted air from the poultry offal and feather tipping sheds, process buildings and blood tank.
- Biofilter 3 (BF3) treats extracted air from the poultry mill (feather and offal meal) and effluent plant building.

The Applicant states that the biofilters have been designed to allow for excess capacity and the ducting is interlinked thereby allowing the use of dampers to direct the air to an alternative biofilter should maintenance be required in a specific area. The biofilters areas are approximately 19.8 x 39.85, 18.9 x 47.2 and 16.95 x 28.7m respectively. The media is woodchip at a depth of 1.2-1.5m and sits on concrete slats over a void space (plenum chamber). A plastic mesh sheet covers the slats to prevent wood chips falling through the slats and blocking the drainage outlets. The incoming air from the process areas is collected in ducts. Each duct enters humidifying chambers where spray nozzles add water to the air stream. Fans extract the air from the chambers and feed to the plenum of each biofilter. There is also provision to irrigate the biofilter surfaces. Water run-off from the biofilters collects in chambers under the beds and is pumped to the effluent plant for treatment before discharge to sewer.

Performance of the biofilters is monitored and recorded to ensure that effective odour removal rates are maintained. Inspections include weed growth, flow rates, odour and moisture content of the media.

During the determination of this application, as a result of a series of tests and evaluation of routine monitoring requested by us, the Applicant has identified the following parameters as being key to ensuring effective performance (and hence effective odour removal):

- Back pressure.
- Residence time.
- Even flow rates over the surface.
- Moisture content (dry spots).
- Outlet odour concentration by sniff tests and olfactometry.

Further appropriate monitoring parameters and efficiency testing of the biofilters is required by the draft permit.

Operation of the thermal Oxidisers:

Two recuperative thermal oxidisers are in use on site (OX1 with a thermal input of 9.3MW and OX2 with a thermal input of 11MW). These have dual fuel burners, operating on tallow or natural gas. The total abatement capacity is calculated as 19.6 tonnes of process fume per hour. The processing lines are operated to ensure the fume production does not exceed the abatement capacity. The combustion temperature is automatically controlled and continuously monitored, the normal operating temperature is 900°C or above with a minimum temperature cut out of 850°C. The exhaust gas emissions from the oxidisers are measured annually for significant pollutants and continuously monitored for oxygen and carbon monoxide. This gives an indication of the combustion efficiency, but effective combustion is controlled by the fuel setting and combustion temperature, with temperature the key parameter which will not be maintained if combustion is not effective.

Operation of air cooled condensers:

These are provided as back up abatement systems and the non-condensable gases produced are incinerated in the oxidiser or in the boiler if the oxidiser is unavailable.

Operation of boiler plant:

The main purpose of the 8MW boiler on site is to raise steam as part of the process. However, it is also used to provide 'back up' should the oxidisers be unavailable. The steam raising boiler will be manually held on the 'high fire' mode to ensure the combustion temperature is maintained and the gases adequately incinerated. The inlet and outlet temperatures are continuously monitored and recorded. The exhaust gas emissions are measured annually for significant pollutants and are also continuously monitored for oxygen and carbon monoxide.

4.2 The site and its protection

4.2.1 Site setting, layout and history

The site covers an area of approximately 1.8 hectares and is situated approximately 150 m above ordnance datum. The site is within a predominantly rural area, with agricultural land bordering the site on all sides.

The site is thought to be a former clay pit and associated brick works followed by operation as a glue factory finally moving onto rendering operations, permitted in 2006 by Eden District Council.

4.2.2 Site design: potentially polluting substances and prevention measures

The Applicant has submitted a site condition report which includes a report on the baseline conditions as required by Article 22. We have reviewed that report and consider that it adequately describes the condition of the soil and groundwater prior to the start of permitted operations. However, we have included an improvement condition (IC25) ensuring the site condition report is updated to include any construction on site since the report was prepared.

The baseline report is an important reference document in the assessment of contamination that might arise during the operational lifetime of the installation and at cessation of activities at the installation

4.3 Operation of the Installation – general issues

4.3.1 General Management

The site operates under an Environmental Management System (EMS), accredited to the ISO14001 standard, which includes a policy and programme demonstrating a commitment to continual improvement, prevention of pollution and compliance with relevant legislation and other requirements to which the Applicant subscribes (such as quality assurance schemes). It identifies, monitors and reviews environmental objectives and key performance indicators. Procedures that cover environmental, operational and health and safety requirements are documented. All staff undergo induction training and then receive further training relevant to their specific tasks. Staff are trained against the relevant procedures (by use of a training matrix) and the training records are held in the employee's files. Audits of the system are carried out annually by a third party in order to maintain the accreditation in addition to a schedule of internal audits. Progress on meeting targets and objectives is reviewed at management meetings and scheduled management reviews (which also cover the rest of the Omega Proteins Limited group).

A documented preventative maintenance system is in place – with key plant and equipment, alarms and key spares also documented within the EMS. Issues are discussed at the scheduled management review meetings. Contractors go through an induction prior to working on site to ensure the

instructions and company policy relating to health and safety and environmental concerns are understood. A management structure detailing key responsibilities under the environmental permit is produced and reviewed as part of the EMS. A copy is displayed on the main noticeboard. This includes the person designated for liaising with the regulator and/or public. A written procedure within the EMS details the investigation and reporting on of any incidents or near misses. This include the corrective action and follow up procedures. Details are also reviewed using the scheduled Management Review meetings. An accident management plan has been prepared outlining the potential for accidents and contingency procedures in place to deal with or preventing such accidents. This is in addition to the Environmental Risk Assessment that looks at hazards and risks within the processes. A system is also in place for reporting and acting on adverse results from routine monitoring and testing or abnormal emissions or spillages.

Except where we have specified in the improvement conditions, 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 the Permit conditions.

4.3.2 Operating techniques

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

Description	Parts Included	Justification
The Application	Answer to Question 3a - Technical Standards in Form EPB Part B3	Confirms operations will be undertaken in accordance with EPR 6.10, SG8, BREF and H4
	Report Reference P137-R01A-F3 Dated October 2016.	Provides information on the operation of the installation
	Report Reference P137-R01C-F3 Dated 17 October 2016	Provides information on operation of Trailer Shed
	Report Reference P137-R01B-F3 Dated 17 October 2016	Provides information on operation of the effluent treatment system
	H1 Assessment, Report Reference P137-R02-F3, Dated 17 October 2016.	Provides BAT assessment.
	Report Reference P137-R09-F3 Dated 19 October 2016.	Provides details of operational processes and control measures.
Response to Schedule 5 Notice dated 02/02/17	Report Reference P137-R10-F2	Provides further details of operational processes and controls measures.

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

4.3.3 Resource efficiency and waste management

The site also has a permit under EU-ETS scheme and monitors and reports energy use annually under the terms of this permit. Annual reports are also to be produced under the terms of the Environmental Permit. Energy and fuel use is monitored as a site Key Performance Indicator. It is recognised that the site processes are energy intensive and a number of significant energy efficiency measures are in place:

- Heat recovery from the thermal oxidation process.
- Heat recovery from the feather water evaporation process.
- Renewable energy use (solar panels).
- Use of tallow as fuel.

Combustion is monitored electronically and the combustion equipment is serviced at scheduled intervals. Oxygen is monitored in the waste gases, but overall control is set by the manufacturer as a system of 'steps' on the controls of the combustion equipment, which can then be monitored by the site engineer. Continuous processing systems are employed, reducing the frequency of shut down/start up procedures ensures that processing temperatures are maintained and efficiency is optimised.

Water is metered for the whole site and also for the highest use areas (boilers and thermal oxidisers). Water use is monitored on a daily basis as part of the site KPI's and a target for reduction has been set. This is monitored through the EMS. A water efficiency audit is documented at least every 2 years with recommendations for saving, recycling and re-using. One outcome has been to install a rainwater collection tank so that clean roof water can be saved for irrigation of the bio filters. Another effective way to reduce water consumption is to recycle used water from the effluent stream. As stated above, an effluent treatment plant is being installed with the technology to clean up the effluent to a suitable standard for washing and/or bio filter irrigation. A further treatment plant (reverse osmosis) will be used to produce water of a suitable quality for use in the boilers. Operatives are made aware of the requirement not to waste water (through training) and the cleaning methods have been adapted to use less water (removal of solids prior to washing down, correct application of cleaning chemicals).

The main types of waste produced on site are:

- Effluent solids from the screening process (Cat 3 ABP) these are downgraded for disposal at a Category1 rendering facility as they are unsuitable for processing on this site.
- Effluent sludge and feather water is designated for land spreading.
- General waste (paper, plastic, wood, metal) sent to a Waste Transfer Station for sorting and recycling or landfill.

- Waste oil, grease cartridges, oily rags, old paint tins are categorised as Hazardous Waste and are sent for disposal/re-processing by a licenced contractor.
- Spent laboratory chemicals are sent for specialist disposal.
- Fluorescent tubes and waste electrical equipment sent to be recycled by licenced contractor.

A review of waste streams is carried out annually – taking into account the amounts being generated and where it is being disposed of or recycled. The waste hierarchy is applied to ensure that recycling methods are applied wherever feasible. Waste is segregated by type and by recycling options (Hazardous, metal, plastic, wood, general non-hazardous waste, laboratory chemicals). Licenced contractors are used and the licences are checked by the Applicant. Waste containers are leak proof and labelled (e.g. Hazardous waste bins indicate contents).

As this sector is a water and energy usage intensive industry, we have included improvement conditions (IC27, IC28 & IC29) requiring the operator to audit their energy and water usage at the Installation and devise a programme of quantitative improvements which demonstrate BAT. We have also included an improvement condition (IC24) to ensure the management of waste sludge arising from the effluent treatment plant are reviewed and satisfactory contingency arrangements are in place.

5 Key issues and the assessment of BAT to minimise the environmental impacts

Regulated activities can present different types of risk to the environment, these include odour, noise and vibration; fugitive emissions to air and water; as well as point source releases to air, discharges to ground or groundwater. All these factors are discussed in this and other sections of this document.

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

The Applicant primarily used Sector Guidance Note IPPC SG8, Secretary of State's Guidance for the A2 Rendering Sector (November 2008, revised December 08) to demonstrate where the Installation achieves BAT.

We have also used the following technical guidance notes, best practice guides and sector specific reference documents to identify additional key applied BAT requirements:

- European Commission IPPC Reference Document on Best Available Techniques in the Slaughterhouses and Animal By-products Industries (May 2005).
- Environment Agency Supplementary Odour Guidance for abattoirs and poultry processors (June 2010).
- SNIFFER Guide EPR23 – Review of Odour Monitoring and Control Techniques at Rendering Plants (March 2013).
- SNIFFER Guide EPR36 – Understanding Biofilter Performance and Determining Emission Concentrations under Operational Conditions (June 2014).

5.1 Key issue 1 - Odour

The site is a significant source of odour from point source and fugitive emissions by the nature of the activities undertaken at the installation. The site is in close proximity to human receptors and is a known source of odour complaints. Our approach is that BAT requirements embed the hierarchy of preventing, minimising, and capturing and treating odours to ensure the operator takes all reasonable steps to minimise the risk of odour pollution. The application of BAT and the implementation of a robust management system and Odour Management Plan (OMP) ensures that the risks are minimised as far as reasonably practicable.

5.1.1 Key BAT requirements to minimise and prevent odorous emissions

We have applied the appropriate requirements to key operational steps in the permitted processes, as follows. The requirements are embedded into the permit through the permit conditions (including any improvement programme), approved operating techniques, EMS and OMP.

5.1.1.1 Reception, storage and handling of raw materials:

Key BAT requirements	How this is achieved
Enclose animal by-products during transport, loading/unloading and storage.	<ul style="list-style-type: none"> • Raw materials are delivered in bulk trailers with close fitted cover sheet. • Storage of raw materials in proposed trailer shed for a period of up to 24 hours. Deliveries are scheduled to avoid long wait times. • Trailers are reversed into appropriate tipping shed, the door is closed and hoppers are opened. • On completion of tipping, hopper lid is closed and trailer is washed out prior to exiting the tipping shed. • Interlocks are in place to prevent opening of hopper lids when external doors are open.
Store animal by-products for short periods.	<ul style="list-style-type: none"> • Storage of raw materials in a proposed trailer shed for a period of up to 24 hours.
Abatement to be installed on vents on storage and collection tanks (activated carbon or wet scrubbing with sodium hypochlorite)	<ul style="list-style-type: none"> • The operator has committed to installing carbon filters to vents on storage and collection tanks. This has been included in the permit as an improvement condition (IC9) and pre-operational condition (PO1).
Back vent displaced road tanker air via abatement during tank emptying.	<ul style="list-style-type: none"> • The operator has committed to back venting during these operations. This is embedded into the permit as an operating technique.

Key BAT requirements	How this is achieved
Apply overfilling protection on bulk storage tanks	<ul style="list-style-type: none"> Storage tanks have level indicators to warn of overfilling. Blood tanks also visual alarms on the operator screen to alert them. We have included an improvement condition (IC13) requiring the operator to undertake a review of overfill protection.
Provide and use bunds for bulk storage tanks	<ul style="list-style-type: none"> Storage tanks are within bunds designed to provide 110% of the largest tank volume or 25% of the tank total volume.
Use sealed storage, handling and charging facilities for animal by-products. Ensure spills can be contained.	<ul style="list-style-type: none"> Tanks are bunded and sealed. Process lines are sealed. We have added improvement conditions (IC13 and IC15) requiring the operator to undertake a review of the tanks and bunds to ensure their structural integrity.
Gases from raw materials handling areas should be directed to abatement equipment.	<ul style="list-style-type: none"> Air from the tipping sheds is extracted to the biofilters for abatement. We have added improvement conditions (IC2 and IC3) requiring the operator to undertake a review of odour sources and abatement systems to ensure they are fit for purpose.
Ensure good housekeeping of tanks and reception, storage area and handling areas.	<ul style="list-style-type: none"> We have added an improvement conditions for the housekeeping standards in these areas to be improved (IC11) and Cleaning in Place to be added to tanks with high odour potential (IC10). Ongoing housekeeping requirements are embedded into the EMS.

5.1.1.2 Processing of raw materials:

Key BAT requirements	How this is achieved
Operate continuous, dry and segregated collection of animal by-products throughout animal by-products treatment.	<ul style="list-style-type: none"> The plant processes Category 3 Animal By-products, with the poultry and non-poultry operations kept segregated to avoid cross contamination.
Reduce the size of carcasses and parts of animal carcasses before rendering.	<ul style="list-style-type: none"> Raw materials are size transformed via crusher, macerator or screw conveyor, as appropriate.
Totally enclose the rendering line.	<ul style="list-style-type: none"> Rendering lines are enclosed.

Key BAT requirements	How this is achieved
Cookers charged under reduced pressure.	<ul style="list-style-type: none"> • Cookers charged under negative pressure. • Charging area hooded with extracted gases directed to abatement plant. • Automated charging in place. • We have added an improvement condition (IC4) requiring the operator to review their extracted air systems on site to ensure they are optimised and fit for purpose.
Gases from process areas should be extracted directly to abatement equipment.	<ul style="list-style-type: none"> • Odorous process fumes are extracted to biofilter or thermal oxidiser. • We have added improvement conditions (IC2 and IC3) requiring the operator to undertake a review of odour sources and abatement systems to ensure they are fit for purpose.
Ensure good housekeeping in process areas.	<ul style="list-style-type: none"> • We have added an improvement condition (IC11) for the housekeeping standards in these areas to be improved. • Ongoing housekeeping requirements are embedded into the EMS.

5.1.1.3 Operation of odour abatement systems:

Key BAT requirements	How this is achieved
Where inherently malodorous substances are used or are produced during the treatment of animal by-products, pass the low intensity/high volume gases through a biofilter.	<ul style="list-style-type: none"> • Comparatively lower intensity, high volume odours are treated by biofilters. • We have added an improvement condition (IC8) to require the operator to review odour streams, improve performance and minimise the load the on the biofilters.
Regular visual checks and regular maintenance of biofilters to prevent compaction and pooling of water.	<ul style="list-style-type: none"> • As required by the process monitoring requirements in Table S3.4 of the permit.

Key BAT requirements	How this is achieved
Regular monitoring of the biofilter bed to record and ensure efficiency: Temperature (Approx. 35°C) pH (7 – 8) Back pressure Residence Time	<ul style="list-style-type: none"> As required by the process monitoring requirements in Table S3.4 of the permit.
Avoid sudden variations in inlet odour loading rates on biofilters.	<ul style="list-style-type: none"> We have added an improvement condition (IC8) to require the operator to review odour streams, improve performance and minimise the load the on the biofilters.
Adequate biofilter residence time (40 – 100 seconds)	<ul style="list-style-type: none"> The residence time of the biofilters in operation at this site are generally within the adequate parameters. We have added an improvement condition to require the operator to review odour streams and minimise the load the on the biofilters.
Biofilter media should have a diameter between 1 – 5cm at a depth of 1 – 1.5m	<ul style="list-style-type: none"> The filter media (woodchip) has a diameter between 3-5 cm (along the semi-minor axis). The media (woodchip) is at a depth of 1.2-1.5m
Monitoring of the inlet gas to the biofilter to record and ensure efficiency: Flow rate Temperature NH3 concentration (< 25ppm) H2S Concentration (< 5 - 50ppm)	<ul style="list-style-type: none"> As required by the process monitoring requirements in Table S3.4 of the permit.

Key BAT requirements	How this is achieved
<p>Annual monitoring of the biofilter outlet to record: Odour concentrations by olfactory testing (with comparison to the inlet concentrations). Odour compounds by GCMS. Hydrogen Sulphide. Ammonia.</p>	<ul style="list-style-type: none"> • As required by the monitoring requirements in Table S3.1 of the permit. <p>Reliance on odour units as the sole method of assessing the performance of the odour abatement on an annual basis is not considered adequate. The GC-MS analysis is necessary to identify the odorous compounds which are not abated and are contributing to the odour units. Doing the tests in conjunction adds greatly to value of the data collected. Ammonia and hydrogen sulphide are significant odour compounds which are not reliably detected by GC-MS methods.</p> <p>Establishing emissions of these parameters will provide a broader assessment of abatement effectiveness, demonstrate BAT and also assist the Operator when reviewing and updating the Odour Management Plan.</p>
<p>Monitoring of the biofilter leachate to record pH</p>	<ul style="list-style-type: none"> • As required by the process monitoring requirements in Table S3.4 of the permit.
<p>Controls required to continuously monitor and record temperature at inlet and outlet of condenser.</p>	<ul style="list-style-type: none"> • As required by the process monitoring requirements in Table S3.4 of the permit.
<p>Treat low volume high intensity odours in incinerators, thermal oxidisers or boilers.</p>	<ul style="list-style-type: none"> • High intensity process odours are treated in two thermal oxidisers with a boiler back-up. • We have added improvement conditions (IC2 and IC3) requiring the operator to undertake a review of odour sources and abatement systems to ensure they are fit for purpose

Key BAT requirements	How this is achieved
Failsafe breakdown systems for abatement plant that allow for diversion of odour streams to other suitable abatement plant or cause interruption of the process.	<ul style="list-style-type: none"> • Air cooled condensers are provided as back up abatement systems and the non-condensable gases produced are incinerated in the oxidiser or in the boiler if the oxidiser is unavailable. • Process monitoring required by Table S3.4 of the permit ensures abatement plant is monitored when operational.
Controls required to continuously monitor combustion zone temperature to ensure optimum odour destruction at all times	<ul style="list-style-type: none"> • As required by the monitoring requirements in Table S3.4 of the permit.
Good housekeeping and maintenance of odour abatement systems.	<ul style="list-style-type: none"> • Ongoing housekeeping requirements are embedded into the EMS.

5.1.1.4 Storage of processed material and finished products:

Key BAT requirements	How this is achieved
Used sealed storage facilities. Ensure spillages can be contained.	<ul style="list-style-type: none"> • Liquid products are stored in tanks on bunded areas. • We have added improvement conditions (IC13 and IC15) requiring the operator undertakes a review of the tanks and bunds to ensure their structural integrity. • We have added improvement condition (IC14) requiring the operator to removed redundant tanks.
Apply overfilling protection on bulk storage tanks.	<ul style="list-style-type: none"> • Storage tanks have level indicators to warn of overfilling. • Tallow tanks also visual alarms on the operator screen to alert them. • We have added an improvement condition (IC13) requiring the operator to undertake a review of the controls for tanks to ensure they are fit for purpose.

Key BAT requirements	How this is achieved
Provide and use bunds for bulk storage tanks.	<ul style="list-style-type: none"> Storage tanks are within bunds designed to provide 110% of the largest tank volume or 25% of the tank total volume. We have added improvement conditions (IC13 and IC15) requiring the operator undertakes a review of the tanks and bunds to ensure their structural integrity.
Store tallow in sealed and vented storage tanks with catchment provisions.	<ul style="list-style-type: none"> Tallow tanks are sealed, vented and bunded We have added an improvement condition requiring the operator to undertake a review of tanks and containment standards at the installation. We have added an improvement conditions IC13 requiring the operator to undertake a review of the controls for tanks to ensure they are fit for purpose.
Good housekeeping of tanks and processed material/finished product storage areas.	<ul style="list-style-type: none"> Ongoing housekeeping requirements are embedded into the EMS.

5.1.1.5 Storage of waste products:

Key BAT requirements	How this is achieved
Collect waste regularly to minimise odour potential.	<ul style="list-style-type: none"> Regular collection of waste is undertaken in accordance with the site EMS.
Good housekeeping in waste storage areas.	<ul style="list-style-type: none"> Ongoing housekeeping requirements are embedded into the EMS.

5.1.1.6 General Management

Key BAT requirements	How this is achieved
Manage odour through an approved Odour Management Plan	<p>An Odour Management Plan (OMP) is in place and is regularly reviewed and updated (currently the OMP is at version 7). It is intended to act as a summary of the odour identification and control strategy at the Penrith site and to identify potential additional measures to further decrease the risk of odour releases.</p> <p>We have reviewed the odour management plan in accordance with our guidance on odour management. The plan is sufficient to enable us to issue the permit but has some deficiencies and will require updating to reflect the ongoing improvement programme requirements. The improvement condition (IC12) sets out what measures have to be put in place to ensure a suitable plan will be in place in order for the site to produce and implement a robust approved Odour Management Plan.</p>

5.1.2 Operational performance of odour abatement systems to minimise odour emissions

In addition to the controls required to demonstrate BAT, the Applicant must also demonstrate that the odour abatement systems are fit for purpose and well managed in order to ensure that odorous emissions are minimised.

Operational performance of the Biofilters

In order to better understand the operation and performance of the biofilters, the Applicant provided the results of monitoring undertaken at the site as shown in the tables below.

This helps to quantify some of the operational parameters of the biofilters and identify where improvements need to be made in order to ensure optimisation of the abatement system.

Odour concentration of inlet gas (odour units)

ODOUR CONC OF INLET GAS (ouE)	MIN	MAX	NORMAL	SOURCE OF INFO
BF1	3301	31005	30000	ANNUAL ANALYSIS (2014,2015,2016)
BF2	32844	56151	38000	
BF3	7579	18552	12000	

Ammonia concentration of inlet gas (ppm)

AREA	MIN	AVG	MAX
BF1 25/10	2	5	9
5-6/10	2	5	16
30/9-1/10	0	7	10
1/10	9	11	14
BF2 24-25/10	1	5	10
6-7/10	1	5	20
27/9-28/9	0	10	17
BF3 20/10	4	7	12
19-20/10	4	6	9
12/10	4	7	10
11-12/10	1	5	7
29/9	11	15	18

Hydrogen sulphide concentration of inlet gas (ppm)

AREA	MIN	AVG	MAX
BF1 25/10	0	1.2	11.1
5-6/10	0	0.5	4.0
30/9-1/10	0	2.0	10.5
1/10	0.5	2.2	6.9
BF2 24-25/10	0	3.9	12.5
6-7/10	0	0.8	5.8
27/9-28/9	0.8	4.6	13.0
BF3 20/10	0	0.5	4.6
19-20/10	0	0.6	2.6
12/10	0.5	1.9	3.8
11-12/10	0	0.7	3.1
29/9	3.1	4.9	7.0

Empty Bed Residence Time (s)

EBRT	Jan	Feb	March	April	May
BF1	95	100	80	129	95
BF2	102	95	Media Change	Media Change	84
BF3	57	57	54	54	67

Due to the variability in load and operation of the biofilters, we have included an improvement condition (IC8) which requires the Operator to further review the efficiency of the biofilters and investigate the potential to include a pre-treatment step for odorous emissions to reduce the load on the biofilters and potentially improve operational performance.

Operational performance of the Thermal Oxidisers

The Applicant has identified that are three principal control loops relating to the effective performance of the thermal oxidisers, as follows:

- Chamber temperature is controlled using the temperature probes in the chamber. These modulate the fuel feed in response to varying temperature to achieve a stable temperature at or above the required set-point.
- The fuel feed needs a certain minimum amount of combustion air to achieve effective combustion. A set Process Logic Controller modulates the combustion air flow into the oxidiser in response to modulating fuel feed.
- To provide the oxidiser with relatively stable input conditions the process fume and foul air collect in a collector vessel and are then fed by fan into the oxidiser. A pressure probe is fitted to the collector vessel and the fan speed is varied to aim to produce a constant suction pressure in the collector vessel. If the rate of fume production increases there is a tendency for a loss of suction pressure which is counteracted by the fan speeding up. Conversely if the rate of fume production decreases the fan slows down to maintain the set-point suction pressure in the collector vessel.

In addition, the thermal oxidiser processors require the presence of a minimum suction pressure to be able to operate. This negative pressure ensures that there is always sufficient capability to draw the process fumes away for abatement. If throughput increases then the suction pressure will tend to fall because more fume is entering the system and the fans will speed up to compensate. The processors require the presence of an authorisation signal from the oxidiser to be able to run. If the authorisation signal is not present then the steam feed to the processors will be shut down. Once the oxidiser fans and condenser reach their maximum speed or capability the plant operatives cannot increase the throughput any further. To do so would mean that the suction pressure could not be maintained in the collector vessel and the authorisation signal from the oxidisers would be lost. In this way it is simply not technically possible for the processors to be fed material at a rate in excess of the oxidiser capability. Similarly, if the set temperature in the oxidiser is not maintained then the oxidiser goes into the alarm state and an audible alarm sounds. The alarm also relays to the control panels in the control rooms.

The Applicant also undertook modelling of the odour emissions from the thermal oxidisers, which recorded an odour concentration of 0.12 ouE/m³ at sensitive receptors. Whilst this is below the benchmark value for offensive odours (1.5ouE/m³) in our H4 Odour Guidance, other sources of odour, such as the three biofilters and fugitive sources, have not been taken into consideration in the model. As there are known odour issues from the site despite the modelling results, this demonstrates that these other odour sources are likely to significantly contribute to the causes of complaints, and may even suggest that there is additional capacity within the thermal oxidisers to deal and treat additional appropriate process fume. On this basis, we have set an improvement condition in the permit requiring the Operator to review all odour sources and loading on the chosen abatement technique to ensure the right odour streams are being directed to the right abatement system for treatment, and identify where improvements can be made (IC2 and IC3).

Operation of 'back up' abatement plant

Two air cooled condensers are installed as back up abatement equipment, these are fully operational within 20 seconds. When operating, the non-condensable gases are directed to the boiler, contained in the system until the boiler reaches temperature (maximum 5 minutes) and are then drawn in to be incinerated. The oxidisers suck process fume into a collector vessel, maintaining a negative pressure. The fan speed and vacuum pressures are computer controlled and electronically monitored. This prevents fume being presented to the oxidisers when there is unavailable capacity to deal with it. Production of steam is key to keeping the process going, therefore any failure or drop in temperature will affect the production of steam which in turn affects the number of lines that can be kept running.

5.1.3 Other controls to minimise the impact of odorous emissions

Notwithstanding the controls required to demonstrate BAT and ensuring the odour abatement systems are fit for purpose, the Applicant must also ensure that a holistic approach is taken to minimise the impact of odour from the site, in particular, minimising the impact of fugitive emissions.

During the determination, we have discussed these issues with the Applicant and provided guidance on how on site monitoring, process controls, containment and operating philosophies must be improved at the site to minimise the potential for malodorous emissions. In this case, we have also reviewed a representative sample of odour related complaints received during the determination period. We have used these complaints, subsequent root cause investigations and our observations during site visits as a basis for identifying trends and focussing our effort on the areas where the operator needs to improve their management and control of the site operations. In particular management of the biofilters (IC2, IC3, IC5, IC6, IC7 & IC8), fugitive emissions due to inadequate containment or process controls (IC1, IC4 & IC9) housekeeping (IC10 & IC11) and failure of back-up abatement equipment (IC12) have been identified as key issues. We have assessed their current practices against what we would regard as applied BAT to again identify where improvements need to be made. The proposed improvement programme (IC's) is set out in more detail in Annex 1.

5.2 – Key issue 2 - Point source emissions

5.2.1 Point source emissions to air

There are six point sources to air from this site, as follows:

A1 – Biofilter 1 (BF1)

A2 – Biofilter 2 (BF2)

A3 – Biofilter 3 (BF3)

A4 – Boiler Stack

A5 – Thermal Oxidiser 1 (OX1)

A6 – Thermal Oxidiser 2 (OX2)

The main impacts from these point source emissions are the gaseous products of combustion and odour. The assessment of the impact of the point source emissions on air quality is set out in Section 6.1 of this document, whilst our assessment of the odour impacts is in Section 5.1.

Notwithstanding the conclusions of our assessments, the following BAT requirements are applied to specific point source emissions at animal by-product processing sites:

Key BAT requirements for point source emissions to air	How this is achieved
Ensure that emissions from combustion processes are free from visible (dark) smoke.	<ul style="list-style-type: none">As required by Table S3.1 of the permit.

5.2.2 Point source emissions to water and sewer

There is one point source emission to sewer and three point sources to water from this site, as follows:

EP1 – Emission to sewer from site effluent treatment plant.

SW1 - Emission to Myers Beck of clean and uncontaminated roof water from process buildings.

SW2 – Emission to Myers Beck of clean and uncontaminated roof water from process buildings.

SW3 – Emission to Myers Beck of clean and uncontaminated roof water from trailer shed.

The assessment of the impact of these point source emissions on the objectives of the Water Framework Directive is set out in Section 6.2 of this document.

Notwithstanding the conclusions of our assessments, the following BAT requirements are applied to specific point source emissions at animal by-product processing sites:

Key BAT requirements for point source emissions to water and sewer.	How this is achieved
Run-off from the installation should be controlled and managed and, where necessary, treated before discharge into a suitable effluent treatment plant.	<ul style="list-style-type: none"> • The run-off from yard area is collected by the sealed drainage system and sent to the on-site ETP for treatment prior to discharge to sewer.
All interceptors should be impermeable, subject to regular visual inspection and have annual inspection whilst completely empty.	<ul style="list-style-type: none"> • As required by the process monitoring requirements in Table S3.4 of the permit.
Ensure there is a suitable monitoring programme in place to avoid a breach of sewage discharge consent conditions.	<ul style="list-style-type: none"> • Effluent monitoring requirements are included in Table S3.2 of the permit.

5.2.3 Point source emissions to groundwater.

There are no point source emissions to groundwater. This is considered to be BAT for this sector.

5.3 Key issue 3 - Fugitive emissions

To achieve BAT, the main areas considered in a review of fugitive emissions are:

- Odours from the process.
- Particulates (e.g. from handling meal).
- Transporting of materials to the site and around the site.
- The extraction systems including ducting.
- Odours from areas not cleaned effectively (dust deposits, spillages, and leaks).

All raw material trailers are sheeted and checks are carried out for leaks at the weighbridge on arrival. Raw material trailers are cleaned inside the tipping buildings before leaving site to minimise fugitive odour emissions and the trailers are covered. Procedures are in place for the unloading / loading of materials so that odour is controlled (i.e. by connecting tankers to venting points). Materials are moved between buildings in covered trailers, sealed containers, covered bins or by covered conveyors. Checking of building integrity is an important part of the controls in place to minimise the potential for fugitive emissions.

Areas such as roof/wall junctions, doors (including personnel doors) and ducting are inspected visually weekly for signs of integrity failure. This may be actual holes, signs of steam escaping or leaks from pipework. Checks are also carried out on high level valves / connections on tanks to eliminate these areas as a potential source of fugitive odour emissions.

Key BAT for fugitive emissions to air	How this is achieved
Transportation of materials on site should be carried out to prevent fugitive releases of particulates.	<ul style="list-style-type: none">• Raw material trailers are sheeted.• Meal is transported in sealed sacks.• Container vehicles are loaded undercover.
Stocks of dusty material should be stored in suitable silos, closed containers or enclosed stores.	<ul style="list-style-type: none">• Meal is stored in sealed sacks.• Meal is stored in an enclosed storage building.

Key BAT for fugitive emissions to sewer, surface water and groundwater	How this is achieved
Separate process and non-process waste water	<ul style="list-style-type: none"> • Process effluent is kept separate from surface drainage. • We have also included an improvement condition (IC16) requiring a full drainage survey on site to ensure fugitive emissions are minimised.
Fit and use drains with screens and/or traps to prevent solid material from entering waste water	<ul style="list-style-type: none"> • Solid material is prevented from entering the effluent collection system by the use of 3mm static screens
Have a clear diagrammatic record of the routing of all inspection drains, subsurface pipework, sumps and storage vessels including the type and broad location of the receiving environment	<ul style="list-style-type: none"> • We have added an improvement condition (IC18) requiring the production of comprehensive drainage plan.
Identify the potential risk to the environment from drainage systems and devise an inspection and maintenance programme having regard to the nature and volume of water waters, groundwater vulnerability and proximity of drainage systems to surface water	<ul style="list-style-type: none"> • We have added an improvement condition (IC19) requiring a revised risk assessment to be produced and incorporated into the site EMS.
Ensure that all operational areas are equipped with an impervious surface, spill containment kerbs, sealed construction joins and connected to sealed drainage. Regular inspection and maintenance of these systems should be undertaken	<ul style="list-style-type: none"> • We have added an improvement condition (IC20) requiring a review of the pollution prevention measures and drainage arrangements on site.

5.4 Key issue 4 - Noise and vibration

There is the potential for amenity issue arising from noise and vibration from this Installation, based on the nature of the permitted activities.

As part of this permit application, the operator provided a noise impact assessment, having undertaken night time noise monitoring during shutdown to establish a background noise level. The survey concludes that a measurement of background noise levels, in accordance with BS4142, establishes a daytime background noise level of 43.1dBA and night time background noise level of 42.2dBA.

The survey also includes monitoring of the noise levels whilst the plant is operating. This represents a +1.8dBA daytime and +2.6dBA night time noise level above background. In accordance with our guidance, this represents a level where complaints are unlikely and therefore can be deemed as not likely to cause noise pollution.

In addition, the operator has demonstrated that the risk of noise and vibration have been considered when managing the permitted process on site as follows:

Key plant and equipment is identified and a preventative maintenance plan is in place. The main areas covered are:

- Fans, pumps, motors – the majority are inside a building, but where they are required to be outside (such as bio filter fans) they are contained within housing.
- Fan maintenance includes checking the balance and the bearings.
- Other measures used for control of fugitive odour emissions are also helpful at reducing noise – such as keeping doors closed and ensuring building integrity is maintained (including holes or gaps where ducting / pipework exists a building).
- Vehicle movements are highest during day time hours and drivers of HGV's are instructed not to leave engines idling (also a fuel saving measure). All vehicles are subject to regular servicing and maintenance.

The following key BAT requirements in terms of noise are also demonstrated as follows:

Key BAT requirements	How this is achieved
Implement a noise management system	<ul style="list-style-type: none"> • Noise emissions are managed as part of the Fugitive Emissions section of the Environmental Management System. <p>At this time we are satisfied that a site specific Noise Management Plan (NMP) is not required beyond the controls detailed in the management systems. However, the permit conditions contain a provision for the Environment Agency to request the applicant to produce and implement a NMP should the activities give rise to pollution caused by noise and/or vibration beyond the installation boundary.</p>
Reduce noise	<ul style="list-style-type: none"> • The EMS identifies the frequency of operation. • The EMS identifies where any noises or vibrations may come from. • The EMS includes control measures which highlight the mechanisms in place to deal with the causes of noise/vibration (such as closed doors and a preventative maintenance system).

However, the Applicant's noise assessment did not consider the potential noise impacts from the new trailer shed, trailer wash and effluent treatment plant. In order to ensure that the levels of noise from these proposed operations is not at a level which will cause a significant adverse impact, as expected, an improvement condition (IC26) has been included in the permit requiring the operator to undertake a revised noise survey, in accordance with BS4142:2014 (Rating industrial noise affecting mixed residential and industrial areas) and BS7445:2003 (Description and measurement of environmental noise). This will also establish a new baseline noise level for the site.

6. Assessing the impact of emissions on the environment and setting appropriate ELVs.

6.1 Impact on Air Quality

Air dispersion modelling enables the process contribution to be predicted at any environmental receptor that might be impacted by the point source emissions from the Installation.

Once short-term and long-term PCs have been calculated in this way, they are compared with Environmental Standards (ES).

Where an Ambient Air Directive (AAD) Limit Value exists, the relevant standard is the AAD Limit Value. Where an AAD Limit Value does not exist, AAD target values, UK Air Quality Strategy (AQS) Objectives or Environmental Assessment Levels (EALs) are used. Our web guide sets out EALs which have been derived to provide a similar level of protection to Human Health and the Environment as the AAD limit values, AAD target and AQS objectives. In a very small number of cases, e.g. for emissions of lead, the AQS objective is more stringent than the AAD value. In such cases, we use the AQS objective for our assessment.

AAD target values, AQS objectives and EALs do not have the same legal status as AAD limit values, and there is no explicit requirement to impose stricter conditions than BAT in order to comply with them. However, they are a standard for harm and any significant contribution to a breach is likely to be unacceptable.

PCs are considered **Insignificant** if:

- the **long-term** process contribution is less than **1%** of the relevant ES; and
- the **short-term** process contribution is less than **10%** of the relevant ES.

The **long term** 1% process contribution insignificance threshold is based on the judgements that:

- It is unlikely that an emission at this level will make a significant contribution to air quality;
- The threshold provides a substantial safety margin to protect health and the environment.

The **short term** 10% process contribution insignificance threshold is based on the judgements that:

- spatial and temporal conditions mean that short term process contributions are transient and limited in comparison with long term process contributions;
- the threshold provides a substantial safety margin to protect health and the environment.

Where an emission is screened out in this way, we would normally consider that the Applicant's proposals for the prevention and control of the emission to be BAT. That is because if the impact of the emission is already insignificant, it follows that any further reduction in this emission will also be insignificant.

However, where an emission cannot be screened out as insignificant, it does not mean it will necessarily be significant.

For those pollutants which do not screen out as insignificant, we determine whether exceedences of the relevant ES are likely. This is done through detailed audit and review of the Applicant's air dispersion modelling taking background concentrations and modelling uncertainties into account. Where an exceedance of an AAD limit value is identified, we may require the Applicant to go beyond what would normally be considered BAT for the Installation or we may refuse the application if the applicant is unable to provide suitable proposals. Whether or not exceedences are considered likely, the application is subject to the requirement to operate in accordance with BAT.

This is not the end of the risk assessment, because we also take into account local factors (for example, particularly sensitive receptors nearby such as SSSIs, SACs or SPAs). These additional factors may also lead us to include more stringent conditions than BAT.

If, as a result of reviewing of the risk assessment and taking account of any additional techniques that could be applied to limit emissions, we consider that emissions **would cause significant pollution**, we would refuse the Application.

The Applicant's modelling predicted pollutant concentrations at discreet human health receptors. The tables below show the ground level concentrations at the most impacted human health receptor.

The Applicant's Air Quality 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 there would be no likely significant effect on local air quality, human health or nearby conservation sites.

Pollutant	ES / EAL (µg/m ³)	Back-ground (µg/m ³)	Process Contribution (PC) (µg/m ³)	PC as % of ES	Predicted Environmental Concentration (PEC) (µg/m ³)	PEC as % ES
Predicted short term impacts						
NO ₂	200	10.78	11.95	5.98	33.51	16.75
PM ₁₀	50	13.10	0.19	0.38	13.29	26.58
CO	10	0.20	0.20	0.002	0.61	0.006
Predicted long term impacts						
NO ₂	40	10.78	2.05	5.13	12.83	32.08
PM ₁₀	48	13.10	0.075	0.19	13.18	32.94
CO ⁽¹⁾	--	--	--	--	--	--

(1) There is no long term standard for Carbon Monoxide

(i) Screening out emissions which are insignificant
From the tables above the following emissions can be screened out as insignificant in that the process contribution is < 1% of the long term ES and <10% of the short term ES. These are:

- Particulate matter
- Carbon monoxide

Therefore we consider the Applicant's proposals for preventing and minimising the emissions of these substances to be BAT for the Installation.

(ii) Emissions unlikely to give rise to significant pollution

Also from the tables above the following emissions (which were not screened out as insignificant) have been assessed as being unlikely to give rise to significant pollution in that the predicted environmental concentration is less than 100% (taking expected modelling uncertainties into account) of both the long term and short term ES.

- *Nitrogen Dioxide*

For these emissions, we have assessed the Applicant's proposals to ensure that they are applying the Best Available Techniques to prevent and minimise emissions of these substances. We have also set ELVs to provide additional environmental protection.

(iii) Emissions requiring further assessment

There are no emissions which require further assessment. All emissions either screen out as insignificant or where they do not screen out as insignificant are considered unlikely to give rise to significant pollution.

6.1.1 Setting ELVs for emissions to air from combustion plant

When setting ELVs for combustion plant, we must consider the requirements of the IED. Chapter III requirements are not applicable to this Installation due to the size of the combustion plant (including consideration for the aggregation rule). Therefore, relevant ELVs found in our Combustion Activities guidance (EPR 1.01), Sector Guidance and Annex II of the Medium Combustion Plant Directive (MCPD) are considered for this facility (however the MCPD limits are not mandatory for this size of plant until 2025).

We are also required to consider the basis of the current ELVs set in the Part A(2) permit, to ensure any ELVs we set offer at least the same level of environmental protection as the current permit.

These considerations are presented in the table below, which demonstrates that the ELVs set in the permit meet these requirements and provides the necessary environmental protection.

Pollutant	A(2) permit limit mg/m ³	EPR 1.01 ELV (liquid fuels) mg/m ³	EPR 1.01 ELV (natural gas) mg/m ³	MCPD ELV (liquid fuels) mg/m ³	MCPD ELV (natural gas) mg/m ³	ELV to be set in A(1) permit (liquid fuels) mg/m ³	ELV to be set in A(1) permit (natural gas) mg/m ³
NOx	400	300	300	650	200	300	300
SOx	N/A ¹	175	10	350	N/A	175	10
CO	150	150	50	N/A	N/A	150	50
Ammonia	N/A ¹	N/A	N/A	N/A	N/A	N/A ¹	N/A ¹
Particulates	100	15	5	30	N/A	50 ²	50 ²

¹ No limit set but periodic monitoring required.

² Limit Set based on Sector Guidance. The Operator is aware of the future compliance requirements of the Medium Combustion Plant Directive.

6.2 Impact on Water Quality

The discharge to sewer arising from the effluent treatment plant is unlikely to contain any significant quantities of hazardous pollutants and as such, a screening assessment of the effluent is not required.

“Sanitary” pollutants are controlled by the limits set on the Trade Effluent Consent, issued by United Utilities, which are:

Pollutant	Maximum concentration
Ammonia	250 mg/l
Suspended solids	1,000 mg/l
COD	10,000 mg/l
BOD	No limit set

There are no ELVs set for the discharge to sewer on the current Part A(2) permit.

Historically, there have been issues with the Installation meeting the Trade Effluent Consent, and there is evidence of the ammonia concentrations in the effluent having an impact upon the watercourse, downstream of Penrith Wastewater Treatment Works.

The new effluent treatment plant will greatly improve the current effluent quality and we do not consider the discharge likely to have a significant impact on the receiving water or the objectives of the WFD providing the environmental performance of the plant as set out in the application is achieved. The Applicant has demonstrated that the effluent treatment plant is able to meet BAT requirements.

We have included an improvement conditions (IC21 – IC24) and process monitoring requirements to demonstrate that the effluent treatment system has the environmental performance specified in the application and ensure the plant is well operated and maintained, and a regular compliance check against the trade effluent consent is undertaken.

The discharge of clean and uncontaminated run off from roofs is unlikely to have a significant adverse impact upon the current water quality of Myers Beck. However, we have added monitoring requirements to this discharge for visual appearance, BOD and Nitrogen to ensure that it is clean and not contaminated with pollutants due to the nature of the drainage arrangements at site.

There are currently “emergency” valves on site which give connectivity to yard water and the beck. We believe these valves pose too great a risk to the likelihood of contamination to the beck and on that basis, we have included an improvement condition (IC17) requiring removal of the valves.

6.3 Impact on Designated Sites

6.3.1 Sites Considered

The following designated Habitats (i.e. Special Areas of Conservation, Special Protection Areas and Ramsar) sites are located within 2Km* of the Installation:

- River Eden Special Area of Conservation

(*This screening distance was determined by referring to the Agency's guidance 'AQTAG014: Guidance on identifying 'relevance' for assessment under the Habitats Regulations for installations with combustion processes').

The following designated Sites of Special Scientific Interest are located within 2Km of the Installation:

- River Eden and Tributaries Site of Special Scientific Interest

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

- Yarnwath Wood Local Wildlife Site
- Skirsgill Wood Local Wildlife Site
- Disused Railway Line near Newbigging Local Wildlife Site
- Myers Beck Local Wildlife Site

6.3.2 Assessment of relevant Habitats sites

The Applicant's Habitats 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 there would be no likely significant effect on the interest feature(s) of the protected site(s).

Predicted impact on River Eden SAC:

Pollutant	ES / EAL ($\mu\text{g}/\text{m}^3$)	Process Contribution (PC) ($\mu\text{g}/\text{m}^3$)	PC as % of ES
Direct Impacts ²			
NO _x Annual	30	0.15	0.52
NO _x Daily Mean	75	3.34	4.46
Ammonia	3 ⁽¹⁾	0.001	0.019
Deposition Impacts ²			
N Deposition (kg N/ha/yr)	3 – 10 ⁽³⁾	0.025	0.85
Acidification (Keq/ha/yr)	<i>Not sensitive</i>	--	--

(1) The lichen and bryophyte sensitivity standards for ammonia have been assigned for this assessment as the presence of these features has been recorded in the site Management Plan for at least one of the sections of the site.

(2) Direct impact units are $\mu\text{g}/\text{m}^3$ and deposition impact units are kg N/ha/yr or Keq/ha/yr.

(3) The Critical Load value for the most sensitive feature, and the lowest end of the range has been used.

6.3.3 Assessment of relevant SSSIs

The Applicant's assessment of SSSIs 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 does not damage the special features of the SSSI(s).

Predicted impact on Riven Eden and Tributaries SSSI

Pollutant	ES / EAL ($\mu\text{g}/\text{m}^3$)	Process Contribution (PC) ($\mu\text{g}/\text{m}^3$)	PC as % of ES
Direct Impacts ²			
NO _x Annual	30	0.15	0.52
NO _x Daily Mean	75	3.34	4.46
Ammonia	1 ⁽¹⁾	0.001	0.057
Deposition Impacts ²			
N Deposition (kg N/ha/yr)	10 – 20 ⁽³⁾	0.049	0.49
Acidification (Keq/ha/yr)	0.142 – 0.645 ⁽³⁾	0.003	0.56

(1) The lichen and bryophyte sensitivity standards for ammonia and sulphur dioxide have been assigned for this assessment as the presence of these features has been recorded in the site Management Plan for at least one of the sections of the site.

(2) Direct impact units are $\mu\text{g}/\text{m}^3$ and deposition impact units are kg N/ha/yr or Keq/ha/yr.

(3) The Critical Load value for the most sensitive feature, and the lowest end of the range has been used.

6.3.4 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 contribution (PC) and the background levels (where relevant) 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.

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

The tables show that the Long Term PCs are <1% and we can conclude that impacts are insignificant.

We have not formally consulted Natural England on this application. A CRoW Appendix 4 Assessment was saved for information and audit purposes. A completed HRA Stage 1 Assessment was sent to Natural England for information. These decisions were taken in accordance with our guidance.

6.4 Other Permit conditions

6.4.1 Monitoring

We have decided that monitoring should be carried out for the parameters listed in Schedule 3 using the methods and to the frequencies specified in those tables. These monitoring requirements have been included in order to demonstrate BAT.

For emissions to air, the methods for continuous and periodic monitoring are in accordance with the Environment Agency's Guidance M2 for monitoring of stack emissions to air. We have included an improvement condition (IC31) requiring the operator to review their monitoring arrangements against our guidance.

For emissions to sewer, the methods for monitoring are in accordance with the Environment Agency's Guidance M18 for monitoring discharges to water and sewer. We have included an improvement condition (IC32) requiring the operator to review their monitoring arrangements against our guidance.

For emissions to water, the methods for monitoring are in accordance with what we would consider appropriate for this type of discharge.

For process monitoring, the methods for continuous and periodic monitoring are in accordance with what we would consider appropriate to ensure the efficient operation of relevant plant and equipment.

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.

6.4.2 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 to ensure compliance with permit conditions 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.

7.1.3 Schedule 22 to the EPR 2016 – Water Framework and Groundwater 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 has been consulted upon in line with this statement, as well as with our guidance RGS6 on Sites of High Public Interest, which addresses specifically extended consultation arrangements for determinations where public interest is particularly high. This satisfies the requirements of the Public Participation Directive.

Our draft decision in this case has been reached following a programme of public consultation on the original application. The way in which this has been done is set out in Section 2.2.

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”.

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

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 Assessment form.

The CROW assessment is summarised in greater detail in section 6.3 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 Conservation of Habitats and Species Regulations 2010

We have assessed the Application in accordance with guidance agreed jointly with Natural England and concluded that there will be no likely significant effect on any European Site.

We informed Natural England of our assessment by means of an HRA Stage 1 Assessment, sent for information, which concluded that the operation of the Installation would not have a likely significant effect on the interest features of protected sites.

The habitat assessment is summarised in greater detail in section 6.3 of this document. A copy of the full HRA Stage 1 Assessment can be found on the public register.

7.3.2 Water Environment (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 compliance with the requirements of the Water Framework Directive and the EQS Directive through (inter alia) environmental permits, and its obligation in regulation 33 to have regard to the river basin management plan (RBMP) approved under regulation 31 and any supplementary plans prepared under regulation 32. However, it is felt that existing conditions are sufficient in this regard and no other appropriate requirements have been identified.

We are satisfied that granting this application with the conditions proposed would not cause the current status of the water body to deteriorate.

ANNEX 1: Improvement Conditions

Based in the information in the Application we consider that we need to set improvement conditions. These conditions are set out below - justifications for these is provided in the relevant section of the decision document. We are using these conditions to require the Operator to provide the Environment Agency with operational details that need to be established, confirmed or undertaken to offer a better level of environmental protection.

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
Management and control of fugitive odour		
IC1	<p>The operator shall submit a report detailing a comprehensive review of the integrity of process buildings, sheds and associated infrastructure, plant and equipment undertaken by a suitably qualified engineer.</p> <p>The report shall specifically detail all risk areas and points of weakness (such as but not limited to the abatement systems, air extraction system, sample points, ducting, pipework, pipe penetrations, doorways and building joints) and identify that suitable engineering standards are achieved, demonstrated by an appropriate validation method such as smoke testing.</p> <p>Where the operator has been unable to demonstrate integrity, the operator shall identify where improvements can be made to minimise the potential for fugitive emissions and provide a schedule of works for proposed improvements with timescales for completion.</p>	07/12/2018
Management and control of odour sources and abatement equipment		
IC2	<p>The operator shall submit a report detailing a comprehensive review to identify and characterise all sources of odour and the options available to effectively treat odour at the installation.</p> <p>The operator shall have regard for areas where there is the potential for improvements to the identified and characterised odour sources and the chosen abatement technique.</p>	07/06/2018
IC3	<p>The operator shall submit a report detailing a comprehensive review of ventilation and air extraction systems on site, undertaken by a suitably qualified engineer.</p> <p>The report shall include details of how balancing and airflow management is achieved, monitored and verified (including replacement air) and determine if the measures are fit for purpose.</p> <p>The report shall evaluate potential improvements which can be made to the source extraction and positioning of ducting, local exhaust ventilation and replacement air vents.</p>	09/07/2018

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC4	<p>Having regard for the outcome of the reviews undertaken for IC2 & IC3, the operator shall provide justification for the abatement systems used to treat each odour source and demonstrate how they are fit for purpose and represent BAT.</p> <p>Where this is not the case, the operator shall provide a schedule of works for proposed improvements with timescales for completion.</p>	07/09/2018
IC5	<p>The operator shall submit a report detailing a comprehensive review of the monitoring of extracted air, including in-house analysis and process control, to review trends and identify and explain any variation in load, with regard to ensuring the operation of abatement systems is fully optimised.</p> <p>Where potential improvements are identified, the report shall include a schedule of works for proposed improvements with timescales for completion.</p>	07/06/2018
IC6	<p>The operator shall put in place permanent appropriate infrastructure and instrumentation to enable continuous monitoring and process control of the biofilters and associated equipment to ensure their operation is fully optimised.</p> <p>In satisfying this requirement, the operator shall have regard for the Process Monitoring requirements in Table S3.4 of the permit and shall also include installed inspection windows on the humidifiers (maintained to enable a clear visible view into chamber at all times), regular monitoring arrangements for humidifiers and biofilters, and details of how monitoring results are linked to process control, including the recharge/purging procedures for the humidifiers.</p>	16/04/2018
IC7	<p>Having regard for the improved monitoring and process control arrangements achieved by completion of IC6, the operator shall put in place a procedure, incorporated into the Environment Management System, to ensure meaningful process control of the biofilters is undertaken at the installation, including but not limited to trigger levels, corrective actions and contingency arrangements.</p>	07/06/2018
IC8	<p>The operator shall undertake a review of the efficiency of each biofilter, having regard for the variability in load upon each biofilter bed and the impact of this upon performance, in particular the Empty Bed Residence Time (EBRT).</p> <p>The operator shall use the results of the review to evaluate options for the pre-treatment of the waste gas streams as a reasonably practicable solution to reduce the overall load on the biofilters and subsequently improve performance.</p>	07/03/2019

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC9	<p>The operator shall install additional odour abatement measures (carbon filters) on tanks which are identified as having a high odour potential (especially sludge tanks and feather water tanks) to further mitigate against the risk of odorous emissions from the installation.</p> <p>The operator shall confirm completion of the works in writing to the Environment Agency and update the site OMP and EMS accordingly.</p>	07/09/2018
IC10	<p>The operator shall install a Cleaning in Place (CiP) system on tanks identified as having a high odour potential (especially blood, sludge and feather water tanks) to further mitigate against the risk of odorous emissions from the installation.</p> <p>The operator shall confirm completion of the works in writing to the Environment Agency and update the site tank inventory accordingly.</p>	07/09/2018
Management and control of housekeeping standards		
IC11	<p>The operator shall undertake a documented (including before and after photographs) deep clean of tipping sheds, production areas, yard areas and tank bunds.</p> <p>The deep clean shall establish a baseline condition for future housekeeping standards as part of the overall management and control of fugitive emissions from the installation.</p>	16/04/2018
Review and update Odour Management Plan		
IC12	<p>The operator shall further develop the existing odour management plan (OMP) for approval in writing by the Environment Agency. The revised plan shall have regard for the requirements/outcomes of IC1 to IC11 and also ensure the following are robustly addressed:</p> <ul style="list-style-type: none"> - Location and distance to sensitive receptors. - Details of any changes made to procedures, infrastructure, plant and equipment on site and an assessment of the impact of these changes on odour. - Impact of metrological conditions on sensitive receptors. - History of odour pollution locally, review of complaints and lessons learnt. - Materials management. - Monitoring of odour and associated action levels. - BAT measures for containment and abatement of odorous emissions. - Impact of emergencies and incidents on odorous emissions. 	07/06/2019

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	The operator shall implement the approved OMP from the date of approval by the Environment Agency. As part of the approved OMP, the operator shall undertake a regular review of the plan (in particular following any complaints, identified operational issues and/or any changes on site) and formally update the plan annually.	
Management and control of primary containment measures		
IC13	<p>The operator shall provide a report detailing a comprehensive review of all storage tanks on site, undertaken by a suitably qualified engineer to an established engineering standard.</p> <p>The report shall include but not be limited to confirmation of age, condition, anticipated future operational life, filling and emptying arrangements, venting, overfill protection (such as level control and alarms), together with details of containment measures.</p> <p>The report shall determine if the tanks and containment measures are fit for purpose, having regard for the relevant guidance or, where this is not the case, provide a schedule of works for proposed improvements or tank decommission with timescales for completion.</p>	07/09/2018
IC14	<p>The operator shall remove the redundant tallow storage tank (Tank Reference 7), and any other redundant tanks (such as Feather Condensate Tank Reference 4) which are a source of potential odour emissions.</p> <p>The operator shall confirm in writing to the Environment Agency when the works are completed and update the site tank inventory accordingly.</p>	07/06/2018
Management and control of secondary containment measures		
IC15	<p>The operator shall provide a report detailing a comprehensive review of the structural integrity of all bunds on site, undertaken by a suitably qualified engineer to an established engineering standard.</p> <p>The report shall determine if bunds are fit for purpose and appropriately sized; having regard for the relevant guidance (CIRIA Report C376). Where improvements to bunding and containment are identified in order to meet the required standard, the operator shall provide a schedule of works with timescales for completion.</p>	07/03/2019
Management and control of drains and drainage systems		
IC16	<p>The operator shall undertake a CCTV survey of sub-surface drainage systems within the installation boundary (including the culverted watercourse) and provide a structural report to establish the integrity of the systems and demonstrate that the risk of fugitive emissions from the installation are minimised.</p> <p>Where the requirement for improvements is identified, the report shall include a schedule of works for the proposed improvements with timescales for completion.</p>	07/06/2018

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC17	The operator shall remove the “emergency” valves and isolate any pipework to ensure the cessation of emergency discharges to Myers Beck. The operator shall confirm completion of the works in writing to the Environment Agency and update the site drainage plan accordingly.	16/04/2018
IC18	The operator shall produce a site drainage plan which provides a clear diagrammatic record of the routing of all inspection drains, subsurface pipework/culverts/drains, sumps, screens and interceptors within the boundary of the installation. A copy of the plan shall be provided to the Environment Agency for our records and a copy shall be included and referred to in the relevant written procedures for the site including the Environment Management System and Accident Management Plan.	07/06/2018
IC19	Having regard for the outcomes of IC16 to IC18, the operator shall undertake a review of the risk to the environment from the site drainage systems and devise an inspection and maintenance programme, as part of the Environment Management System, to minimise the risk. The review shall have regard for the nature and volume of waste waters, local groundwater vulnerability and the proximity of drainage systems to surface water and be confirmed in writing to the Environment Agency.	07/08/2018
IC20	Following completion of IC11, the operator shall ensure that all operational areas are equipped with an impervious surface, spill containment kerbs, sealed construction joints and are connected to sealed drainage. Where significant defects are identified these shall be repaired and a programme detailing the ongoing maintenance and repair of minor defects shall be provided to the Environment Agency. Relevant site plans and written procedures shall be updated accordingly upon completion and confirmed in writing to the Environment Agency.	07/12/2018
Management and control of the effluent treatment system		
IC21	The operator shall submit a report detailing the outcome of the commissioning of the effluent treatment system, including a review of the monitoring data and performance parameters against the design parameters set out in the permit application, to demonstrate that the environmental performance of the plant is consistently achieving the desired treatment and demonstrates BAT, having regard for the composition, age and health of the biomass within the effluent treatment plant.	07/03/2019
IC22	Where not addressed by completion of IC15, the operator shall confirm in writing to the Environment Agency the secondary containment measures in place for the effluent treatment system and demonstrate how they are fit for purpose in preventing the accidental loss of containment from the system.	07/09/2018

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC23	The operator shall submit a summary report to demonstrate that the EMS has been updated accordingly to reflect the operational procedures (including contingency arrangements), monitoring arrangements and implementation of staff training requirements for the operation of the new effluent treatment plant.	Within 3 months of ETP commissioning
IC24	The operator shall submit a report detailing a review of the management, handling and contingency arrangements for the effluent treatment plant sludge. Where management of the sludge is dependent on subsequent land spreading operations, the operator shall ensure that a system is introduced to ensure timely management of the necessary exemptions and land spreading deployments and where this is carried out by contractors or 3rd parties a system of due diligence audits and checks are conducted.	07/06/2018
Review and update site condition report		
IC25	The operator shall review and update the existing SCR/SPMP for the installation to ensure all on site risks and associated control measures are robustly identified and addressed, including but not limited to: <ul style="list-style-type: none"> - The requirements of the IED, as described in permit condition 3.1.3. - The construction of the abstraction borehole drilled on site in October 2015. - The construction of the trailer shed. - The construction of the trailer wash. - The construction of the effluent treatment plant. 	07/03/2019
Management and control of noise		
IC26	The operator shall submit a comprehensive noise assessment undertaken by an experienced and suitably qualified person (i.e. a noise consultant with an appropriate qualification accredited by the Institute of Acoustics), in accordance with the procedures given in BS4142:2014 (Rating industrial noise affecting mixed residential and industrial areas) and BS7445:2003 (Description and measurement of environmental noise). Any noise sources identified as exhibiting tonal contributions shall also be quantified by means of frequency analysis. The report shall further quantify and confirm the cumulative effect of plant and equipment working concurrently (including new plant/equipment such as the Effluent Treatment Plant and Vehicle Shed). The overall conclusion should demonstrate no significant noise pollution from the site as a whole.	07/12/2018

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	On completion of the assessment a copy of the survey shall be submitted to the Environment Agency in the form of a report with an interpretation of the results and conclusions drawn. Where specific recommendations are made in the report to pursue improved noise attenuation measures and associated management/inspection/monitoring/maintenance regimes; a suitable timescale for implementation and periodic review should be included. Such improved attenuation measures and regimes shall be demonstrated to be compliant with the requirements of BAT for this type of installation and will require the written agreement of the Environment Agency, prior to adoption.	
Management and control of water usage		
IC27	The operator shall undertake a comprehensive water efficiency audit at the installation and use the results to devise a programme of quantitative improvements to demonstrate BAT. The operator shall provide a summary of this audit together with a schedule of works for proposed improvements, with timescales for completion, in writing to the Environment Agency.	09/09/2019
Management and control of energy usage		
IC28	The operator shall confirm in writing to the Environment Agency what measures have been implemented on site since the permit application has been made to improve the energy efficiency at the installation.	16/04/2018
IC29	The operator shall carry out a comprehensive energy efficiency audit at the installation and use the results to devise a programme of quantitative improvements to demonstrate BAT. The operator shall provide a summary of this audit together with a schedule of works for proposed improvements, with timescales for completion, in writing to the Environment Agency.	09/03/2020
Management and control of planned preventative maintenance		
IC30	The operator shall implement a robust planned preventative maintenance programme for key plant, infrastructure and equipment as part of the written EMS, ensuring there are adequate provisions for reporting, tracking and completing outstanding actions. A summary of the programme shall be submitted in writing to the Environment Agency.	08/05/2018

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
Emissions and monitoring		
IC31	The operator shall undertake a review of the emissions and monitoring as listed in Table S3.1 of the permit to demonstrate that the sampling and monitoring regime on site is in accordance with the Environment Agency Technical Guidance Notes M1 (version 8 August 2017) and M2 (version 12 August 2017). The operator shall ensure that all sample points on site are appropriately marked and recorded, both in situ and upon a plan which forms part of the Environment Management System. A summary report of the review and the plan shall be submitted in writing to the Environment Agency.	07/06/2018
IC32	The operator shall undertake a review of the emissions and monitoring as listed in Tables S3.2 and S3.3 of the permit to demonstrate that the sampling and monitoring regime on site is in accordance with the Environment Agency Technical Guidance Note M18 (version 6 September 2017). The operator shall ensure that all emission and sample points on site are appropriately marked and recorded, both in situ and upon a plan which forms part of the Environment Management System. A summary report of the review and the plan shall be submitted in writing to the Environment Agency.	07/09/2018

ANNEX 2: Pre-Operational Conditions

Based on the information in the Application, we consider that we need to impose pre-operational conditions. These conditions are set out below and should be read in conjunction with the reasoning behind the improvement conditions 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 blood treatment activities, trailer shed and trailer wash, to demonstrate BAT.

Table S1.4A Pre-operational measures for blood treatment and processing activities	
Reference	Pre-operational measures
PO1	Prior to the operation of activities AR1 and AR2, the operator shall install additional odour abatement measures (carbon filters) to blood tanks on site to further mitigate against the risk of odorous emissions from the installation. The operator shall confirm completion of the works in writing to the Environment Agency and update the relevant written procedures accordingly.

Table S1.4B Pre-operational measures for future development of trailer shed and vehicle wash		
Reference	Operation	Pre-operational measures
FD1	Trailer shed	The operator shall submit a written report to establish the health of the biofilters and to demonstrate that the additional load of the extracted air from the proposed trailer shed can be accommodated, having regard for the requirements/outcomes of IC2 to IC8.
FD2		The operator shall submit written details of the door operating procedures for the trailer shed including but not limited to the operation of interlocks, system controls and alarms to prevent the emission of fugitive odour.
FD3	Trailer wash	The operator shall submit details of the drainage arrangements for the trailer wash for approval by the Environment Agency, including but not limited to details of effluent traps/gully pots/interceptors, containment and contingency arrangements, having regard for the requirements/outcomes of IC16 to IC20.
FD4		The operator shall submit a written report to demonstrate that water efficiency has been considered in the design of the trailer wash system and demonstrate how ongoing monitoring of water usage will be undertaken and audited, having regard for the requirements/outcomes of IC27.
FD5		The operator shall provide written details of the door operating procedures for the trailer wash, including but not limited to the use of interlocks, system controls and alarms to prevent the emission of fugitive odour.

ANNEX 3: Consultation 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 draft 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 25/11/16 to 06/01/2017 and in the Cumberland and Westmorland Herald on 26/11/16. The Application was made available to view at the Environment Public Register at Ghyll Mount, Penrith.

The following statutory and non-statutory bodies were consulted: -

- Eden District Council
- Public Health England
- Director of Public Health
- Animal and Plant Health Agency
- United Utilities Water Plc
- Health and Safety Executive

1) Consultation Responses from Statutory and Non-Statutory Bodies

Response Received from Eden District Council	
Brief summary of key issues raised:	Summary of action taken / how this has been covered:
The [LAPPC] permit ceased to be regulated by EDC on 27 January 2015 when it became clear the operator was undertaking Part A(1) activities.	The status of the permit and this superseding permit is discussed in Section 4.1.1.
The applicant does not have a clearly definable strategy to minimising odorous releases including insufficient evidence to demonstrate the abatement plant is operated correctly and is fit for purpose.	Further information regarding this shortfall was requested from the applicant as part of the Schedule 5 notice dated 02/02/2017. Our assessment of the suitability of odour abatement is discussed above in Section 5.1 Where appropriate controls have not been demonstrated, this has been addressed by improvement conditions.

Response Received from Eden District Council	
Brief summary of key issues raised:	Summary of action taken / how this has been covered:
Throughputs and associated odour abatement capabilities are not fully demonstrated, including shock loading of biofilters by effluent plant room air.	Further information regarding this shortfall was requested from the applicant as part of the Schedule 5 notice dated 02/02/2017. Our assessment of the suitability of odour abatement is discussed above in Section 5.1 Where appropriate controls have not been demonstrated, this has been addressed by improvement conditions.
More information required on how the combustion process is controlled and managed.	Further information regarding this shortfall was requested from the applicant as part of the Schedule 5 notice dated 02/02/2017. Our assessment of the suitability of odour abatement is discussed above in Section 5.1 Where appropriate controls have not been demonstrated, this has been addressed by improvement conditions.
Concern raised over the use of condensers/boilers as routine odour abatement.	Further information regarding this shortfall was requested from the applicant as part of the Schedule 5 notice dated 02/02/2017. Our assessment of the suitability of odour abatement is discussed above in Section 5.1 Where appropriate controls have not been demonstrated, this has been addressed by improvement conditions.

Response Received from Public Health England	
Brief summary of key issues raised:	Summary of action taken / how this has been covered:
We recommend that any environmental permit issued for this site should contain conditions to ensure that potential emissions do not impact upon public health.	Our assessment of this has been addressed in Section 6.1 and the permit conditions ensure the protection of human health from the emissions from this site.

Response Received from United Utilities Water PLC	
Brief summary of key issues raised:	Summary of action taken / how this has been covered:
The operator regularly breaches the ammonia limit on their Trade Effluent Consent but it is believed that the new effluent treatment system will resolve this issue of non-compliance.	We agree that the new effluent treatment system will provide an improved effluent quality. In addition, we have included monitoring in the permit to ensure the operator maintains compliance with our environmental standards.
Historic discharges of contaminated surface water/effluent have been made to Myers Beck. Consideration should be made to ensure such discharges are not made and contaminated surface water drainage is routed to the effluent treatment system.	The discharge of contaminated surface water and/or effluent to watercourse is contrary to the conditions of the environmental permit. In addition, we have included improvement conditions (ICI6 – IC20) to provide a greater level of environmental protection to Myers Beck.
The operator should have contingency measures for the failure of the effluent treatment system.	We have added an improvement condition (IC23) to ensure this is robustly addressed.

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

None.

However, the Eden District Council consultation response included the views of locally Elected Members. In addition, we have reviewed any odour complaints received during the determination of this Application and taken them into consideration. This is addressed in more detail in Section 5.1.

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 19/12/2017 and 02/02/2018.

a) Consultation Responses from Statutory and Non-Statutory Bodies

A response was received from United Utilities Water PLC, who raised no objection to the grant of the permit.

A response was also received from Eden District Council, who commented that they believe that the Permit contains the necessary conditions and improvements to meet BAT as required by the Environmental Permitting (England and Wales) Permitting Regulations.

b) Representations from Local MP, Assembly Member (AM), Councillors and Parish / Town / Community Councils

Representations were received from the Elected Member for the Penrith West Ward, who raised the following issues:

Brief summary of key issues raised:	Summary of action taken / how this has been covered:
Asks for confirmation on how the Environment Agency ensure improvement conditions are complied with on time.	The Environment Agency will ensure evidence-based compliance with the improvement conditions and take the appropriate enforcement action, if necessary, if permit conditions are breached.
Asks for confirmation on the Environment Agency's remit in terms of design, location and function of new plant, and the impact on amenity from new plant in terms of noise, light pollution and odour.	The Environment Agency will ensure that any new plant which directly relates to the permitted activities demonstrates Best Available Technique (BAT) and does not have an adverse impact on the environment (including through noise and odour). The design and location of plant, together with the consideration for potential light pollution, falls outside the remit of the Environmental Permitting Regulation and are a consideration for the Local Authority (although plant relating to the permitted activities shall be sited within the permitted installation boundary).

Brief summary of key issues raised:	Summary of action taken / how this has been covered:
Asks for confirmation on how the Environment Agency will ensure any new development complies with future directives.	Should the new development comprise a change to the permitted operations, a permit variation will need to be made by the operator. The site will also be subject to periodic audit and inspection by the Environment Agency, which would identify any changes made on site.
Asks for confirmation on the Environment Agency's remit in terms of development outside of the permitted boundary.	The responsibility for development control remains with the Local Authority. However, the permitted operations shall only be undertaken within the permitted installation boundary. Development outside the boundary that directly relates to the permitted activities would be subject to a permit variation.
Expresses the view that the Environment Agency have not considered the impact of emissions on Thacka Beck Nature Reserve.	Thacka Beck Nature Reserve is a non-statutory site which was not identified as a 'relevant' site on our habitats screening. However, having regard for the assessment outlined in Section 6.3.4, we do not consider that the grant of this permit will cause significant pollution to Thacka Beck Nature Reserve.

c) Representations from Individual Members of the Public

A total of seven responses were received from individual members of the public, who raised the following issues:

Brief summary of key issues raised:	Summary of action taken / how this has been covered
Commented that no further development should be allowed until the site has controlled odours.	We have addressed the odour control requirements for the existing and proposed operations in the improvement programme and pre-operational conditions.
Raised concerns that the impacts of on-site odour has not been considered.	Our consideration of this is set out in detail in Section 5.1.

Brief summary of key issues raised:	Summary of action taken / how this has been covered
Raised concerns regarding the impact of odour from vehicles travelling to and from the site.	Odours from vehicles on the highway are outside the remit the Environmental Permitting Regulations. However, the impact should not be significant as the odour should be of short duration and transient. In addition, the operator has procedures in place to check incoming vehicles are covered and not leaking, and wash outgoing trailers prior to leaving the site, following tipping.
Raised concerns that the historic odour issues will continue.	We believe that the requirements of the improvement programme will significantly improve the control of odour from the site.
Commented that the operator should use planned preventative maintenance “to stop things going wrong”.	The use of planned preventative maintenance is implicit in the permit conditions, notwithstanding the inclusion of IC30 in the improvement programme.
Expressed the view that the Environment Agency should regulate the site.	As set out in Section 4.1.1, the Environment Agency will regulate the site following issue of this permit.
Raised concerns that the operator will accept Category 1 Animal By-products (ABP).	The category of ABP accepted by the installation is regulated by the Animal and Plant Health Authority. However, the Environmental Permit requires effective environmental compliance and management at the site, including record keeping, which are subject to audit inspections.
Commented that the operator needs to ensure that continuous improvements are in place.	There are provisions within the Environmental Permit which require the operator to review and improve operations through their management systems. These requirements are enforced through audit inspections.
Raised concern about historical issues of contamination to local land and water caused by the operator.	Operator competence has been considered and the management systems at the site will ensure that the operator is able to comply with the permit conditions.
Raised concern about historical issues of poor maintenance on site that has resulted in the fugitive release of liquids to the environment.	The release of fugitive emissions is controlled and enforced through the permit conditions. In addition, IC13 and IC15 will ensure that the containment measures on site are structurally sound and fit for purpose.

Brief summary of key issues raised:	Summary of action taken / how this has been covered
Raised concern about historical issues of noise from the site operations.	The impact of noise from the site is considered in Section 5.4. We have included improvement condition IC26 to ensure the operator assesses the potential impact of noise from the new development on site which shall demonstrate, or makes improvement to ensure, no significant adverse impact.
Raised concern about historical issues of noise from vehicles approaching the site.	Noise from vehicle movements outside of the permitted boundary fall outside of the remit of the Environmental Permitting Regulations. Noise from vehicle movements on site is addressed in Section 5.4.
Commented that the permit should contain restrictions on operational hours.	Operational hours are usually controlled by planning conditions, if applicable. However, we have assessed the amenity impacts and consider the permit conditions to provide an adequate level of protection.
Commented that the permit should contain conditions preventing odour leaving the site.	We have included improvement conditions which require better process controls and management plans to minimise the odour emissions from the site, as far as reasonably practicable. In addition, there are conditions within the permit which control odour beyond the installation boundary.
Commented that the permit should contain conditions to control the levels of noise leaving the site, with Environment Agency enforcement and monitoring.	There are descriptive conditions within the permit which control noise emissions beyond the installation boundary. Compliance with these conditions would be enforced upon a substantiated report of non-compliance.

In addition, we have had regard for complaints received by the Environment Agency during the draft permit consultation period. A proportion of these complaints related to an isolated incident on site where a heating coil on a tank malfunctioned and caused intermittent odour issues for a few days. This was identified and resolved by the operator and we believe that the requirements of the permit will ensure such potential issues will be identified quickly in future, with an aim to prevent further incidents.

Other complaints related to intermittent, short duration odour impacts, which had dissipated before the operator was able to investigate fully. However, from the description of these complaints; they would suggest intermittent process control issues, potentially causing overloading of the biofilters. These potential causes of incidents have been addressed in the relevant sections above and we believe will be better controlled through the improvement programme.