

Permitting decisions

Variation

We have decided to grant the variation for Oakthorpe Dairy operated by Arla Foods Limited. The variation number is EPR/BN0465IG/V004.

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

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

Key issues of the decision

Description of the main features of the installation

Oakthorpe Dairy is located in an urban area of North London. The site covers an area of approximately 8.5 hectares and is roughly rectangular in shape. The site is shared with Nampak Plastics Europe Ltd who manufacture high density polyethylene bottles for the milk processed at the Arla site. The southern and eastern boundaries of the site are formed by Pymmes Brook, beyond which is a school and residential properties to the south and playing fields to the east. The western boundary of the site is formed by Chequers Way, beyond which are residential properties. The northern boundary of the site is formed by the fence line of residential properties.

The proposed changes under this variation are summarised below:

- Increase in production volume to a maximum of 550 million litres of raw milk from the currently permitted volume of 380 million litres. The theoretical maximum capacity of the site will remain unchanged at 620 million litres.
- Phased replacement and upgrading of onsite refrigeration equipment.
- Installation of a new high-speed filling line fed from existing processing equipment
- Alteration of the internal space currently allocated to the TET (Tetrainers) returns area and the 'medium care' area to accommodate the new filling line and maximise the utilisation of the existing space.
- Addition of a further tanker import bay.

Changes to the original description

The below schematic shows the process flow of the treatment of milk at the installation. The changes relating to this variation have been highlighted.

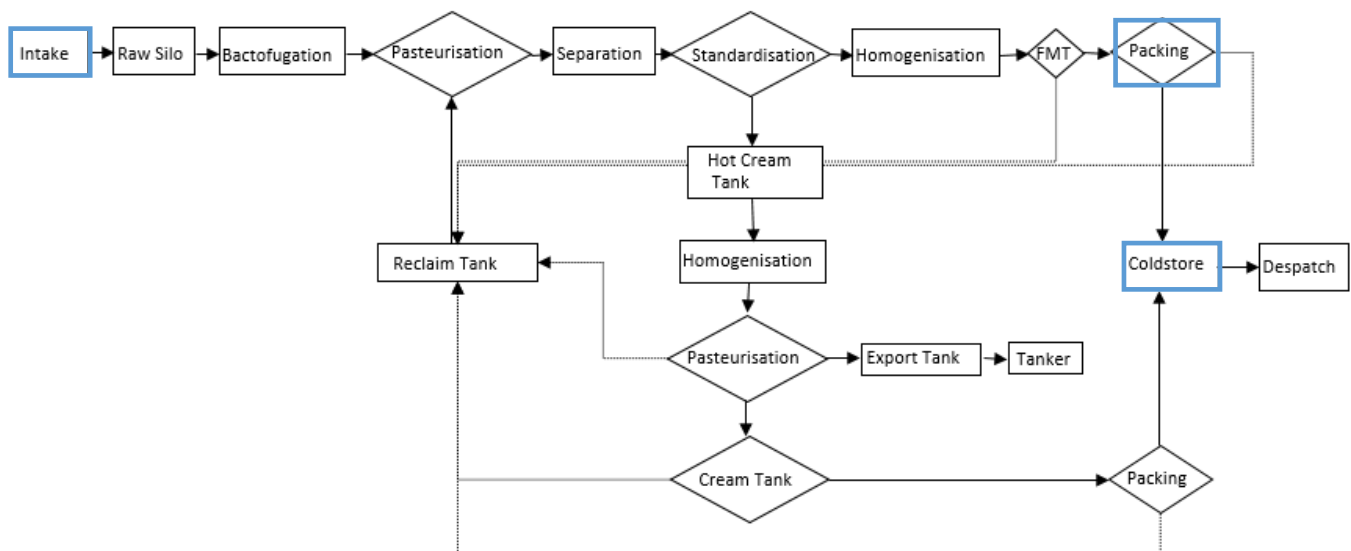


Figure 1: Treatment of Milk – Process Flow Diagram

Increase in production

As a result of increasing the production volume there will be a slight proposed increase in the volume of effluent generated due to the additional equipment that will require cleaning. As a consequence of the new equipment on site there is estimated to be a small increase in the volume of existing chemicals used of 0.5%. The Operator has confirmed that the increase in effluent generated will remain within the existing limit on their Thames Water trade effluent consent. The increase in water usage will be mitigated by a reduction in the number of changeovers that are likely to be required due to a change in product profiles.

The limiting factor within the processes carried out on site is the ability to pasteurise raw milk and cream prior to being stored. All raw milk and cream must pass through this step prior to processing. As the site's pasteurising capacity will not change as a result of the new filling line and tanker bay there will be no increase in overall theoretical production capacity as a result of this variation.

As a result of the variation there will be no changes in the raw materials, raw materials storage, production methods or range of products produced on site. There are no additional release points to the atmosphere, sewer or surface water as a result of this variation. All of the changes will take place entirely within the existing boundary of the installation.

Replacement of onsite refrigeration equipment

The replacement of refrigeration equipment will be undertaken in two phases:

- The first phase of the project is to replace and upgrade the existing cold store refrigeration plant to centralise, and upgrade the 2 existing systems into one plant.
- The second phase of the project is to install 2 two similar chillers and associated condensers to replace the existing process cooling system which comprises of the ammonia plant and the Evapco Cooling Tower. By the end of Phase 2 all of the existing refrigeration plant comprising of the existing Ammonia Plantroom, Evapco Cooling Tower, internal Bitzer and Sabroe Compressors, external roof mounted Condensers and Searle Condensers will no longer be operational.

The new ammonia refrigeration systems and associated chilled water secondary cooling systems will replace those currently serving the Creamery and Dairy sides of the site. The chillers will operate with ammonia as the primary refrigerant and expel the heat via air cooled condensers. The first phase is ready for immediate installation and commissioning with the second phase is planned for implementation during 2021.

The installation of the new equipment will provide energy efficiencies over the lifetime of the equipment. The system minimises the total energy consumption of the compressor motors and condenser fans by allowing the condensing pressure to vary. Similarly, to minimise compressor motor power usage, the controls are designed to elevate the evaporation pressure during periods of low load. These optimisations are automatic and not just at fixed design conditions or refrigeration demands.

The proposed installation of the new refrigeration equipment has been included in the acoustic assessment which has been assessed and the results can be found below.

Addition tanker unloading bay

The additional unloading bay (no.7) is situated on the western side of the installation alongside the existing 6 import bays. The inclusion of the new import bay will facilitate the site management of organic milk. All of the import bays are situated opposite Chequers Way. The new bay will be situated on an impermeable surface with a sealed drainage system which will divert any spillages and rainwater to the foul drain. This will be treated by the on-site DAF plant prior to discharge to the sewer, under the terms of the existing trade effluent consent with Thames Water. The new tanker unloading bay will be subject to the existing control measures.

Additional filling line

The filling hall currently contains 5 rotary fillers each with 2 integrated packers. A further high speed rotary filler will be installed to sit alongside the existing fillers and be line-fed from the existing processing equipment.

The filling hall is served by sealed drainage and captures any spillages via internal drains which feed into the onsite DAF plant.

Noise Impact Assessment

An acoustic report (Integrated Pollution Prevention & Control Acoustic Assessment, dated 28/09/2018) was submitted in support of the application. While the report focused on the proposed external changes at the site, i.e. the replacement of the refrigeration systems, which could contribute to the overall noise impact, it also sought to evaluate the existing noise level at various residential receptors near the installation, in order to inform the operator's ongoing noise strategy for the site. The impact assessment refers to guidance including BS4142:2014 Methods for rating and assessing industrial and commercial sound, and the Environment Agency publication Horizontal Guidance for Noise Part 2 – Noise Assessment and Control.

The operator's assessment involved the following steps:

1. Assessment of the noise impact at residential receptors due to sound from the existing installation
2. Consideration of the potential noise impact at residential receptors following the installation of the new refrigeration equipment, by comparing the existing noise due to the plant being replaced, with that from the new refrigeration plant.

Impact of existing activities

The potential impact due to the operation of the existing installation was determined in accordance with the methodology in British Standard BS4142:2014. The British Standard defines a number of parameters that are used in the assessment of industrial and commercial sound, which include:

- Specific sound level – sound levels at the assessment location due to only the sound source(s) being assessed;
- Rating level – specific sound level plus any adjustment for the characteristic features of the sound, so called 'acoustic penalties', such as tonal features (hums, whines), impulsivity (sound switching on and off, such as on a vehicle reversing alarm) and intermittency (an example is if you can notice the sound when it starts and stops and this occurs regularly);
- Ambient sound – totally encompassing sound in a given situation at a given time, usually composed of sound from many sources, near and far, including the specific sound source;
- Residual sound – ambient sound without the specific sound source, or where the specific sound level is so low that it does not affect the overall sound level; and
- Background sound level – sound level that is exceeded by the residual sound level at the assessment location for 90% of a given time interval.

The significance of industrial/ commercial sound depends on the difference between the rating level and the background sound level. Typically, the greater the difference, the greater the magnitude of the impact. A difference of around +10dB or more is likely to be an indication of a significant adverse impact, while a difference of around +5dB is likely to be an indication of an adverse impact. The lower the rating level is, the

less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. If the rating level does not exceed the background sound level, this is an indication of a low impact. BS4142:2014 requires that the assessment of potential impact takes into account the 'context' in which the sound occurs. This entails having a sufficient understanding of the situation to be rated and assessed, and placing the sound being assessed in context when making conclusions.

Plant shutdown survey

The aim of the Plant Shutdown Survey was to establish representative residual sound levels in the vicinity of residential receptors during the more sensitive part of the night when there was negligible sound from the installation, together with investigating the relative significance of sound at these locations due to the main items of existing plant at the site. This would inform the BS4142 noise impact assessment.

A preliminary scoping site visit was undertaken on Monday 6th August 2018. This enabled appropriate noise sensitive receptor locations to be identified at which sound level measurements would be taken at night whilst the site was largely shut down to enable the Ambient and Residual sound level at receptors to be measured. A site walkover was also undertaken to identify the principal sources of sound which would be measured in order to establish the level and character of sound produced by various items of plant and any acoustically significant activities.

Following this scoping exercise the subsequent attended acoustic surveys were carried out on the 15th and 16th August, and the 5th September 2018, during which a phased intermittent shutdown (but not a total shutdown) of various items of noisy plant was undertaken.

Four residential receptor locations (MP1-MP4) were selected for the plant shut down survey as follows:

- MP1: Northern site boundary adjacent to Effluent Pumps, approximately 8m above ground level to intersect the direct sound propagation path between rooftop sources and bedroom windows.
- MP2: Chequers Way at the entrance to Cherry Blossom Close, 5m above the road name sign closest to the apartment block directly opposite the incoming milk bays, to provide a proxy for the upper floor bedroom windows of the adjacent dwellings.
- MP3: Tile Kiln Lane 5m above the fence adjacent to the apartment block closest to the south eastern corner of the site, to provide a proxy for the upper floor bedroom windows of the adjacent dwellings.

MP4: 5m above ground level at the front of the two dwellings at the north end of Steeplestone Close, with a direct sound propagation path to sources on site, to provide a proxy for the upper floor bedroom windows of the adjacent dwellings.

The Specific sound level at receptors MP1-MP4 has been calculated in two ways: (1) by using the measurements of the Ambient sound and Residual sound observed at each receptor during the plant shutdown survey; and (2) by measuring the sound produced by the various on-site sources under investigation followed by the use of propagation equations to calculate the sound level at each receptor. The acoustic report identifies various uncertainties associated with both methodologies and therefore uses a worse case 'Cumulative Specific level at Receptor', which has then been adjusted for any acoustic penalties to give the Rating level. This was compared with the background level, to give an initial estimate the level of any potential impact due to the existing installation. The results of the operator's assessment, as tabulated in section 7.23 of their acoustic report are reproduced below:

	MP1 North Access Road/ Mitchell Road	MP2 Chequers Way	MP3 Tile Kiln Lane	MP4 Steeplestone Close
Residual sound level	Circa 52dB _{LAeq,T}	Circa 56dB _{LAeq,T}	Circa 47dB _{LAeq,T}	Circa 41dB _{LAeq,T}
Background sound level	Circa 47dB _{LA90,T}	Circa 51dB _{LA90,T}	Circa 44dB _{LA90,T}	Circa 39dB _{LA90,T}
Cumulative Specific Level at Receptor	Circa 45 – 50dB _{LAeq,60min}	Circa 50 – 55dB _{LAeq,60min}	Probably around 45dB _{LAeq,60min}	Around 40dB _{LAeq,60min}
Rating Penalty	0	Circa 5 (depending on location)	4	0
Cumulative Rating Level at Receptor	Circa 45 – 50dB _{LAeq,60min}	Circa 55 – 60dB _{LAeq,60min}	Circa 50dB _{LAeq,60min}	Around 40dB _{LAeq,60min}
Excess over background sound level	Circa -2 to +3dB	Circa +5 to +10dB	Circa +5dB	Approx. 0dB
Initial Estimate	An indication of the specified sound source having a low impact, depending on the context	Likely to be an indication of an adverse impact, depending on the context	Likely to be an indication of an adverse impact, depending on the context	An indication of the specified sound source having a low impact, depending on the context

The results indicate a low impact for dwellings along Mitchell Road and Steeplestone Close (MP1 & MP4), a potential adverse impact for dwellings along Tile Kiln Lane (MP3), and a potential adverse to significant adverse impact for dwellings along Chequers Way (MP2), all dependent upon the 'context' of the assessment situation. The report discusses uncertainty in the results, stating that they represent a current worst case scenario, based on an assumption that all of the plant operates at maximum capacity. The operator contends that in reality, only some of the plant will be operating at maximum capacity at any one time, and as a result the actual sound levels experienced at residential receptors are likely to be lower than their worst case scenario results shown above. We consider nonetheless that the results above may represent an underestimation of the potential impact because the operator did not undertake a total plant shutdown during the time of the attended acoustic survey, nor did they identify any alternative locations at which to establish background L_{A90} levels.

Consideration of noise impact due to new refrigeration plant and equipment

The operator has used the sound measurements recorded during the on-site attended surveys for each item of plant that is being replaced, and calculated the noise level at each of the 4 receptors, attributable to that plant in isolation. They then undertook the same calculation for the new proposed refrigeration plant in isolation, using sound level data from the manufacturers of the new plant, to calculate the noise level at each receptor. Their results show that when considered in isolation, the noise experienced at the receptors due to the new plant could be anywhere from 11dB to 25dB quieter than with the plant that is being replaced. The greatest potential noise reduction has been calculated for the receptor at Chequers Way (MP2), at 25dB. The operator's conclusion states that "replacing the refrigeration plant reduces the corresponding sound pressure level due to this plant in isolation by around 10dBA or more at the various receptors."

The results above however need to be viewed in context, in that they only they relate to the potential noise reductions due to the replacing the refrigeration equipment only, and do not reflect the overall noise from the installation that could be experienced at the receptors once the new plant is operational. In this respect the operator has not determined the impact at receptors from the installation (with the new plant in place) but rather has attempted to demonstrate that the new plant should result in an improvement over the existing situation, or at very least not make the existing situation worse. They have confirmed that none of the proposed replacement equipment will be situated on the roof of the installation or installed at an elevated position. Furthermore they state that upon completion of the second phase five of the most significant noise sources from the site will have been removed.

They conclude in their report that “whilst the phased improvements on site will not have an overall significant effect on the sound level at the receptors, when considered as part of a longer term noise reduction strategy the replacement of the equipment will enable further reductions in the overall sound level to be achieved as other plant is replaced in the future.”

We have audited the operator’s assessment report and supporting acoustic data. Based on the information submitted we are satisfied that the proposed changes will not have an increased noise impact at the named residential receptors, and should result in a slight, but probably imperceptible improvement over the existing situation.

Improvement Conditions

Existing operations

The operator’s noise impact assessment due to their existing operations indicates an adverse to significant adverse impact upon properties at Chequers Way. Our view is that additional noise controls are required and need to be implemented by the operator now. We have therefore included an Improvement Condition (IC1) in the varied permit requiring the operator to identify and propose additional attenuation measures from the site operations to mitigate the effects on the receptors located in the properties which back onto Chequers Way and overlook the eastern side of the dairy, i.e. the milk tanker offloading bays area of the site.

Future operations

We have also included an Improvement Condition (IC2) in the varied permit requiring the operator to undertake a new noise impact assessment in accordance with BS4142:2014 within 6 months of the completion of the second phase of the refrigeration equipment replacement (which is unlikely to be before 2021.) The IC will require that the operator evaluates the potential impact of the installation (including the new plant) upon local receptors, verifying any conclusions from this variation application, and based on the results of the assessment, identify additional mitigation measures if necessary to bring about further reductions in noise levels at any adversely impacted receptors.

Application of Best Available Techniques (BAT)

The Operator has stated that the proposed changes to the refrigeration plant will incorporate the following mitigation measures to reduce noise emissions:

- The use of acoustic screening which will provide the condensers with better than 5dBA attenuation to the nearest receptors.
- The replacement chillers will be situated within the ‘Chiller Plantroom’ or enclosures which will reduce the tonality. This will reduce the significance of sound from the refrigeration plant so that it is no longer significant at the nearest noise sensitive receptor locations.
- Regular maintenance of onsite equipment including fans, pumps motors and mobile plant.

- Regular maintenance of all attenuation measures in place.
- Regular monitoring of the noise emissions from the site.
- Consideration of the timing and location of noisy activities and vehicle movements

We consider that the above measures represent BAT and broadly follow the noise hierarchy outlined in our H3, Part 2 guidance on 'Noise Assessment and Control'.

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/Engagement	
Consultation	<p>The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement.</p> <p>The application was publicised on the GOV.UK website.</p> <p>We consulted the following organisations:</p> <ul style="list-style-type: none"> • Environmental Health (Enfield Council) • Local Planning Authority (Enfield Council) <p>No responses were received.</p>
The site	
Extent of the site of the facility	The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility. The plan is included in the permit.
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>We have assessed the application and its potential to affect all known sites of nature conservation identified in the nature conservation screening report as part of the permitting process. The following European protected sites are within 10,000m of the installation;</p> <ul style="list-style-type: none"> • Epping Forest (Special Areas of Conservation) • Lee Valley (Special Protection Areas) • Lee Valley (Ramsar) <p>In addition the site is within 2,000m of 15 Local Wildlife sites.</p> <p>We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified.</p> <p>There are no proposed changes to the processes or activities carried out on site. The changes incorporated within this variation are to increase the production volume and phased replacement and</p>

Aspect considered	Decision
	<p>upgrading of onsite refrigeration equipment. There are no anticipate increases of air or water emissions to the surrounding environment.</p> <p>We have not consulted Natural England on the application. The decision was taken in accordance with our guidance.</p>
Environmental risk assessment	
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>
Operating techniques	
General operating techniques	<p>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.</p> <p>The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.</p>
Permit conditions	
Updating permit conditions during consolidation	<p>We have updated permit conditions to those in the current generic permit template as part of permit consolidation. The conditions will provide the same level of protection as those in the previous permit(s).</p>
Improvement programme	<p>Based on the information on the application, we consider that we need to impose an improvement programme.</p> <p>We have imposed an improvement programme as described in the Key Issues section.</p>
Emission limits	<p>No emission limits have been added, amended or deleted as a result of this variation.</p>
Monitoring	<p>Monitoring has not changed as a result of this variation.</p>
Reporting	<p>Reporting has not changed as a result of this variation.</p>
Operator competence	
Management system	<p>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.</p>
Growth Duty	
Section 108 Deregulation Act 2015 – Growth duty	<p>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.</p> <p>Paragraph 1.3 of the guidance says:</p>

Aspect considered	Decision
	<p data-bbox="595 264 1425 477">“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.”</p> <p data-bbox="595 521 1425 701">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.</p> <p data-bbox="595 745 1425 925">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.</p>

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

No comments or response received from the following organisations
<ul style="list-style-type: none">• Environmental Health (Enfield Council)• Local Planning Authority (Enfield Council)