

Environment Agency permitting decisions

Bespoke permit

We have decided to grant the permit for Mars Foods UK Limited operated by Mars Foods UK Limited.

The permit number is EPR/GP3135AS.

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.

Description of the main features of the Installation

The site is a factory producing rice, pasta and sauces. The site has been operating for some years but now requires an environmental permit due to the changes made to the Environmental Permitting Regulations (EPR) as a result of the introduction of the Industrial Emissions Directive (IED).

Dry ingredients are delivered to the site in bulk containers and boxes and stored in the ambient storage area along with wet ingredients which are delivered in Intermediate Bulk Containers (IBCs) and drums. There is a refrigerated cold store area for storing frozen ingredients. Rice is cleaned to remove any foreign objects via mesh screens and gravity separation. Rice and pasta are loaded into hoppers before being measured out into portions to be filled.

Pouches and pots are flushed with nitrogen to provide an inert atmosphere prior to being filled. The site has a nitrogen generator which produces nitrogen gas from compressed air using a carbon molecular sieve. This piece of equipment is not currently operational and the site currently uses liquid nitrogen. We have included the nitrogen generator in the permit as a Directly Associated Activity (DAA) which allows the operator the flexibility to re-commission this equipment in the future, or to continue using deliveries of liquid nitrogen.

Dry ingredients are measured and dispensed into pouches or pots prior to adding water and wet ingredients. These containers are pasteurised in steam retorts before being packed. Sauces are prepared by manually measuring and mixing batches of separate dry and wet ingredients before cooking. The sauces are then put into pouches or pots before pasteurisation or sterilisation in steam retorts prior to cooling and packing.

Steam is provided by two gas fired boilers that have the capacity to run on gas oil in the event that natural gas supplies are interrupted. The site effluent is screened to remove solids before being discharged to foul sewer under a trade effluent discharge consent. The site uses mains water and treats this to de-alkalise it before using it on site, adding biocides before use in the site cooling towers.

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

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

Structure of this document

- Key issues
- Annex 1 the decision checklist
- Annex 2 the consultation and web publicising responses

Key issues of the decision

Environmental risk to groundwater, soil and surface water

The site uses a range of materials which could cause harm to the environment if allowed to enter soil, groundwater or surface water. These include:

- chemicals used in the maintenance of site equipment such as biocides and hydrochloric acid;
- cleaning chemicals such as detergents and disinfectants;
- fuels including diesel and gas oil; and
- ingredients including cream and vegetable oil.

The operator has supplied a list of raw materials the site uses with the application. The Middleton Stop Drain is located to the north of the site, adjacent to parts of the north east site boundary. The proximity of the watercourse means that it is essential that measures are in place to prevent pollution occurring, either directly via surface run-off or indirectly via the site's surface water drainage system.

Drainage

There are two emission points to sewer from the installation. Effluent from the process drains are stored in a number of sumps on site prior to being screened to remove solids and discharged off site via emission point S1. This discharge is monitored by the operator for total suspended solids, chemical oxygen demand, sulphate and pH daily. This monitoring is undertaken for the operator's own information. It is not a requirement of the permit because we have not set any associated emission limits. Emission point S2 is used for the discharge of sewage effluent from on site staff welfare facilities, boiler blow down and condensate.

The yard area drains to the surface water drainage system which discharges into the Middleton Stop drain. This run-off passes through an interceptor to catch oils prior to discharge at emission point W1. This is the main surface water drainage discharge point and takes the majority of the site surface water run-off. Emission point W2 takes surface water run-off from a small area of hardstanding in the northern part of the site where no raw materials or products are stored - there is no interceptor associated with this area of the site. As this site is not used for vehicle parking or raw material storage we consider that this is acceptable. The operator undertakes daily testing of the W1 discharge and also tests the water quality in the Middleton Stop drain on a weekly basis. They do not monitor the W2 discharge as it occurs infrequently and only from a small area of the site. Both discharges are monitored for total suspended solids, chemical oxygen demand, sulphate and pH. As above, this monitoring is undertaken for the operator's own information and is not a requirement of the permit. We have included a requirement in the permit requiring the operator to monitor W1 and W2 for the presence of visible oils and grease. We have included an emission limit value of 'no visible trace'. The monitoring frequency is monthly for W1 and weekly for W2. The monitoring frequency reflects the fact that there is an interceptor at W1, but there is not one at W2.

The operator had the drainage system surveyed and no improvements were deemed necessary. They state that their pipework and drains will be visually inspected every six months and if subsurface drainage integrity was in doubt then a CCTV survey will be undertaken and any necessary repairs made.

Effluent is stored in two 6m³ concrete lined sumps prior to screening and discharge off site. One sump is bunded and has a visual bund alarm. The other sump is not bunded but has a high level alarm which creates a telephone alert. This is also in a high visibility area so any problems are more likely to be detected swiftly. These sumps are emptied every four weeks and visually checked.

Raw material storage

There is a bunded store for liquid raw materials stored in IBCs. Other raw materials are stored in the raw materials storage warehouse which has a concrete surface. The materials stored in the warehouse are predominately solids and the building has no internal drainage, the closest drains being located in the yard area outside as part of the surface water drainage system. Any raw materials spilled in the warehouse are unlikely to reach the surface water drains as the building has no internal drainage systems, meaning if a spill occurred it would be cleaned up before reaching the surface water drains outside. The risk of spills from the storage warehouse reaching the surface water drains outside is further reduced by the fact that the majority of materials stored within the warehouse are solid.

There are some raw materials such as tomatoes which are stored in the yard area, but these are stored within double lined containers designed to prevent leaks. The operator has highlighted that they keep stock in this area to a minimum and that the materials are stored in a highly visible area of the site, meaning if a spill did occur this would be detected quickly and spill kits could be deployed.

Oil and chemical storage

Approximately 10,000 gallons of gas oil is stored within a tank which is located within a concrete bund. Caustic soda and hydrochloric acids are also stored nearby within plastic bunded tanks which have their fill points within the concrete bund. These tanks have high level alarms to prevent overfilling.

There is a 1000 litre capacity plastic storage tank of caustic soda within a plastic bund inside the boiler house. An IBC of caustic soda is also stored in the boiler house on a bunded pallet. Chemicals used to treat the boiler water are also stored within the boiler house within a plastic bund on a metal stand. The gas oil store is located in an area where the surfacing is gravel and hardcore. We have considered the risk of gas oil escaping both the tank and bund into the gravel and hardcore area, and consider this is unlikely to occur due to the tank and bund integrity. The operator has undertaken a thickness test of the tank and determined that the thickness is adequate, and the operator has confirmed that the bund is visually inspected regularly.

There is a separate metal bunded store for 205 litre drums of diesel which is used to operate the fire sprinkler system pumps. The diesel is manually pumped into two 500 litre diesel tanks within the pump house. Oil and grease

for machinery maintenance are stored in a separate metal bunded store to the south east of the main production building. Less than 25 litres of petrol is stored within a metal lockable cabinet within the a shed. The operator also stores lubricating oils, greases, cutting fluids, lubricants, spray paints, paints and solvents in metal cabinets within the engineering workshop.

Cleaning chemicals

The chemicals used in cleaning the pressure cookers are stored externally in 430 litre plastic bunded tanks. These chemicals are diluted to be used to clean the retorts or pressure cookers via overhead pipelines. Other cleaning materials are stored within a metal bunded store.

The operator also stores 3000 litres of caustic soda in a self bunded tank for use in a cleaning in place system. This bund has visual alarms in place. The CIP system also uses a 5000 litre hot water tank which is dosed with the caustic soda just before the water and caustic solution is pumped out for use in the factory. This tank is double skinned and has a high level sensor. This area drains to the trade effluent system.

The Site Condition Report mentions that the concrete hardstanding along the north eastern side of the production building is of variable quality, however the operator has confirmed that this has now been resurfaced.

Waste

Waste oils are stored in a 1000 litre tank on a pallet. The tank is double skinned and located on an area of hardstanding. Waste cooking oils are stored in an IBC stored on a bunded pallet. Waste liquid aerosol drums are stored in a plastic bunded store on an area of hardstanding which are not located in the immediate vicinity of any surface water drains.

The site has a number of electrical transformers which contain oils. The operator has confirmed that these do not contain polychlorinated biphenyls (PCBs).

Accident mitigation

The site condition report supplied with the application outlines that the bunds on site will meet the requirements of our guidance document 'How to Comply with your Environmental Permit'. The bunds will be impermeable and resistant to the stored materials and will have a capacity of either 110% of the largest tank or 25% of the total tankage depending on which is greatest. Bunds will be subject to frequent visual inspection as part of a programmed routine. The bunds will also be regularly drained of rainwater. Where delivery points are not located within bunds additional containment in the form of drip trays will be used. The operator has stated in their application that engineering maintenance schedules are in place which include periodic inspection and maintenance of infrastructure.

Spill response kits are available around the site and the operator has confirmed that staff are trained in their use. The operator has outlined in their environmental accident assessment and accident management plan that in

the event of a spill they will use drain covers, isolate the surface water drains using a penstock valve, turn off the effluent discharge pumps and use a vacuum tanker to clear out any affected drains. They also have communication procedures in place to inform Anglian Water if a spill is discharged to the effluent treatment system and then on to foul sewer.

In the event of a failure of the effluent treatment system, the operator has outlined that the effluent can be tankered off, and that there is 24 hour tanker cover in place.

Conclusion

We are satisfied that the operator is taking appropriate measures to minimise the risk of pollution of groundwater, soil and surface water.

Site Condition Report

The site is located within an industrial estate with industrial and commercial neighbours. To the west of the site there is a railway line, allotments and a residential area. The operator's Site Condition Report (SCR) describes the superficial geology of the site as being made up of silty clay, with sand, gravel and peat layers. The bedrock is the mudstone Kimmeridge Clay Formation. The geology under the site is recorded as unproductive strata which have negligible significance for water supply or river base flow.

The historical maps included in the SCR indicate that the site was undeveloped agricultural land until the 1960s when a potato processing plant was built close to what is now the main production building, and a warehouse was built on the south west part of the site. By the 1980s several tanks were constructed on site as well as additional buildings.

The operator has stated in their application that they do not have records of any pollution incidents on site that have reached the soil. There was a spill of hydrochloric acid in 2004 when a high level alarm on a storage tank failed, but the operator states that this was contained on an area of hardstanding and dealt with by applying sand. The operator has also outlined that there may be contamination of the soil with heavy fuel oil. In 2004 remediation of the heavy fuel oil tanks was undertaken. The SCR describes that these tanks were located adjacent to the current gas oil tank and had been in place for approximately 30 years. As part of the remediation work soils were removed off site for disposal. Heavy fuel oil contaminated soil was detected when installing a gas pipeline in 2014. The operator removed contaminated soil along the length of the pipeline, however they highlight that it is possible that there are other areas of the site that could be contaminated and which have not been investigated.

The operator undertook soil and groundwater samples in June 2014. The soil analysis indicates that some samples were contaminated with oil or fuel which the operator considers is likely attributable to background historical sources such as the historic heavy fuel oil leak. Total Petroleum Hydrocarbons were recorded in all soil samples. Polyaromatic Hydrocarbons were recorded in

most samples. Hydrocarbon contamination was also recorded in the groundwater samples taken.

During the period of sampling, a leak of up to 1000 litres of hydrochloric acid occurred as a result of a pump failure. The operator has described that the pump is located outside of the bund, which is why the acid escaped the bund. The operator has outlined that this spill was confined to hardstanding, and was contained using spill kits and sand. The groundwater samples taken two days afterwards in three boreholes located nearby did not indicate that the spill had migrated to the perched groundwater. The operator has detailed that they are taking steps to prevent a reoccurrence, by keeping a spare pump and associated parts on site, and changing the parts that failed on a monthly basis as preventative maintenance. In the long term they are researching options to 'design out' the use of this chemical for water treatment.

The SCR demonstrates that the site has been subject to historical contamination and there have been incidents on site that may have affected the soil and groundwater quality. The SCR recommends further quarterly monitoring in order to establish baseline conditions. However, this has not been undertaken. As more samples have not been taken we have confirmed with the operator that we will use the samples taken from the SCR to represent the baseline for the site.

Noise

The operator has undertaken a noise impact assessment to support their application. They have used British Standard (BS) 4142:1997. This standard was updated in late 2014. We would normally expect noise assessments to have been undertaken in line with the most recent version of the standard, but in this case we have allowed the operator to use the older version. This is because the monitoring was undertaken and the application was written before the new standard was available.

The operator undertook noise monitoring at locations around the site during a period when the site was identified as operating typically, and over the Easter weekend during a site shutdown. The installation operates 24 hours a day so measurements were taken in the day and at night. Noise monitoring was undertaken at three residential receptors near the site during the day and night. These were selected as they represent a group of receptors which are those likely to be the most affected by site noise, representing the three groups of residential receptors closest to the site.

The operator used the results of the noise monitoring to assess the impact that the noise from the installation may be having at the residential receptors. The operator has highlighted that the background noise levels over the period of plant shutdown may be atypical as the fact it was a bank holiday may have impacted the background noise level. We acknowledge this argument but we have to take a precautionary approach and consider that although the

background noise levels recorded during the bank holiday may be lower than usual, this represents a possible scenario, albeit infrequent.

The operator compared the ambient noise levels measured when the installation was operational and when it was shut down. This indicated that the operation of the installation has an effect on the noise levels at all three residential receptors. However they mention that when taking the measurements, the noise of the installation was not perceived to be as dominant as the data suggests, especially at the Park Homes receptor where the noise of the installation was 'only just noticeable at night'. For this reason they only calculated the specific noise level due to the installation for the King's Avenue and Chase Avenue receptors.

BS 4142:1997 assess the likelihood of complaints by subtracting the measured background noise level from either (a) the specific noise level, or if an acoustic feature correction has been applied, from (b) the rating level. The Standard suggests that a difference of around +10dB(A) or more is an indication that noise complaints are likely. The operator calculated that at the nearest receptor (King's Avenue) the difference was +13 dB(A). The difference was calculated to be +7 dB(A) at Chase Avenue. The operator did not apply the +5 dB(A) acoustic feature correction to the specific noise level. We consider adding the acoustic penalty to be precautionary as there is equipment on site which could emit these characteristics. The noise report states that these results should only be seen as indicative as the background level during the shut down was taken at an atypical period (over a bank holiday weekend). The noise report states that there is a risk of the installation giving rise to noise levels that would cause annoyance within the sensitive receptors.

The noise report suggests that confirmation of the specific noise level should be sought before completing a full Best Available Techniques (BAT) Assessment in line with our guidance document H3 Noise Assessment and Control. They have committed to undertaking further investigation into the noise from the site.

The operator mentioned in the noise impact assessment that they have received noise complaints in the past, but these were related to unscheduled works or activities. They received a noise complaint in July 2014 which related to general processing noise. The operator undertook an investigation and attributed this to a noisy cooling tower fan to the north of the site. The operator replaced the fan motor and the type of bearings used, and has added a step to their preventative maintenance schedule to ensure these are greased. They have also found that if necessary they could run at a reduced line capacity temporarily and only use one cooling tower if noise issues from the tower fans did arise again. The operator currently undertakes noise monitoring at the site boundary regularly. This demonstrates that they are actively monitoring their noise impact and taking steps where necessary to reduce this.

The operator has identified in their noise impact assessment that the currently non-operational nitrogen generation system has the potential to be noisy. The operator has detailed that the system initially caused noise issues, but that they constructed a building around this and this solved the problem. The nitrogen generation equipment is currently off line but has been included in the permit so the operator has the flexibility to use this equipment in the future.

After discussion with the Environment Agency, the operator has submitted a provisional noise management plan (NMP) that indicates what actions will be undertaken to investigate and manage noise emissions at the site. They will then submit a revised version of the plan within three months of permit issue. We have included an Improvement Condition (IC1) requiring the operator to submit a NMP for agreement with the Agency. This plan will include a BAT assessment and timescales for any improvement works.

Assessment of the Noise Management Plan

The operator proposes to develop the provisional NMP further by carrying out additional noise monitoring at sources and receptors and identify those sources for which mitigation would have the most impact. They will then undertake a BAT assessment to find appropriate mitigation options which they will discuss with us before providing a formal NMP which includes timescales for implementing improvements.

The operator has qualitatively estimated that the highest contribution to noise emissions come from the process cooling tower fans and the compressor cooling fans. These fans are subject to regular inspections, tests and maintenance which should help ensure they operate effectively, minimising their noise emissions. They have estimated that the stacks and the chiller and air handling units may also contribute to off site noise, and these will also be subject to regular inspection and maintenance. The impact of this equipment will be further monitored and assessed as part of the NMP and if necessary additional measures will be considered.

The site has a procedure for dealing with any complaints as part of their environmental management system. If the operator receives a complaint, they will investigate the source of the noise to see if it is from the site, and what the source is. If the noise issue can be readily solved, they will take action to do this. If the issue cannot be quickly addressed, the operator will seek to manage the issue in the short term until a long term solution can be found. Findings and actions will be reported to the complainant and the regulator on regularly.

We have reviewed the information the operator has provided and what they intend to provide in the full NMP against Appendix 4 of our H3 guidance on noise. Appendix 4 details what should be included in NMPs. We are satisfied that the operator has either provided or committed to provide the information needed in their NMP.

We have made a risk based decision to issue the permit without requesting a more detailed NMP at this time. When making this decision we considered the following factors:

- The operator will be undertaking ongoing maintenance of potentially noisy equipment which will minimise noise emissions.
- The operator has committed to recording complaints received and taking actions to remedy noise issues that arise.
- The operator has received complaints in the past, but they have detailed in the application how they resolved these, demonstrating a commitment to managing noise emissions.
- The operator has committed to undertaking further monitoring and investigation and producing a more detailed NMP plan within three months of the permit being issued, in accordance with our proposed improvement condition.

Emissions to air

Emissions from boilers

Emission points A1 and A2 are the release points serving two natural gas boilers (which can run on gas oil if the natural gas supply is interrupted) with a combined thermal input of 19.06MWth. The operator has undertaken detailed air dispersion modelling of emissions from these boilers to support their application. The operator has undertaken some emissions monitoring of the two boilers while they are running on natural gas, but as this was only undertaken for a short period of time these values were considered indicative. The operator has instead used emission limit values (ELVs) in the modelling which are taken from DEFRA guidance document 'AQ23(04), Amendments of PG 1/3(95) Boilers and Furnaces, 20-50 MW Net Rated Thermal input, 6 October 2004'. This guidance document has since been superseded by 'Process Guidance Note 1/03 (12) Statutory Guidance for Boilers and Furnaces 20-50MW thermal input June 2012'. The emission limit values in this guidance do not apply to these boilers but have been selected in the absence of more specific guidance, which we consider is an acceptable approach.

However, we note that the measured average daily results for NO_x and CO are lower than the ELVs modelled so the modelling in this respect could be conservative. As these boilers have been operating since 1976 and 1983, the emissions will be also be reflected in the background levels, meaning that the modelling is conservative.

The operator has not considered emissions from particulates and sulphur dioxide from the boilers running on natural gas as they consider the emissions will be negligible. We consider natural gas to represent a sulphur free fuel, in accordance with our guidance document 'Environmental Permitting

Regulations (EPR) 1.01 How to Comply with your Environmental Permit: Additional Guidance for Combustion Activities'. The impact from particulates has not been assessed as gas fired plant is unlikely to generate particulates in sufficient quantities to warrant abatement, this is more particularly an issue for solid fuel fired plant as outlined in our EPR 1.01 guidance document.

The operator first undertook a screening of emissions using our H1 assessment tool, for both natural gas and gas oil operations. This indicated that the emissions from the boilers (with the exception of carbon monoxide) required more detailed assessment. The process contribution (PC) for carbon monoxide screened out as insignificant under both fuel scenarios, so did not require further assessment. According to our H1 guidance Annex F on Air Emissions, process contributions can be considered insignificant if:

- The long term process contribution is <1% of the long term environmental standard; and
- The short term process contribution is <10% of the short term environmental standard.

When emissions cannot be considered insignificant, we need to consider the Predicted Environmental Concentration (PEC). For long term emissions this is considered as:

- $PEC \text{ long term} = PC \text{ long term} + \text{background concentration}$

It can be difficult to set a PEC for short term impacts as the worst case PC may not occur at the same time or place as the maximum background concentration. We use the following pragmatic approach as taken from our H1 Annex F guidance on Air Emissions:

- $PEC \text{ short term} = PC \text{ short term} + (2 \times \text{Background long term})$

We use the PEC to consider whether the EAL is likely to be exceeded.

Modelling

The operator has used two alternative methods to derive the short term background for short term particulate emissions in line with DEFRA guidance note LAQM TG(09):

Method 1: 90.4th percentile 24-hour mean background PM10 (16.9 µg/m³) plus the modelled annual mean process contribution PM10; or

Method 2: Modelled 90.4th percentile 24-hour mean process contribution plus the annual mean background contribution (16.9 µg/m³).

We have considered the results from both methods, and the H1 method. We have taken the PC from method 2 and included it in Table 2 below as this is the higher value.

The operator modelled the boilers running at a full load for a year on natural gas to model short and long term impacts. They also modelled the boilers running continuously on gas oil, but as gas oil will only be used if the national gas network is interrupted, they have only assessed short term impacts. We consider that this is a reasonable approach.

The operator has modelled results at a number of identified sensitive receptors in the vicinity of the site. They have also modelled the concentrations on a 1km by 1km grid around the site.

Boilers running on Natural Gas

Table 1 – Modelling results from boilers running on natural gas

Pollutant	Term	EAL µg/m ³	Background µg/m ³	PC µg/m ³	PC % of EAL	PEC µg/m ³	PEC % of EAL
NO ₂	Long	40	22	0.5	1.3	22.5	56
	Short	200	22	6	3	-	-

Table 1 shows the maximum modelled PCs at specified receptor locations. The results show that the short term PC for NO₂ screens out as insignificant as it is <10% of the EAL. The PC for the long term emissions cannot be screened out as insignificant as it is >1% of the EAL. However the PEC shows that the emissions are unlikely to cause an exceedance of the EAL. We are therefore satisfied that the emissions from the boilers when running on natural gas are unlikely to cause the EAL to be exceeded.

Boilers running on Gas Oil

The operator has used two different methods to derive the SO₂ 15 minute mean PC, in line with DEFRA guidance note LAQM TG(09). We have assessed the highest PC of the two methods as this represents a worst case, and reproduced this in Table 2.

Table 2 - Modelling results for boilers operating on gas oil (short term impacts only)

Pollutant	Short term averaging period	EAL µg/m ³	Background µg/m ³	PC µg/m ³	PC % of EAL	PEC	PEC % of EAL
NO ₂	1 hour mean (99.79th %ile)	200	22	9	4	-	-
PM10	24 hour mean (90.4th %ile)	50	16.9	1.9	4	-	-

SO ₂	15 minute mean (99.9th %ile)	266	2.64	20	7	-	-
	1 hour mean (99.7th %ile)	350	2.64	11	3	-	-
	24 hour mean (99.2nd %ile)	125	2.64	14	11	19.28	15.4

Table 2 shows the maximum modelled PCs at any location on the modelled grid for averaging periods of less than 24 hours. The PCs for the 24 hour averaging periods are the maximum modelled at the identified receptor. We consider that emissions from these boilers are unlikely to cause an exceedance of any short term EAL. All of the modelled process contributions in table 2 (with the exception of 24 hour SO₂) are less than 10% of the EAL, meaning they can be considered insignificant. As the emissions for a 24 hour SO₂ averaging period cannot be screened out as being insignificant, we have compared the short term PEC to the EAL. The headroom between the PEC and the EAL is evident from the table above. We therefore consider that the short term emissions are unlikely to cause the EAL to be exceeded.

Ecological Receptors

The operator also modelled the NO_x impacts on three ecological receptors. They looked at impacts on the River Nar Site of Special Scientific Interest (SSSI), Roydon Common Special Area of Conservation (SAC) and The Wash SAC. As the closest SAC/SPA/Ramsar is located more than 0.5km from the installation, the combustion process at the installation is not considered 'relevant' for assessment under the Agency's procedures which cover The Conservation of Habitats and Species Regulations (Natural Habitats &c.) Regulations 2010 (Habitats Regulations). This 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'. Thus no detailed assessment of the effect of the releases from the installation's combustion processes on SACs, SPAs and Ramsar sites is required. Although the AQTAG014 guidance only refers to SACs and SPAs, we consider that it is appropriate to apply the same rationale when considering the River Nar SSSI. As the SSSI is more than 0.5km from the installation, we don't consider it necessary to assess the impacts from these boilers on this site. We do not consider it likely that the boilers will cause damage to the SSSI.

There are a number of Local Wildlife Sites within 2km of the installation. There is one site within 0.5km of the site, approximately 370m north of the installation. We have concluded that emissions are unlikely to significantly affect the other local wildlife sites in the vicinity; as these sites are more than

0.5km from the installation we have decided that they do not need to be included in our assessment using the rationale as set out in AQTAG 014.

The operator has not modelled the effect of emissions to air on the nearest Local Wildlife Site which is located approximately 400m north of the installation. However, we have taken a risk based approach and consider that the installation is unlikely to cause significant pollution of this Local Wildlife Site due to (a) the fact that the operator will predominately be operating on natural gas, which produces less NO_x and SO₂ emissions than many other fuels, and (b) the indications that we have drawn from the modelling the operator has undertaken, as set out below.

We consider an installation unlikely to cause significant pollution of Local Wildlife Sites if the PC is below the critical levels from H1 Annex F. For SO₂, H1 Annex F only provides long term critical levels, but as the site would only be producing sulphur dioxide when running on gas oil for short amounts of time, we consider it unlikely that the annual PC from the installation will exceed the critical level. For NO_x (as NO₂), H1 Annex F gives an annual mean and a daily mean critical level. The maximum modelled long term NO₂ PC from Table 1 above, for the boilers running on natural gas, is 0.5µg/m³, which is equivalent to 1.7% of the critical level of 30µg/m³. This PC was determined for a receptor located approximately 275m due north of the installation on King's Avenue. The maximum modelled short term NO₂ PC from Table 1 is 6µg/m³, which is equivalent to 8% of the critical level of 75µg/m³. This PC was determined for a receptor located approximately 200m due north of the installation, again on King's Avenue. As both of the above receptor locations are closer to the installation than the Local Wildlife Site we are satisfied that the critical levels at the Local Wildlife Site will not be exceeded.

We would normally expect an operator to model nutrient nitrogen deposition and acid deposition in order to assess the potential impact on the Local Wildlife Site. The operator did not identify the Local Wildlife Site as a receptor so has not done this. We have considered our H1 Annex F guidance, which states that substances released to air do not need to be assessed for deposition to ground unless, where no MDR (maximum deposition rate) is available, the PC to air is greater than 1% of the relevant long term air standard. We have given consideration to the emissions of NO_x as it will be the predominant pollutant from the combustion of natural gas, and concluded that the PC is unlikely to exceed 1% of the relevant EAL at the Local Wildlife Site.

Conclusions for emissions to air from boilers

We have assessed the modelling undertaken by the operator and consider it is appropriate. We consider that the modelling demonstrates that the boiler emissions will not lead to an exceedance of any EALs. The emission limit

value for NOx from natural gas boilers based on the most up to date DEFRA guidance is 140mg/m³ rather than the 200mg/m³ modelled by the operator. However, as the modelled results show that the EAL is not likely to be exceeded we are satisfied that no further modelling work is currently required.

Other emissions to air

Emission points A3 and A4 are the exhaust for the diesel motors which power the fire sprinkler equipment. These are tested weekly for 30 minutes. The fire sprinklers would only be used for a prolonged period during an emergency situation. Based on the size of these motors and the fact they are used for such a short period of time each week we don't consider it likely that they will have a negative environmental impact.

Emission points A5, A8 and A9 are water vapour emission points from the retorts. Emission points A6 and A10 are water vapour emission points from cooling towers. We don't consider these emissions likely to have an environmental impact. The operator included an emission point A7 in their application, relating to an air conditioning unit, but as this piece of equipment is redundant it has not been included in the permit.

The site uses a range of refrigerants covered by the F Gas and Ozone Depleting Substances Regulations. They are controlling the emissions by undertaking regular leak detection inspections in line with Best Available Techniques (BAT).

Particulate emissions will be minimised by good housekeeping procedures, including keeping the process building doors closed and ensuring spillages of dusty materials are removed.

Based on the application information we are satisfied that emissions to air from the installation will not harm the environment.

Best Available Technique (BAT) assessment

Table 1 compares indicative BAT taken from our Food and Drink Sector Guidance Note (EPR) 6.10, and the measures proposed in the supporting information to the application.

Table 1 Comparison of Indicative BAT with key measures proposed by the operator

<i>Indicative BAT</i>	<i>Key measures proposed</i>
<p><i>1.1 Accident management</i></p> <p><i>Use automatic process controls backed-up by manual supervision, both to minimise the frequency of emergency situations and to maintain</i></p>	<p>The operator has detailed that they will be using a Process Logic Control (PLC) system to control aspects of the process such as filling and</p>

<p><i>control during emergency situations. Instrumentation will include, where appropriate, microprocessor control, trips and process interlocks, coupled with independent level, temperature, flow and pressure metering and high or low alarms.</i></p> <p><i>Use techniques and procedures to prevent overflowing of tanks - liquid or powder- (eg. level measurement displayed both locally and at the central control point, independent high-level alarms, high-level cut-off, and batch metering).</i></p>	<p>pasteurising. The PLC system has audible alarms. System interlocks will also be used. Section 2.1 below details other process control methods the operator will be using.</p> <p>The hydrochloric acid and caustic soda tanks have high level alarms in place.</p>
<p>1.2 Energy Efficiency</p> <p><i>Recover heat from, for example, ovens, dryers, fryers, evaporators, pasteurisers and sterilisers, where a plate heat exchanger has a regeneration capacity up to 94%.</i></p> <p><i>Minimise water use and use recirculating water systems.</i></p>	<p>Heat exchangers are in place on all retorts.</p> <p>Residual water from the end of a retort batch is reused to start the following batch.</p>
<p>2.1 Operating techniques <i>The guidance lists that the following measures should be used as appropriate:</i></p> <ul style="list-style-type: none"> • <i>Temperature measurement</i> • <i>Pressure measurement</i> • <i>Level measurement</i> • <i>Flow measurement</i> • <i>Flow control</i> 	<p>There is temperature and humidity control as part of raw material storage. There is temperature control as part of sauce preparation and pasteurisation activities.</p> <p>The flow rates are monitored as part of filling and pasteurisation.</p>
<p>2.7 Cleaning and sanitation</p> <p><i>Equipment design:</i></p> <ul style="list-style-type: none"> • <i>wherever practicable, process lines and operations that cause excessive spillage of material onto the floor should be modified to eliminate or reduce the problem</i> • <i>drains should be equipped with catchpots</i> • <i>you should optimise water pressure at jets, nozzles and orifices</i> 	<p>The system is contained and uses pipework to ensure spillage is minimised.</p> <p>Drains have catchpots to remove solids from the effluent. The operator uses high pressure/low volume hosing equipment to hose areas down.</p>

<p><i>Good housekeeping:</i></p> <ul style="list-style-type: none"> <i>• you should install trays to collect waste to prevent it falling to the floor</i> <i>• spilt material should be swept, shovelled or vacuumed rather than hosed down the drain</i> <i>• you should make sure that suitable dry clean-up equipment is always readily available</i> <p><i>Manual Cleaning</i></p> <ul style="list-style-type: none"> <i>• Trigger controls should be used on hand-held hoses and water lances to minimise the use of washdown water</i> <i>• High-pressure/low-volume systems should be used wherever practicable</i> <p><i>Cleaning-in-place (CIP):</i></p> <ul style="list-style-type: none"> <i>• automatic dosing of chemicals at correct concentrations</i> <i>• water-efficient spray devices</i> <p><i>Use dry clean-up techniques where practicable to reduce wastewater strength.</i></p>	<p>Trays are in place beneath the production lines to collect materials.</p> <p>Material spilt onto the floor is shovelled up and put in the appropriate bin. Cleaning equipment is available in all areas.</p> <p>Trigger controlled hand held hoses are used.</p> <p>High pressure guns are used to minimise water usage.</p> <p>Chemicals are dosed at the correct concentrations. Spray balls are used in some of the tanks.</p> <p>Dry clean up methods are used in the dry production areas.</p>
<p><i>3.2 Fugitive emissions</i></p> <p><i>1. Regularly inspect pipe joints, shaft seals and gaskets in the refrigeration plant using proprietary leak detection equipment.</i></p> <p><i>2. Ensure that a system log book is kept which records:</i></p> <ul style="list-style-type: none"> <i>• quantity of refrigerant and oil added to or removed from the system(s)</i> <i>• leakage testing results</i> <i>• location and details of specific leakage incidents.</i> 	<p>The operator has outlined that they will undertake these actions including undertaking leak detection and keeping a system log book.</p>

We consider that the measures outlined in the above table represent BAT for the facility.

Odour

Our guidance document 'How to Comply with Your Environmental Permit' indicates that odour is a key issue for the food and drink sector, and that applications for sites within this sector should include an odour management plan.

The operator has undertaken a qualitative risk assessment of odour sources, where they have identified possible odour sources as the effluent treatment screenings skip and discharge point, and the food waste storage skip. They have stated that the risk of odour from the effluent screening skip is managed by removing the skip frequently. The food waste skip is removed twice a week.

The operator has stated in their application that the site has been undertaking odour monitoring at the site boundary twice a month since January 2013 and that they have not recorded any odours. They also state that they have not received any substantiated odour complaints. They have committed to continuing to monitor odour at the site boundary.

As the site has no history of causing odour complaints since it has been operating, we have made a risk based decision not to request an odour management plan at this time. The permit contains the standard odour condition which will allow us to request an odour management plan if the activities result in odour pollution off-site.

Annex 1: decision checklist

This document should be read in conjunction with the application, supporting information and permit/notice.

Aspect considered	Justification / Detail	Criteria met Yes
Consultation		
Scope of consultation	<p>The consultation requirements were identified and implemented. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements.</p> <p>For this application we consulted the following bodies:</p> <ol style="list-style-type: none"> 1. King's Lynn and West Norfolk Borough Council Environmental Health 2. Anglian Water 3. Public Health England 4. Director of Public Health 5. Health and Safety Executive 6. King's Lynn Conservancy Board Harbour Authority 7. Eastern Sea Fisheries Committee - Local inshore fisheries and conservation authority 	✓
Responses to consultation and web publicising	<p>The web publicising and consultation responses (Annex 2) were taken into account in the decision.</p> <p>The application was publicised on our website from 2 April 2015 to 5 May 2015 but no comments were received.</p> <p>The decision was taken in accordance with our guidance.</p>	✓
Operator		
Control of the facility	<p>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 EPR RGN 1 Understanding the meaning of operator.</p>	✓
European Directives		
Applicable directives	<p>All applicable European directives have been considered in the determination of the application.</p>	✓
The site		
Extent of the site of the	<p>The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility.</p>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
facility	A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.	
Site condition report	<p>The operator has provided a description of the condition of the site.</p> <p>We consider this description is satisfactory. The decision was taken in accordance with our guidance on site condition reports and baseline reporting under IED– guidance and templates (H5). See key issues section for more details.</p>	✓
Biodiversity, Heritage, Landscape and Nature Conservation	<p>The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.</p> <p>The site is within 10km of two Special Areas of Conservation (SAC), a Special Protection Area (SPA) and three Ramsar sites. The site is within 2km of a Site of Special Scientific Interest and six local wildlife sites.</p> <p>As the closest SAC/SPA/Ramsar is located more than 0.5km from the installation, the combustion process at the installation is not considered 'relevant' for assessment under the Agency's procedures which cover The Conservation of Habitats and Species Regulations 2010 (Habitats Regulations). This 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.' Thus no detailed assessment of the effect of the releases from the installation's combustion processes on SACs, SPAs and Ramsar sites is required.</p> <p>A full assessment of the application and its potential to affect the sites has been carried out as part of the permitting process. We consider that the application will not affect the features of the sites. Due to the distance to the designated sites, the only mechanism for impact would be from emissions to air. The only emissions to air which are not water vapour are from the boilers (which are not relevant for habitats sites) and diesel motors for running the sprinkler system. As discussed in the key</p>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
	<p>issues section above, we consider that the air emissions from the site are not likely to have a negative environmental impact on the designated sites.</p> <p>We have not formally consulted on the application. The decision was taken in accordance with our guidance.</p> <p>An appendix 11 form was completed and sent to Natural England for information. An appendix 4 form was completed and saved in accordance with our guidance.</p>	
Environmental Risk Assessment and operating techniques		
Environmental risk	<p>We have reviewed the operator's assessment of the environmental risk from the facility.</p> <p>The operator's risk assessment is satisfactory.</p> <p>See key issues section for further details.</p>	✓
Operating techniques	<p>We have reviewed the techniques used by the operator and compared these with the relevant guidance notes.</p> <p>See key issues section for further details.</p>	✓
The permit conditions		
Improvement conditions	<p>Based on the information on the application, we consider that we need to impose improvement conditions.</p> <p>We have imposed improvement conditions to ensure that:</p> <ul style="list-style-type: none"> ➤ the appropriate measures are in place to prevent pollution from noise and vibration. <p>See key issues section for further details.</p>	✓
Incorporating the application	<p>We have specified that the applicant must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process.</p> <p>These descriptions are specified in the Operating Techniques table in the permit.</p>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
	We have incorporated the application and supporting information into the permit as these documents detail how the operator will run the facility in ways that will control the environmental risk associated with the installation.	
Emission limits	<p>We have decided that emission limits should be set for the parameters listed in the permit.</p> <p>We have set emission limits on the discharge of surface water run-off via emission points W1 and W2. See key issues section for further details.</p>	✓
Monitoring	<p>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.</p> <p>We have required monitoring of the discharge of surface water run-off via emission points W1 and W2. See key issues section for further details.</p>	✓
Reporting	<p>We have specified reporting in the permit.</p> <p>We made these decisions in accordance with Food and Drink Sector Guidance Note EPR 6.10</p>	✓
Operator Competence		
Environment management system	There is no known reason to consider that the operator will not have the management systems to enable it to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.	✓
Relevant convictions	<p>The National Enforcement Database has been checked to ensure that all relevant convictions have been declared.</p> <p>No relevant convictions were found. The operator satisfies the criteria in RGN 5 on Operator Competence.</p>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
Financial provision	There is no known reason to consider that the operator will not be financially able to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.	✓

Annex 2: Consultation and web publicising

Summary of responses to consultation and web publication and the way in which we have taken these into account in the determination process.

<i>Response received from</i>
Anglian Water
<i>Brief summary of issues raised</i>
<p>Anglian Water have confirmed that they have a trade effluent consent in place for waste water derived from the preparation and processing of food stuffs. However, they were not aware that the site discharges boiler blow down and condensate, and this is not covered in the existing consent. The amount that is declared in the application is different to that in the consent.</p> <p>They indicate that the operator has been 'fairly compliant with the conditions of the trade effluent consent' with six failures from samples taken in the last year. Most of the breaches were mainly because of fat, oil and grease. Anglian Water say that they are working with the operator to improve their compliance.</p> <p>They are not aware of any local issues relating to surface water quality. They have no issues relating to surface water or groundwater abstractions.</p> <p>They want us to remind the applicant that if they make changes on site that may affect the discharge they must seek permission from Anglian Water prior to making the change.</p>
<i>Summary of actions taken or show how this has been covered</i>
<p>Any discrepancy between what the site discharges to foul sewer and what is in their trade effluent consent is a compliance matter for Anglian Water and the operator to discuss. However we have made the operator aware of Anglian Water's comments and they have mentioned that they are corresponding with Anglian Water about their trade effluent consent.</p> <p>We acknowledge Anglian Water's comments on breaches of the trade effluent consent. As part of determination we have asked the operator to provide more information on how their cleaning processes are BAT and how they will be keeping solids out of the effluent. We have assessed their response and are satisfied that they are using BAT.</p> <p>Reminding the applicant that they must consult Anglian Water before making changes that affect their discharge is not the responsibility of the Environment Agency. It is a matter for Anglian Water as they are the issuing authority for the trade effluent consent.</p>

<i>Response received from</i>
Public Health England
<i>Brief summary of issues raised</i>
<p>PHE highlight that the operator has used Defra Guidance AQ23(04), Amendments of PG 1/3(95) Boilers and Furnaces, 20-50 MW Net Rated Thermal input, 6 October 2004 when assessing the risk from emissions from the boilers. This guidance document has now been replaced with Guidance note 1/03 (12).</p> <p>They mention that the applicant has failed to include details on the capacity for bunding for storage tanks. They also point out that the Site Condition Report states that the gas oil tank is rusting. They suggest that we may want to ensure the environmental permit includes appropriate conditions in relation to adequate bunding capacity and monitoring or repair of storage tanks.</p> <p>Based on the information provided, they have no significant concerns regarding risk to health providing the operator takes all appropriate measures to control pollution in line with the relevant sector guidance or industry best practice.</p> <p>They recommend that we consult the following organisations - the Local Authority, the Food Standards Agency and Director of Public Health.</p>
<i>Summary of actions taken or show how this has been covered</i>
<p>We acknowledge that this guidance has been superseded and have discussed this in the key issues section on emissions to air.</p> <p>The applicant has mentioned elsewhere in the application that all bunds will have a capacity of at least 110% of the capacity of the largest tank, or 25% of the total tank capacity, depending on which is greater. They have also committed to inspecting tanks weekly. The permit includes a standard condition requiring the operator to provide secondary containment or other appropriate measures to minimise leakage. We highlighted PHE's concerns about the rusting tank to the operator who had already undertaken thickness testing of the tank. The thickness testing concluded that the thickness is within expected limits for this type of vessel. We are satisfied that the tank is of adequate integrity, and that if a leak were to occur this would be contained within the bund.</p> <p>We have consulted with the Local Authority and Director of Public Health concerning this application. We have not consulted with the Food Standards Agency as we are not required to consult them on applications of this type. This decision was made in accordance with the agreed consultation screening criteria.</p>

<i>Response received from</i>
Director of Public Health, Norfolk County Council
<i>Brief summary of issues raised</i>
The Director of Public Health provided no comments but said that 'If necessary, we will respond after Public Health England has given it's assessment'. We received a response from Public Health England, but no further response from the Director of Public Health.
<i>Summary of actions taken or show how this has been covered</i>
None necessary.

<i>Response received from</i>
Eastern Inshore Fisheries and Conservation Authority
<i>Brief summary of issues raised</i>
No comments.
<i>Summary of actions taken or show how this has been covered</i>
None necessary.