Permitting decisions

Bespoke permit

We have decided to grant the permit for Yaxley Poultry Processing Plant operated by Cranswick Country Foods PLC.

The permit number is EPR/YP3609PS.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document provides a record of the decision making process. It:

- highlights key issues in the determination
- summarises the decision making process in the decision checklist to show how all relevant factors have been taken into account
- shows how we have considered the consultation responses.

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Read the permitting decisions in conjunction with the environmental permit. The introductory note summarises what the permit covers.

Key issues of the decision

The Installation is in a rural location approximately 250 metres north east of the village of Yaxley and 1 km North West of the village of Eye in Suffolk at grid reference TM12726 74560.

The following Schedule 1 activities are carried out at the installation.

Section 6.8 Part A(1)(b) Slaughtering animals at plant with a carcass production capacity of more than 50 tonnes per day.

Section 6.8 Part A(1)(d)(iii) (aa) Treatment and processing of animal and vegetable raw materials with a finished product production capacity of greater than 75 tonnes per day.

Section 5.4 Part A(1)(a)(i) Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day by biological treatment. Total influent capacity 1,200 m^3 / day

Section 5.4 Part A(1)(a)(ii) Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day by physico-chemical treatment.

The Installation is designed to process up to 15,000 chickens per hour (1.2 million per week) which is the equivalent to 132,000 tonnes per year. The key processes carried out, are receipt of livestock (lairage), slaughter (stunning and bleeding), AeroScalding, de-feathering, evisceration, chilling and grading, and packaging (a small proportion - up to around 10% - including the addition of further ingredients such as marinades) in readiness for despatch.

The installation includes a waste water treatment plant for the physico-chemical and biological treatment of process derived waste water, the effluent from this is discharged to a purpose built channel prior to flowing to the existing surface water drainage system at TM 12503 74293 which in turn flows to a tributary of River Dove.

The facility also incorporates a natural gas fired combined heat and power plant operating in tandem with traditional gas fired boiler plant to satisfy its hot water, steam and electricity supply requirements. The combustion plant includes a Medium Combustion Plant (MCP) reference GG12V400A1 which consists of a gas engine and a gas fired boiler with a combined rated thermal input of 5.05MW. The Medium Combustion Plant Directive (EU/2015/2193) applies to these units.

Odours from the Effluent Treatment Plant building are abated through a carbon bed filtration system, and those from the Animal By-Product storage areas using a Bio-Oxygen treatment system.

The site is 8.5 km south east of Waveney and Little Ouse Valley Fens (SAC) and Redgrave and South Lopham Fend (Ramsar), it is also 2 km north of the Major Farm, Braiseworth (SSSI). Emissions from the installation screened out as not significant in relation to these sites.

Emissions to surface water:

The installation includes a waste water treatment plant for the physico-chemical and biological treatment of process derived waste water. The process effluent is treated by dissolved air flotation, chemical dosing to remove phosphorus, denitrification, aeration, membrane bioreactor, and sludge dewatering. Up to 60% of this effluent will then be treated by ultra violet disinfecting and reverse osmosis and reused within the process.

The Water Framework Directive requires that member states “implement the necessary measures to prevent deterioration of the status of all water bodies….” (Article 4.1). All practicable action must be taken to prevent the deterioration in the status of all water bodies in England and Wales.

The permitting of a discharge into a water body will cause some localised deterioration. The deterioration from one status class to a lower one is not permitted. The no deterioration rules only apply to the environmental standards for the determinands Biochemical Oxygen Demand (BOD), Ammonia and Phosphate, often referred to as sanitary determinands.

Modelling using a mass balance calculation method was undertaken by the Environment Agency for emissions of sanitary pollutants to surface water, these are listed in the table below. This work showed that to ensure that there is no deterioration from one status class to a lower one, the emissions limits for these pollutants should be as follows:

Parameter	Emission Limit Value (ELV)
Biological Oxygen Demand (BOD)	10 mg/l
Suspended Solids	15 mg/l
Ammonia	3 mg/l
Phosphate	2 mg/l

During determination the applicant made a request for a tiered approach to be taken for the ELV for BOD. They asked for limit of 20 mg/l for the first 6 months of operation to allow the biological processes to become established and accustomed to the influent from the factory. We have agreed to this request and an ELV of 20 mg/l applies until 31/05/2020 when it will then drop to 10mg/l.

As the site will use ferric chloride or ferrous sulphate for phosphate reduction and sodium chloride for water softening, emission limits have been included in the permit for chloride and sulphate. Due to the limited dilution provided by the initial watercourse that the effluent flows to, the emission limits have been set at the Environmental Quality Standards (EQS) of 250 mg/l for chloride and 400 mg/l for sulphate.

Materials which could be hazardous to the environment were identified in a detergent, a disinfectant and an acidic lime scale remover used at the site.

The detergent (Chlorfoam plus) contains alkyl dimethyl amine oxide, whilst there is no EQS for this material, the aquatic toxicity data indicates moderate acute toxicity to the invertebrate and fish species studied with effect concentrations in the range of 2.67 – 17.6mg/l. Chronic effects were noted in the range of 0.42 – 0.96mg/l which indicates high chronic toxicity. For algae effects were observed at concentration of 0.2mg/l which indicates high toxicity.

The applicant has calculated the concentration of alkyl dimethyl amine oxide which would be present in the effluent, using an effluent treatment plant reduction factor of 96% supplied by the Environment Agency and has concluded a worst case concentration of 0.16mg/l. As this concentration is below that which toxic effects have been noted, and with the additional dilution in the watercourse this should ensure that the concentration of this material in the effluent will not cause a significant impact.

The disinfectant (Tribac) contains two materials which may be hazardous to the Environment, Ethylenediaminetetraacetic Acid Tetrasodium Salt (EDTA) and N (3-aminopropyl)-N-dodecylpropane-1,3-diamine. The available aquatic toxicity data indicates this substance is of low acute toxicity to the species of alga, invertebrate and fish studied with acute effect concentrations of >100mg/l reported. An EQS for the protection of aquatic life was derived for EDTA a number of years ago but was not taken up as a statutory standard. It can be used to give an indication of levels of potential concern. The EQS proposed was 0.4mg/l (Annual Average) and 4mg/l (Maximum Allowable Concentration).

The applicant has calculated the concentration of EDTA which may be present in the effluent, using an effluent treatment plant reduction factor of 37% supplied by the Environment Agency and has concluded a worst case concentration of 0.62mg/l. Due to the limited dilution this material may have the potential of causing an impact on the watercourse and the applicant has been asked to undertake monitoring work to better understand the concentration of this material in the effluent discharged from the site.

N (3-aminopropyl)-N-dodecylpropane-1,3-diamine, whilst there is no EQS for this material the available aquatic toxicity data for this substance indicates that it is of high acute and chronic toxicity to the species studied with effect concentrations noted in the range of 0.01 – 0.431mg/l. The applicant has calculated the concentration of N (3-aminopropyl)-N-dodecylpropane-1,3-diamine which may be present in the effluent, using an effluent treatment plant reduction factor of 1.85% supplied by the Environment Agency and has

concluded a worst case concentration of 0.192mg/l. Due to the limited dilution this material may have the potential of causing an impact on the watercourse and the applicant has been asked to undertake monitoring work to better understand the concentration of this material in the effluent discharged from the site.

A lime scale remover (Maxifoam Acid), will be occasionally used on site to assist in removing hard water lime scale from plant and equipment. This material contains Dodecan-1-ol at 0.35%. The Predicted No Effect Concentration (PNEC) value for dodecan-1-ol in fresh water is 0.0028 mg/l. The applicant has calculated that the concentration of this material would be 0.0029 mg/l at initial addition rates but this could rise to 0.0085 mg/l. Although these release concentrations are close to the PNEC, due to the limited dilution this material may have the potential of causing an impact on the watercourse and the applicant has been asked to undertake monitoring work to better understand the concentration of this material in the effluent discharged from the site.

The applicant proposed the use of a cationic polyelectrolyte in a decanter which will be used to dewater sludge by a centrifuge process. Due to the higher toxicity of cationic polyelectrolytes when compared with anionic polyelectrolytes the applicant was asked to consider the use of an alternative material. Trials were undertaken and it was shown that anionic polyelectrolytes were not effective in producing flocks which could then be removed in the process. Following this work the applicant was asked to submit a risk assessment for the use of the cationic polyelectrolyte.

Using Environment Agency guidance and using LC50 data for the electrolyte they calculated that the EQS for this material (polyacrylamide) should be 0.5mg/l. The applicant further calculated the release concentration for this material based on usage rates and the fate of the material through the effluent treatment process. They concluded that the maximum concentration they would expect would be 0.37 mg/l. The applicant has agreed to undertake monitoring of the concentration of this material in the effluent discharged from the plant to confirm these calculations.

An Improvement condition has been included in the permit which requires the applicant to develop and implement a programme to monitor the concentration of N (3-aminopropyl)-N-dodecylpropane-1,3-diamine, EDTA and dodecan-1-ol, in the final effluent discharge from the Effluent Treatment Plant. The results from this testing are to be used to update the impact assessment for emissions to surface water. If the revised impact assessment shows that concentrations of any of these materials may have a detrimental effect on the receiving water, the applicant is required to source alternative chemicals, submit an impact assessment for these alternatives and confirm a timescale for changing to these materials.

Groundwater:

The discharge of effluent to the large swale constructed to the East and South of the site provides opportunity for infiltration through its base. While the calculated infiltration rates value suggests soakage is insufficient for this to be considered a viable discharge/disposal option, leakage through the base over such a considerable area could be significant and needed to be calculated.

Initially the applicant's risk assessment was based on a single trial pit. On our request further infiltration tests were carried out and the results of the report addressed our concerns and gave confidence that the risk to groundwater from the possible infiltration of treated effluent should be minimal.

Having reviewed the applicants proposals we agreed with the findings that at this location, because of the significant overlying deposits of till, the risk to ground water from the activity, provided the effluent quality standards are maintained, should be low.

Emissions to air:

Oxides of Nitrogen:

The most significant emissions to air come from the Combined Heat and Power (CHP) Plant, these are emission points A1 and A2 in the permit. The CHP consists of a gas engine and a gas fired boiler which form a MCP, there are also auxiliary boilers to provide addition hot water for the site. The MCP has a rated thermal input of 5.05 (MW).

The MCP emissions limits values (ELVs) will be set for these units and the Operator has confirmed that this plant will be able to meet these ELVs.

In line with the Environment Agency's guidance (https://www.gov.uk/guidance/specified-generators-dispersion-modelling-assessment and https://www.gov.uk/guidance/medium-combustion-plant-apply-for-an-environmental-permit#apply-for-a-bespoke-permit), we require applicants to submit detailed air dispersion modelling and impact assessment to assess the predicted impacts on both human receptors (for example dwellings, work places and parks) and ecological sites.

A methodology for risk assessment of point source emissions to air is set out in our guidance Air emissions risk assessment for your environmental permit and has the following steps:

- Describe emissions and receptors
- Calculate process contributions
- Screen out insignificant emissions that do not warrant further investigation using the Environment Agency's screening tool (specific to assessing impacts from Specified Generators (SG))
- Decide if detailed air modelling is needed
- Assess emissions against relevant standards
- Summarise the effects of emissions.

We use this methodology to assess the impacts on air quality in the determination of applications.

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

Air dispersion modelling enables the PC to be predicted at any environmental receptor that might be impacted by the emissions from a plant. Once short-term and long-term PCs have been calculated in this way, they are compared with Environmental Standards (ES).

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; and
- 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; and
- 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 acceptable. 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 exceedances 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 the PC is greater than these thresholds, the assessment must continue to determine the impact by considering the predicted environmental concentration (PEC). The PEC is the combination of the PC

substance to air and the background concentration of the substance which is already present in the environment.

The PECs can be considered 'not significant' if the assessment has shown that both the following apply:

- proposed emissions comply with associated emission levels (AELs) or the equivalent requirements where there is no AEL; and
- the resulting PECs won't exceed 100% of the environmental standards.

Atmospheric dispersion modelling was undertaken using ADMS 5.2, it was used to predict the concentrations of Nitrogen oxides and subsequently Nitrogen Dioxide at various sensitive receptors from all significant combustion processes on site.

The output of the modelling predicted that long term NO_2 process contributions at nearby human receptors are below 1% of the annual mean NO_2 air quality standard of 40 µg/m^3. The total predicted environmental concentrations were well below 50% of the annual mean Environmental Standard.

The predicted short term 1 hour mean NO_2 concentrations as result of the sites process contributions are well below 10 % of the 1 hour NO_2 air quality standard of 200 µg/m^3.

Table 1 – Predicted impacts at most sensitive human receptor (Tobar Trading Unit)

Pollutant	**Environmental standard**	**Background**	**Process Contribution (PC)**		**Predicted Environmental Concentration (PEC)**	
Unit	**µg/m^3**	**µg/m^3**	**µg/m^3**	**% of Environmental standard**	**µg/m^3**	**PEC % of Environmental standard**
NO_x annual mean	40	9.65	0.38	0.95	10.03	25.08
NO_x hourly mean	200	19.3	4.29	2.15	23.59	11.80

Predicted impact at habitats sites:

The site is 8.5 km south east of Waveney and Little Ouse Valley Fens (SAC) and 2 km north of the Major Farm, Braiseworth (SSSI).

Waveney and Little Ouse Valley Fens SAC (UK0012882):

Toxic Contamination:

Critical levels are a tool for assessing the risk of air pollution impacts to ecosystems. They are defined as concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur according to present knowledge.

For the annual mean the maximum modelled NO_X Concentrations are 0.01%, well below 1% of the Annual critical level of 30 µg/m^3.

The 24 hour mean maximum modelled NO_X Concentrations are 0.04% which is well below 10% of the critical level of 75 µg/m^3. Acidification:

Modelling shows a Process Contribution of 0.0012 Kg N /ha/ year and gives and acidification rate of 0.000084 keq/ha/year. This is 0.0015% of the critical load function of 0.549.

Nutriment Enrichment:

Air modelling shows that the total deposition rate from the combustion plant will be 0.000012 (µg/m^2/s). It has been assumed that all the process contribution (PC) NOx is converted to NO_2 to represent a worse-case scenario. Based on the above NO_2 deposition rates, the total Nitrogen deposition from this process is calculated as 0.0012 kg N /ha/ year. This is gives a PC of 0.008% of the Critical load of 15 kg N /ha/ year.

We have concluded no likely significant effect from this Installation on the Waveney and Little Ouse Valley Fens SAC.

Major Farm, Braiseworth SSSI:

The maximum predicted concentrations of NOx as an annual mean figure is 0.02 µg/m3. This is 0.07 % of the critical level of 30 µg/m3. The 24 hour mean maximum NOx concentration was modelled at 0.21µg/m3, this is 0.28% of the critical level of 75 µg/m3.

The impact of Nitrogen deposition (Eutrophication) was assessed with modelled deposition rates of 0.000064 µg/m^2/s. This figure has been used to produce a predicted maximum Nitrogen deposition rate from this site of 0.0061 kg N/ha/year. This give a Process Contribution of 0.031% of the Critical Load of 20 N/ha/year.

In terms of acidification the Process Contribution of 0.0061 gives and acidification rate of 0.000044 keq/ha/year. This is 0.0076% of the critical load function of 5.71. The proposed permission is not likely to damage any of the flora, fauna or geological or physiological features which are of special interest.

Odour:

The table below lists the Indicative Best Available Techniques for odour, in our guidance note Treating and Processing Poultry (EPR 6.11) and the measures in place at the installation:

Indicative BAT	**Measures implemented.**
Minimise chicken slurry production by controlling feeding rate prior to transportation of live birds to site**.**	This is implemented prior to birds arriving on site.
Storage of putrescible waste in sealed containers	Solid wastes removed / collected during processing and cleaning operations are placed into sealed containers and removed without delay to a waste storage area to avoid accumulation.
Frequent clean down of waste containers to Prevent build-up of malodorous material	Modules and vehicles used to transport livestock thoroughly cleaned after delivery. Automated four stage hot water crate washing equipment installed. Vehicles washed whilst remaining inside building with doors closed. Wash water recycled as far as possible with fresh water top up as required. Solids removed by screening and loaded into sealed containers and deposited in dedicated waste trailer in waste area for daily removal from site.
Frequent e.g. daily removal off site of blood/ by-products. Refrigeration of blood/ animal by-products / putrescible material if extended on-site storage is carried out.	Blood is automatically pumped to a storage tank. There is daily removal of waste / materials subject to rapid degradation and odour generation, in particular animal by-products and blood.
Install abatement (e.g. activated carbon) on blood storage tank vents.	A carbon filter has been fitted to the blood tank, this tank is stored within the Animal By-Products 2 and 3

	area and odour from this area is also abated by the Bio-Oxygen system. Odour abatement from this area is also subject to Improvement Condition 1 and 2 in the permit.
Back venting road tankers through the abatement unit during blood collection	Confirmed in the Odour Management Plan.
Use of screens / catch pots to prevent meat scraps / fats from entering drainage system	Catch pots are located at strategic points within the process, these are checked and cleaned a part of the daily cleaning regime.
Enclosure of effluent treatment plant / sludge handling systems	Plant designed to provide minimum retention times and to operate without balancing influent tank. All influents pumped from small collection sump via rotary screen to remove gross solids direct to first treatment stage Dissolved Air Flotation (DAF) plant. The main items of processing plant including screening, DAF and dewatering plant are located inside a building which is extractively vented via an activated carbon filter. Monitoring of the effectiveness of this carbon filtration system is included within the Odour Management Plan. A small activated sludge buffer tank has been installed to separate sludge returned to process from that rejected to dewatering centrifuge. The buffer tank is vented via air blowers into an aeration tank.
Control of hydraulic retention times in effluent systems.	The effluent treatment process is continuous, this minimises retention times and the scope for stagnation. There is no balancing tank - after screening waste water is directly pre-treated by the DAF then directly fed to the biological stage (selector, denitrification tank, aeration tank).
Additional techniques	The livestock reception area will include fast acting doors at access and egress points that are interlocked with internal doors leading to lairage so that the external doors can only be opened when the internal doors are closed, preventing odorous releases from the building. AeroScalding is used rather than an emersion technique which reduces water usage and the potential for odours from this area. All areas of the processing building are fitted with air extraction equipment, linked to odour abatement equipment where required and are extracted at roof level (10 – 12m).

A qualitative odour assessment was submitted as part of the application this concluded the likely effect from odour to be negligible for most receptors, with a slight adverse effect at the factory premises 100m to the

north / north east of the site. It further explained that the abatement measure being proposed should ensure no detrimental odour impacts. This assessment together with the BAT measures discussed in the table above should ensure that there are no significant odour issues associated with this installation.

The Applicant identified the Animal By-Product (ABP) 2 and 3 areas, which incorporates the blood tank as the highest risk area of the site. The site has installed a Bio-Oxygen treatment system working alongside a carbon filter for the blood tank to treat the odours in this area.

The Bio-Oxygen system is installed in the air inflow, the manufacturer explains that this system is designed to use electrons to rearrange oxygen molecules into oxygen clusters to treat pollutants in the air. Although a performance guarantee has been provided to the Applicant, there was no evidence submitted as part of the application to demonstrate that this system has been or is being effective in a similar application to that at the Installation.

Due to the lack of evidence of the effectiveness of this technology an improvement condition has been included in the permit. This improvement condition requires monitoring of odour concentration from within the ABP 2 and 3 areas and the outlet from these areas, it also requires justification that monitoring was undertaken a times representative of full production.

If the monitoring is unable to demonstrate that the Bio-Oxygen system is effective or that the emissions from this area are not significant the improvement condition requires the identification an alternative BAT option to reduce or eliminate odours from this area with timescales for implementation of the preferred option.

Secondary containment:

The Applicant confirmed that vessels containing significant quantities of polluting fluids, such as the blood tank and those holding cleaning materials, are fitted with secondary containment, which are located on concrete hardstanding. Drains in these areas are either sealed or flow to the ETP. Spillage response and recovery procedures are confirmed to be in place. All tanks and associated containment are to be inspected on a monthly basis by the site's engineering team.

The Effluent Treatment Plant (ETP) has been constructed without secondary containment. In response to a schedule 5 notice requiring further information the applicant confirmed the capacity of all tanks in the ETP which hold liquids, the size of the secondary containment required and that the containment would be constructed in accordance with the requirements of CIRIA Report 736 and the BS EN 1992-3:2006: Eurocode 2. Design of concrete structures, liquid retaining and containing structures.

A Penstock valve has been installed on the outlet to the site drainage and the Applicant has confirmed that in the event of a tank failure the effluent would be contained within the installation.

Improvement condition 3 in the permit require the measures described above to be implemented.

Environmental Management Systems (EMS):

The Applicant confirmed that an EMS is in place which is similar to that at their former Weybread site, which was a smaller poultry slaughterhouse. They aim to have this EMS accredited to ISO 14001 within 2 years.

BAT Assessment:

We have compared site operations with indicative BAT the Treating and Processing Poultry (EPR 6.11) Guidance Note. The table below compares relevant indicative BAT from EPR 6.11, with the measures proposed in the application.

Indicative BAT	**Key Measures Proposed**
1.1 Accident management: You should ensure the following: 1. Your effluent treatment plant does not get overloaded.	The ETP is designed to accommodate maximum treatment load from the plant operating at full capacity. Overflow of ETP vessels / excessive outflow is

2. That fat, oil and grease (FOG) does not block drains. 3. Adequate containment of blood storage tanks.	prevented by automated tank content level monitoring and control equipment. A typhoon vacuum system is installed to allow any spilled solid materials to be removed and transported directly to silos in the waste area without need to use wash water, eliminating or vastly reducing potential for solid wastes to enter internal drains. Solids traps are located at strategic points in internal drainage systems. Daily thorough cleaning regimes include the internal drainage systems. The blood tank is integrally bunded with leak detection between inner and outer shell. It is on a concrete plinth and protected from impact damage by Armco barriers.
1.2 Energy efficiency: You should consider the following techniques to reduce energy consumption: 1. Minimisation of water use. Typically about half of the total water usage at an abattoir is heated to between 40oC and 60oC. Heating this water requires substantial energy consumption, and adds a significant cost. 2. Efficient operation of the refrigeration system – consider heat recovery from refrigeration system, reducing heat load, efficient operation on part load and fast closing doors/alarms on chilled storage areas.	A Combined Heat and Power (CHP) plant will form part of this installation in order to provide steam, hot water and electricity to the site. AeroScalding is used which significantly reduces water use and therefore energy consumption. Heat recovery from the refrigeration plant is in place, refrigerated areas are alarmed and have automatically closing doors. In addition to this variable speed drives are used on motors, and LED lighting is used. Electricity sub-metering has also been installed. Predicted water use is 7.5 litres per bird which is below the benchmark range of 8 – 15 litres per bird.
1.3 Efficient use of raw materials and water You should where appropriate: 1. Use recirculating systems to recycle water. e.g. use of scald tank water for wet feather flume. (Once through cooling systems should not be used.) 2. Use of nozzles instead of irrigation pipes during defeathering stage 3. Use of water efficient shower heads to wash poultry during evisceration 4. Interlock chemical dosing pumps with cleaning operations so that dosing does not continue after cleaning is complete.	Water efficient poultry processing equipment and techniques are used, for example AeroScalding – i.e. using hot moist air rather than hot water for carcass scalding. Water is cleaned and re-circulated in processes such as defeathering, and crate washing. This waste water generated from cleaning is minimised by using dry cleaning techniques where possible and low volume / high pressure sprays. An automated crate washing system incorporating filtration and water recirculation is used to minimise water use. The vehicle washing system incorporates filtration and water recirculation as far as possible. 60% of process water is to be recycled through the ETP and roof water is to be harvested. Facility looking to achieve a water usage of 7.5 litres per bird which is below the sector benchmark. The flow of cleaning reagents into the system is in a

5. Meet water consumption benchmarks as follows: Chicken: 8 to 15 litres per bird	fixed proportion to the water flowing through the system hence when water flow ceases, cleaning reagent flow ceases and when water flow reduces the flow of cleaning reagent reduces. In addition, each manual clean down point has a selector switch to choose from rinse, wash and chemical hence it is only possible to use chemical dosing when the option is selected.
1.4 Avoidance, recovery and disposal of wastes You should where appropriate: Demonstrate that the chosen routes for recovery or disposal represent the best environmental option considering, but not limited to, the following: • all avenues for recycling back into the process or reworking for another process • composting • animal feed • other commercial uses • land spreading.	All Animal by product waste including category 2 and category 3 waste is sent to rendering facilities. Processed category 3 waste is generally used in pet food manufacture and oil extracted is used in synthetic diesel oil manufacture. Processed category 2 waste is used in fertiliser manufacture and in synthetic diesel oil manufacture. Land spreading is one of the disposal routes identified for disposal of waste from the ETP. The site has a sludge decanter and this will reduce the volume of such waste sent for disposal. The applicant has also identified disposal by anaerobic digestion as an option which will be explored.
2. Operations	
2.1 Delivery: 1. Use automated crate washing equipment to minimise volume of effluent produced.	Automatic crate washing is employed, water also recycled as much as possible and then treated in the ETP. Solid waste is stored in sealed containers then sent off site for disposal on a daily basis.
2.2 Stunning and bleeding 1. After stunning, bleed the bird for up to 2 minutes before dressing. 2. Use of double-drain in bleeding area to optimise blood collection and reduce effluent volume produced during cleaning	Birds stunned with CO2 and bled for up to 4 minutes. Blood collection is optimised to reduce effluent volume.
2.3 Scalding The main issues are: • poultry faeces dissociate in water to form ammonium nitrate and uric acid. These act as a chemical buffer, and maintain the pH of the scald tank at about 6, the point at which salmonellas are most heat resistant. In most cases the scald tanks are emptied into the wet feather flume at the end of the day shift • electricity/gas used to heat water for	AeroScalding used rather than a scald tank so much of this BAT is not applicable. AeroScalding reduces water and energy use.

scald tank • scald tank dump can overload the effluent treatment system.	
2.4 De-feathering • waste water and wash water produced • solid waste material (e.g. waste wax and feathers) may be disposed of to landfill. Anything contaminated with animal by-product such as feathers or tissue will need treating before going to landfill.	Feathers removed mechanically by plucking machines. Small amounts of water are used to lubricate the fingers and carry feathers to a collection trough. Feathers are collected in a water channel with the water recycled as much as possible. Solid waste is filtered and sent to waste trailer. Feathers are compressed dried prior to discharge to a waste trailer.
2.5 Evisceration • odour • use of water for carcass cleaning • spreading of treated inedible offal • loading of waste water with meat offal and meat scraps.	Air extracted at roof level to help disperse odours, see odour section above. Offal is removed mechanically and transported by a waterless conveyor system.
2.6 Chilling The main issues are: • high water consumption in spray chilling applications • waste water derived from all chilling applications • losses of refrigerant by spills and leaks • noise from compressors, evaporators, pumps and fans.	Air cooled in a 2 stage process, rapid chill and maturation. Refrigerated air is recirculated and not vented. Energy is recovered from the refrigeration system to assist in low temperature hot water demand. Waste water from dripping carcasses is treated in the ETP. Compressors are located within process building to reduce the noise emissions. Ammonia is the refrigerant used and a leak detection system is in place with warning alarms and automatic shutdown and venting.
2.7 Cutting The main issues are: • wash water loading with solid waste • disposal of inedible offal.	Minimal process contaminated waste water is generated by the division and packaging process, dry cleaning is used wherever possible.
2.8 Cooking The main issues are: • wash water from equipment used to process meat for cooking (e.g. by coating it with breadcrumbs) can be a high strength effluent stream • odour.	Not applicable to this installation.
2.9 Packing	Recycling and re-use of packaging is adopted as far as

• disposal of waste packaging.	possible to ensure that the production of waste is minimised. Wherever possible wastes will be returned into the supply chain from which they came (e.g. uncontaminated plastics, cardboard and paper packaging, wooden pallets etc.). Where this is not possible wastes will be sent for recovery (e.g. general mixed paper, card etc.) or beneficial use such as energy recovery in an energy from waste incineration plant or anaerobic digestion plant.
2.10 Cleaning You should where appropriate: 1. Stop staff from removing floor-drain grates and flushing meat scraps directly down the drain during cleaning. 2. Keep meat wastes out of the wastewater stream to reduce effluent loading. 3. Review your management practices for clean-up operations taking into account the following techniques: • install trays to collect waste as it falls to the floor • check drains regularly to ensure that catch pots are in place • empty catch pots into a waste bin and replace the catch pot in the drains before beginning to clean an area • dry pre-clean process areas before wet cleaning • avoid unnecessary hosing of blood and meat scraps into the drains (be aware that animal by product restrictions apply) • catch pots should be in place during cleaning (for example by installing lockable catch pots) • fit hoses with spray nozzles, and optimise water pressure at jets, nozzles and orifices.	Trays are used where required either to collect product to avoid contamination and ensure the product remains fit for consumption, or to facilitate housekeeping by providing a means of preventing waste falling onto and having to be cleaned from the floor. Dry cleaning techniques are used wherever possible and before wet cleaning in order to minimise water use, to minimise the volume of contaminated waste water requiring treatment via the ETP and to minimise the potential for blockages in drainage systems. A “Typhoon” vacuum system is installed to allow solid waste to be collected and transferred directly to a cyclone in the ABP waste area. These procedures are built in to operating and cleaning routines. Any solid materials collected that are too large to be removed using the vacuum system, are placed into containers which are sealed and moved without delay to the ABP waste area. Catch pots are located at strategic points in the internal drainage system within the processing plant building. They are checked and cleaned daily as part of the daily cleaning routine and at other times if found necessary during the course of production operations. In addition there are catch pots at various locations in the external surface drainage system. These will be inspected and cleaned periodically. Cleaning systems have been designed to maximise cleaning efficiency whilst minimising water and cleaning reagent usage rates. Wherever possible cleaning systems within fixed plant and equipment operate automatically / remotely hence cleaning times and the quantities of water/ cleaning reagents used are fixed. Where manually controlled cleaning activities take place water delivery and cleaning reagent flow rates are fixed by variables such as delivery pump pressure, pipelines sizes, reagent dosing pump settings, delivery nozzle design etc. which cannot be modified by operational staff using the equipment. Delivery hoses are fitted with self-closing triggers to stop flow when not in use. The flow of cleaning reagent

	into the system is in a fixed proportion to the water flowing through the system hence when water flow ceases, cleaning reagent flow ceases and when water flow reduces the flow of cleaning reagent reduces. In addition, each manual clean down point has a selector switch to choose from rinse, wash and chemical hence it is only possible to use chemical dosing when the option is selected.
3.1 Point source emissions You should where appropriate: 1. Keep raw materials and product out of the wastewater system wherever possible. You should use the following techniques: • dry clean-up • installation of drain catchpots and screens: • where gross FOG is found in wastewater, drainage systems should have grease traps and gratings to prevent sewer blockage. These must be frequently inspected, emptied and maintained. 2. Use a balancing tank or pond (equalisation or balancing), with a hydraulic retention time of 6 – 12 hours. This can improve treatment in the following ways: • by allowing waste streams to be combined e.g. acid and alkali streams from the regeneration of deionisers; or high BOD and low BOD waste streams. This can reduce consumption of reagents. • by making the flow rate less variable. This can reduce the size of the treatment plant needed, as it only has to handle the average flow and not the peak flow. 3. Provide contingency measures to prevent accidental discharges from overloading or damaging the treatment plant. These will often include providing a diversion tank into which potentially damaging wastewater can be diverted. This should typically have a capacity of 2 – 3 hours at peak flow rate. The wastewater should be monitored upstream of the treatment plant to allow automatic diversion to the tank. The contents of the diversion tank may be gradually re-introduced into the wastewater stream, or removed for off-	See section 2.10 above here. The ETP is designed to provide minimum retention times and to operate without a balancing influent tank. All influents are pumped from small collection sump via rotary screen to remove gross solids prior to the first treatment stage of Dissolved Air Flotation (DAF). There is no diversion tank in place but the initial receipt sump for the ETP has a capacity of 10m^3. In addition to this the internal drainage system is able to hold 18 hours of effluent.

site disposal. If you do not provide a diversion tank, you must tell us what equivalent measures you use to protect your treatment plant. 4. If you operate an activated sludge plant, you must manage the following issues carefully: • the development of bulking sludges • the carrying of excessive biomass inventories • the formation of biologically stable foam • the inhibition of microbial activity by biocidal substances from cleaning/sterilising agents 5. At sites with biological treatment plant, ensure the surface water drains are not routed to the treatment plant.	Sludge is collected and mixed to create a constant homogenous sludge flow to the sludge dewatering system. Flocculent is used to catch and bind small suspended particles to aid separation. The mixture of sludge and water is inserted in to the centre of a Centrifugal Decanter which rotates concentrating the sludge against the wall of the drum. A screw inside the drum transports the sludge to its discharge point. A small activated sludge buffer tank has been installed to separate sludge returned to process from that rejected to dewatering centrifuge. The buffer tank is vented via air blowers into an aeration tank. Activated sludge return and rejection rates are controlled automatically to maintain optimum levels in the plant and to reject minimum quantities for disposal. Surface water drainage does not flow to the ETP.
3.2 Fugitive emissions 1. Regularly inspect pipe joints, shaft seals and gaskets in the refrigeration plant using proprietary leak detection equipment. 2. Ensure that a system log book is kept which records: • quantity of refrigerant and oil added to or removed from the system(s) • leakage testing results • location and details of specific leakage incidents.	There is an automated leak detection system in the refrigeration plant. The plant is to be inspected on a monthly basis by a competent third party with a report provided to site management including the quantities of refrigerants and other fluids added or removed.
3.3 Monitoring Indicative BAT You should where appropriate: Identify process variables that may affect the environment and monitor as appropriate.	Process monitoring is to be undertaken to include detergent and disinfectant use, bleeding times, energy consumption, water use, levels in the blood collection tank, levels in the effluent treatment plant and effluent quality.

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	A claim for commercial or industrial confidentiality has not been made.
Identifying confidential information	We have not identified information provided as part of the application that we consider to be confidential.
Consultation	
Consultation	The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement. The application was publicised on the GOV.UK website. We consulted the following organisations: • Public Health England, • Suffolk County Council Public Health, • Anglian Water, • Essex and Suffolk Water, • Health and Safety Executive, • Foods Standards Agency, • Animal and Plant Health Agency. The comments and our responses are summarised in the consultation section.
Operator	
Control of the facility	We are satisfied that the applicant (now the operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with our guidance on legal operator for environmental permits.
The facility	
The regulated facility	We considered the extent and nature of the facility at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN 2 'Defining the scope of the installation', and Appendix 1 of RGN 2 'Interpretation of Schedule 1'. The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.
The site	
Extent of the site of the	The operator has provided plans which we consider are satisfactory, showing

Aspect considered	Decision
facility	the extent of the site of the facility and the emission points. The plan showing the extent of the facility is included in the permit.
Site condition report	The operator has provided a description of the condition of the site, which we consider is satisfactory. The decision was taken in accordance with our guidance on site condition reports and baseline reporting under the Industrial Emissions Directive. The baseline site condition report suggested that residual contamination from previous uses is low. We note this and advise that future permit surrender will be dependent on a comprehensive site investigation. The permit holders will be responsible for clean-up of any contaminative findings, not reported in the baseline site condition report, prior to permit surrender.
Biodiversity, heritage, landscape and nature conservation	The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat. We have assessed the application and its potential to affect all known sites of nature conservation, landscape and heritage and/or protected species or habitats identified in the nature conservation screening report as part of the permitting process. We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified. We have not consulted Natural England on the application, although our assessment was forwarded for information. The decision was taken in accordance with our guidance.
Environmental risk assessment	
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment for emissions to air is satisfactory. The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment, all emissions to air may be categorised as environmentally insignificant, see key issues section above for further information. We have carried out a risk assessment on behalf of the operator for the sanitary pollutant and have considered their assessment of risk for hazardous substances to controlled water. These assessments are discussed in detail in the key issues section above.
Operating techniques	
General operating techniques	We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility. The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.

Aspect considered	Decision
Operating techniques for emissions that do not screen out as insignificant	Emissions of BOD, Suspended Solid, Ammonia and Phosphate have been modelled and emission limits set which will prevent deterioration of the Water Framework Directive class boundary. We have assessed whether the proposed techniques are BAT. The proposed techniques/ emission levels for emissions that do not screen out as insignificant are in line with the techniques and benchmark levels contained in the technical guidance and we consider them to represent appropriate techniques for the facility. The permit conditions ensure compliance with relevant BREFs and ELVs deliver compliance with BAT-AELs. Emissions to Surface water are discussed in detail in the key issues section above.
Operating techniques for emissions that screen out as insignificant	Emissions of NOx, have been screened out as insignificant, and so we agree that the applicant's proposed techniques are BAT for the installation. We consider that the emission limits included in the installation permit reflect the BAT for the sector.
Odour management	We have reviewed the odour management plan in accordance with our guidance on odour management. We consider that the plan is sufficient to enable us to issue the permit but as the Applicant has proposed an emerging technique for abating emissions from the Animal By-Products area and improvement conditions IC1 and IC2 have been included covering commissioning of this equipment. See the key issues section for further information.
Noise management	A Noise Impact Assessment (produced for the planning application) and a Noise Monitoring Plan were included in the application. The Environment Agency's Qualitative Noise Screening Tool indicated that a Noise Impact Assessment and Noise Management Plan are not required for this installation and the noise amenity risks are likely to be low. The Noise Monitoring Plan has been include in Table S1.2 Operating Techniques.
Permit conditions	
Improvement programme	Based on the information on the application, we consider that we need to impose an improvement programme, Table S1.3 Improvement programme requirements from the permit has been included at the end of this document . See key issues section above for further detail.
Emission limits	ELVs based on BAT have been set for the following substances. Emissions to air: • Oxides of Nitrogen from the Medium Combustion Plant. Emissions to water:

Aspect considered	Decision
	• Total Suspended Solids • Biological Oxygen Demand • Chemical Oxygen Demand • Ammonia • Total Phosphorus It is considered that the numeric limits described below will prevent significant deterioration of receiving waters. We have imposed these limits because either a relevant environmental quality or operational standard requires this. Emission to water: • Iron: 2 mg/l • Chloride 250 mg/l • Sulphate 400 mg/l • Polyacrylamide 0.5mg/l See key issues section above for further information.
Monitoring	We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified. These monitoring requirements have been imposed in order to meet the requirements of the Medium Combustion Plant Directive and in line with the emission levels associated with the use of Best Available Techniques listed in Table 5.1 of the Reference Document on Best Available Techniques in the Slaughterhouses and Animal By-products Industries May 2005. Based on the information in the application we are satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.
Reporting	We have specified reporting in the permit. For the Medium Combustion Plant monitoring is required 3 months following permit issue then every 3 years in line with the Medium Combustion Plant directive. Reporting for emissions to surface water are required every quarter.
Operator competence	
Management system	There is no known reason to consider that the operator will not have the management system to enable it to comply with the permit conditions. The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits. The applicant has confirmed that they plan to have their Management System accredited to ISO 14001 within two years.
Relevant convictions	The Case Management System has been checked to ensure that all relevant convictions have been declared. No relevant convictions were found. The operator satisfies the criteria in our

Aspect considered	Decision
	guidance on operator competence.
Financial competence	There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.
Growth Duty	
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.

Consultation

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public, and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from
Public Health England
Brief summary of issues raised
They recommended that any Environmental Permit issued for this site should contain conditions to ensure that the following potential emissions do not impact upon public health: • Direct emissions to air from the CHP plant; and • Fugitive emissions from poultry and waste handling and transfer on-site.
Summary of actions taken or show how this has been covered
Emission Limits for the CHP plant in line with those in the Medium Combustion Plant Directive have been included in the permit. Section 3.2 of the permit relates to the emissions of substances not controlled by emission limits.

Response received from
Suffolk County Council Public Health
Brief summary of issues raised
They highlighted the points raised in the Public Health England response for further consideration: "We recommend that any Environmental Permit issued for this site should contain conditions to ensure that the following potential emissions do not impact upon public health: • Direct emissions to air from the CHP plant; and • Fugitive emissions from poultry and waste handling and transfer on-site
Summary of actions taken or show how this has been covered
See Public Health England section above

Response received from
Animal and Plant Health Agency
Brief summary of issues raised
They had no comments to make.
Summary of actions taken or show how this has been covered
N/A

Response received from
Essex and Suffolk Water
Brief summary of issues raised
They noted that there is a discharge from the facility into a surface water ditch which is a tributary to the Dove, which is a tributary of the River Waveney, from which they have a public water supply abstraction point downstream of Bungay. They acknowledged that a pollution incident is unlikely and that the distance and likely travel time from the discharge to our abstraction is significant. However, it was important that they flag the hydrological pathway. We trust the site environmental management system reporting

procedures will be put in place to cover a pollution incident, however unlikely, which would alert both the Environment Agency and Essex & Suffolk Water so that appropriate remedial action can be taken.
Summary of actions taken or show how this has been covered
Section 4.3 of the permit covers notification in the event of an incident or accident.

Response received from
Anglian Water
Brief summary of issues raised
No comments to make
Summary of actions taken or show how this has been covered
N/A

No response received from
Health and Safety Executive or Food Standards Agency
Brief summary of issues raised
N/A
Summary of actions taken or show how this has been covered
N/A

Representations from local MP, assembly member, **councillors and parish/town community councils**

Response received from
Worlingworth Parish Council
Brief summary of issues raised
They expressed concern that similar poultry raising and processing plants cause significant noise, odour and visual pollution, accompanied by a significant rise in HGV vehicle movements. The Environment Agency is urged to ensure that operations are limited to avoid a 24/7 operation blighting the surrounding area. Careful monitoring of drainage needs to take place to avoid local water courses being contaminated with effluent from the site and the road infrastructure needs to be upgraded to ensure the safety of all road-users.
Summary of actions taken or show how this has been covered
For odour and noise see the key issues section above. The monitoring regime for emissions to surface water is referenced in section 3.1 of the permit and detailed in schedule 3 table S3.2. Traffic and visual issues are considered during the planning process and not by the Environment Agency during permit determination.

Representations from individual members of the public.

Brief summary of issues raised
A concern was raised relating to the environmental impact of the increased lorry traffic through and around Eye from the east. It was stated that the road infrastructure is mainly narrow c-class rural roads which is unsuitable for large articulated lorries. These lorries would also need to navigate either through the centre of the market town of Eye with narrow historic roads at its centre. None of these roads would facilitate smooth traffic flow, requiring repeated acceleration and braking with

inherent increased exhaust fumes.
Summary of actions taken or show how this has been covered
As mentioned above the impact from traffic outside of the installation is an issue for the planning regime and is not covered by the Environment Agency during permit determination.

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC1	The Operator shall develop a monitoring programme to demonstrate the effectiveness of the Bio-Oxygen system used to abate odours from the animal by-products areas 2 and 3. The programme shall explain (but shall not be limited to) how the following information will be established: • odour concentration monitoring data for the inlet (within the process area) and outlet gas streams; • monitoring data for all outlet gas streams for volatile organic compounds (VOC's), ammonia and hydrogen sulphide; • system process monitoring data (e.g. volume flow) • evidence that the sample locations and sampling parameters are appropriate; • monitoring will be undertaken at times representative of full operation; • monitoring will be undertaken at intervals throughout the year which are representative of seasonal change; • detail on how a correct balance between odorous materials and treatment capacity will be managed and maintained for this system. This monitoring programme shall be agreed in writing with the Environment Agency.	28/02/2020
IC2	The Operator shall submit a report which address all of the aspects of the agreed monitoring programme in IC1. The report shall review the effectiveness of the Bio-Oxygen system used to abate odours from the animal by-products areas 2 and 3 and shall provide justification supported by evidence to demonstrate the system is effective and why it represents best available techniques (BAT). If it is not possible to demonstrate the bio-oxygen system is effective, the report shall: • Identify alternative options available to reduce or eliminate odour from the animal by-product areas 2 and 3; • Summarise the technique(s) and assess them against BAT; • Include a plan with timescales for the implementation of the preferred option(s). The report and any implementation timescales provided shall be agreed in writing by the Environment Agency. The plan shall be implemented in accordance with the Environment Agency's written approval.	31/10/2020
IC3	The Operator shall implement measures to ensure that all liquids that could cause pollution are fitted with adequate secondary containment, these measures shall comply with relevant industry standards, such as CIRIA 736. The Operator shall inform the Environment Agency in writing of the implementation of such measures.	31/07/2020

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC4	The Operator shall develop and implement a programme to monitor the concentration of N (3-aminopropyl)-N-dodecylpropane-1,3-diamine, EDTA, chlorine and dodecan-1-ol, in the final effluent discharge from the Effluent Treatment Plant. This monitoring programme shall be agreed in writing with the Environment Agency. Using the results from this monitoring programme, the Operator shall update and resubmit the impact assessment produced for emissions to surface water to the Environment Agency for approval.	28/02/2020
IC5	If the revised impact assessment submitted in IC4 shows concentrations of N (3-aminopropyl)-N-dodecylpropane-1,3-diamine, EDTA, chlorine or dodecan-1-ol to have a detrimental effect on the receiving water course the Operator shall submit a proposal for the use of alternative materials to the Environment Agency for approval. The proposal shall include (but not be limited to): • alternative chemical(s) • associated impact assessment(s) for the alternative chemical(s) • detail any commissioning required for alternative chemical(s) along with a timetable for implementing the changes and this shall be agreed in writing by the Environment Agency prior to implementation.	30/04/2020