

EPR review of an Environmental Permit for an Installation subject to Chapter II of the Industrial Emissions Directive under the Environmental Permitting (England & Wales) Regulations 2016 (as amended)

Decision document recording our decision-making process following review of a permit

The Permit number is: EPR/CP3538JY
The Operator is: Dairygold Food Ingredients (UK) Limited
The Installation is: Dairygold Crewe
This Variation Notice number is: EPR/CP3538JY/V002

What this document is about

Article 21(3) of the Industrial Emissions Directive (IED) requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication by the European Commission of updated decisions on best available techniques (BAT) Conclusions.

We have reviewed the permit for this installation against the BAT Conclusions for the Food, Drink and Milk Industries published on 4th December 2019 in the Official Journal of the European Union. In this decision document, we set out the reasoning for the consolidated variation notice that we have issued.

It explains how we have reviewed and considered the techniques used by the Operator in the operation and control of the plant and activities of the installation. It is our record of our decision-making process and shows how we have taken into account all relevant factors in reaching our position.

As well as considering the review of the operating techniques used by the Operator for the operation of the plant and activities of the installation, the consolidated variation notice takes into account and brings together in a single document all previous variations that relate to the original permit issue. Where this has not already been done, it also modernises the entire permit to reflect the conditions contained in our current generic permit template.

The introduction of new template conditions makes the Permit consistent with our current general approach and with other permits issued to Installations in this sector. Although the wording of some conditions has changed, while others have been deleted because of the new regulatory approach, it does not reduce the level of environmental protection achieved by the Permit in any way. In this document, we therefore address only our determination of substantive issues relating to the new BAT Conclusions.

We try to explain our decision as accurately, comprehensively and plainly as possible. Achieving all three objectives is not always easy, and we would welcome any feedback as to how we might improve our decision documents in future.

How this document is structured

1. Our decision
2. How we reached our decision
3. The legal framework
4. Annex 1 – Review of operating techniques within the Installation against BAT Conclusions.

5. Annex 2 – Review and assessment of changes that are not part of the BAT Conclusions derived permit review
6. Annex 3 – Improvement Conditions

1 Our decision

We have decided to issue the Variation Notice to the Operator. This will allow the Operator to continue to operate the Installation, subject to the conditions in the Consolidated Variation Notice that updates the whole permit.

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

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

2 How we reached our decision

2.1 Requesting information to demonstrate compliance with BAT Conclusion techniques

We issued a Notice under Regulation 61(1) of the Environmental Permitting (England and Wales) Regulations 2016 (a Regulation 61 Notice) on 25/03/2022 requiring the Operator to provide information to demonstrate where the operation of their installation currently meets, or how it will subsequently meet, the revised standards described in the relevant BAT Conclusions document.

The Notice required that where the revised standards are not currently met, the operator should provide information that:

- describes the techniques that will be implemented before 4 December 2023, which will then ensure that operations meet the revised standards, or
- justifies why standards will not be met by 4 December 2023, and confirmation of the date when the operation of those processes will cease within the Installation or an explanation of why the revised BAT standards are not applicable to those processes, or
- justifies why an alternative technique will achieve the same level of environmental protection equivalent to the revised BAT standards described in the BAT Conclusions.

Where the Operator proposed that they were not intending to meet a BAT standard that also included a BAT Associated Emission Level (BAT-AEL) described in the BAT Conclusions Document, the Regulation 61 Notice required that the Operator make a formal request for derogation from compliance with that BAT-AEL (as provisioned by Article 15(4) of IED). In this circumstance, the Notice identified that any such request for derogation must be supported and justified by sufficient technical and commercial information that would enable us to determine acceptability of the derogation request.

The Regulation 61 Notice response from the Operator was received on 25/07/2022.

We considered it was in the correct form and contained sufficient information for us to begin our determination of the permit review [but not that it necessarily contained all the information we would need to complete that determination].

The Operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 61 Notice response that appears to be confidential in relation to any party.

2.2 Review of our own information in respect to the capability of the Installation to meet revised standards included in the BAT Conclusions document

Based on our records and previous experience in the regulation of the installation we consider that the Operator will be able to comply with the techniques and standards described in the BAT Conclusions other than for those techniques and requirements described in BAT Conclusion BATc 9 refrigerants. In relation to this BAT Conclusion, we do not fully agree with the Operator in respect of their current stated capability as recorded in their response to the Regulation 61 Notice. We have therefore included Improvement Condition 4 in the Consolidated Variation Notice to ensure that the requirements of the BAT Conclusions are delivered within 3 months of the variation being issued.

2.3 Requests for further information during determination

Although we were able to consider the Regulation 61 Notice response generally satisfactory at receipt, we did in fact need more information in order to complete our permit review assessment, and issued a further information request on 09/04/2024. We requested further information on the sites Energy Efficiency Plan, refrigerants and water recycling and reuse. A copy of the further information request was placed on our public register.

3 The legal framework

The Consolidated Variation Notice will be issued under Regulations 18 and 20 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* as described by the IED;
- subject to aspects of other relevant legislation which also have to be addressed.

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

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

Annex 1: decision checklist regarding relevant BAT Conclusions

BAT Conclusions for the Food, Drink and Milk Industries, were published by the European Commission on 4 December 2019.

There are 37 BAT Conclusions.

BAT 1 – 15 are General BAT Conclusions (Narrative BAT) applicable to all relevant Food, Drink and Milk Installations in scope.

BAT 16 – 37 are sector-specific BAT Conclusions, including Best Available Techniques Associated Emissions Levels (BAT-AELs) and Associated Environmental Performance Levels (BAT-AEPLs):

BAT 16 & 17	BAT Conclusions for Animal Feed
BAT 18 – 20	BAT Conclusions for Brewing
BAT 21 – 23	BAT Conclusions for Dairies
BAT 24	BAT Conclusions for Ethanol Production
BAT 25 & 26	BAT Conclusions for Fish and Shellfish Processing
BAT 27	BAT Conclusions for Fruit and Vegetable Processing
BAT 28	BAT Conclusions for Grain Milling
BAT 29	BAT Conclusions for Meat Processing
BAT 30 – 32	BAT Conclusions for Oilseed Processing and Vegetable Oil Refining
BAT 33	BAT Conclusions for Soft Drinks and Nectar/Fruit Juice Processed from Fruit and Vegetables
BAT 34	BAT Conclusions for Starch Production
BAT 35 – 37	BAT Conclusions for Sugar Manufacturing

This annex provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This annex should be read in conjunction with the Consolidated Variation Notice.

The overall status of compliance with the BAT conclusion is indicated in the table as:

NA – Not Applicable

CC – Currently Compliant

FC – Compliant in the future (within 4 years of publication of BAT Conclusions)

NC – Not Compliant

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
GENERAL BAT CONCLUSIONS (BAT 1-15)			
1	<p>Environmental Management System - Improve overall environmental performance.</p> <p>Implement an EMS that incorporates all the features as described within BATc 1.</p>	CC	<p>The operator has provided information to support compliance with BATc 1. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 1.</p> <p>The operator has an EMS externally accredited to the ISO14001 standard and the certification has been provided.</p>
2	<p>EMS Inventory of inputs & outputs. Increase resource efficiency and reduce emissions.</p> <p>Establish, maintain and regularly review (including when a significant change occurs) an inventory of water, energy and raw materials consumption as well as of waste water and waste gas streams, as part of the environmental management system (see BAT 1), that incorporates all of the features as detailed within the BATCs.</p>	CC	<p>The operator has provided information to support compliance with BATc 2. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 2.</p> <p>The operator confirms the site tracks energy, raw material and water use along with waste disposed of.</p>
3	<p>Monitoring key process parameters at key locations for emissions to water.</p> <p>For relevant emissions to water as identified by the inventory of waste water streams (see BAT 2), BAT is to monitor key process parameters (e.g. continuous monitoring of waste water flow, pH and temperature) at key locations (e.g. at the inlet and/or outlet of the pre-treatment, at the inlet to the final treatment, at the point where the emission leaves the installation).</p>	CC	<p>The operator has provided information to support compliance with BATc 3. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 3.</p> <p>Annual sampling for TSS, COD, pH, oil and grease is carried out by the sewerage operator.</p> <p>This is considered acceptable as BATc 3 is aimed at effluent treatment plants (ETPs) to ensure operators have effective control of their ETP.</p>

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
			<p>This site does not produce a continuous effluent stream and does not have an effluent treatment plant. The operator states effluent is produced once per week at the weekly hygiene clean. They state more regular water cleaning is not carried out due to the risks of listeria transmission in water and cheese manufacture.</p> <p>Waste water volumes are calculated by water use minus and allowance set by the water company for welfare facilities.</p>
4	<p>Monitoring emissions to water to the required frequencies and standards. BAT is to monitor emissions to water with at least the frequency given [refer to BAT 4 table in BATc] and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.</p>	N/A	<p>BATc 4 applies in the case of direct discharge of effluent to a water body. All process effluent from the site is discharged to sewer.</p> <p>We are therefore satisfied that BATc 4 is not applicable for this site.</p>
5	<p>Monitoring channelled emissions to air to the required frequencies and standards. BAT is to monitor channelled emissions to air with at least the frequency given and in accordance with EN standards.</p>	N/A	<p>The site processes hard cheese into grated and sliced products, no drying is undertaken and as such the relevant BAT monitoring requirements for the dairy sector do not apply.</p> <p>We are therefore satisfied that BATc 5 is not applicable for this site</p>
6	<p>Energy Efficiency In order to increase energy efficiency, BAT is to use an energy efficiency plan (BAT 6a) and an appropriate combination of the common techniques listed in technique 6b within the table in the BATc.</p>	CC	<p>The operator has provided information to support compliance with BATc 6. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 6.</p> <p>The operator submitted an Energy Efficiency Plan. They also submitted a document detailing the companies aims for sustainability and confirmed a programme of works is in</p>

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
			place to install LED lighting and investigate the feasibility of installing solar panels.
7	<p>Water and wastewater minimisation</p> <p>In order to reduce water consumption and the volume of waste water discharged, BAT is to use BAT 7a and one or a combination of the techniques b to k given below.</p> <ul style="list-style-type: none"> (a) water recycling and/or reuse (b) Optimisation of water flow (c) Optimisation of water nozzles and hoses (d) Segregation of water streams <p>Techniques related to cleaning operations:</p> <ul style="list-style-type: none"> (e) Dry cleaning (f) Pigging system for pipes (g) High-pressure cleaning (h) Optimisation of chemical dosing and water use in cleaning-in-place (CIP) (i) Low-pressure foam and/or gel cleaning (j) Optimised design and construction of equipment and process areas (k) Cleaning of equipment as soon as possible 	CC	<p>The operator has provided information to support compliance with BATc 7. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 7.</p> <p>The site does not manufacture cheese, receiving hard cheese, which is processed by slicing, grating and mixing with dry ingredients such as starch. The operator confirms there are no pipe systems or plant with blocks of cheese manually moved.</p> <p>Water recycling is not undertaken on site. The operator confirms the only water produced is in the weekly manual washdown clean which they state could only be used for infrequent yard washing. Storing such water for lengthy periods is not appropriate.</p> <p>The operator confirms the weakly manual clean is undertaken using a washdown system with dilution control in the grated hall and manual hoses with triggers in the slices hall.</p> <p>During the remainder of the week, no water is used within the process with dry cleaning and scraping used.</p>
8	<p>Prevent or reduce the use of harmful substances</p> <p>In order to prevent or reduce the use of harmful substances, e.g. in cleaning and disinfection, BAT is to use one or a combination of the techniques given below.</p> <ul style="list-style-type: none"> (a) Proper selection of cleaning chemicals and/or disinfectants (b) Reuse of cleaning chemicals in cleaning-in-place (CIP) 	CC	<p>The operator has provided information to support compliance with BATc 8. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 8.</p>

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	(c) Dry cleaning (d) Optimised design and construction of equipment and process areas		<p>The operator has provided a list of the chemicals and substances used on site. They use a professional cleaning company to carry out the weekly wet hygiene clean.</p> <p>Between the weekly wet clean and during product changeovers dry cleaning and scraping is used.</p>
9	<p>Refrigerants</p> <p>In order to prevent emissions of ozone-depleting substances and of substances with a high global warming potential from cooling and freezing, BAT is to use refrigerants without ozone depletion potential and with a low global warming potential.</p>	FC	<p>The operator has provided information to support compliance with BATc 9. We have assessed the information provided and we are not satisfied that the operator has demonstrated compliance with BATc 9.</p> <p>The site provided details of the refrigeration equipment used in the production process. Some systems use high GWP refrigerants - R404A, R410A and R-134a. The operator provided their fluorinated gas procedure which sets out the management of F-Gas systems, servicing etc but doesn't specify a timescale for replacement.</p> <p>We have therefore included IC4 in order to achieve compliance.</p>
10	<p>Resource efficiency</p> <p>In order to increase resource efficiency, BAT is to use one or a combination of the techniques given below:</p> <p>(a) Anaerobic digestion (b) Use of residues (c) Separation of residues (d) Recovery and reuse of residues from the pasteuriser (e) Phosphorus recovery as struvite (f) Use of waste water for land spreading</p>	CC	<p>The operator has provided information to support compliance with BATc 10. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 10.</p> <p>The operator confirmed waste cheese unfit for human consumption such as tray & floor waste and the contents of fat traps is sent for anaerobic digestion.</p>

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
			Waste cheese that is fit for human consumption (offcuts etc) is sold for cheese powdering to other food manufacturers
11	<p>Waste water buffer storage In order to prevent uncontrolled emissions to water, BAT is to provide an appropriate buffer storage capacity for waste water.</p>	CC	<p>The operator has provided information to support compliance with BATc 11. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 11.</p> <p>Dry cleans are performed during the week at product changeovers and if contamination is found. Wet cleans take place only once per week.</p> <p>The operator confirms every drain in the production areas are fitted with a catchpits. These are emptied and cleaned after each wet clean.</p> <p>There are two fat traps, one outside each production hall. Gross debris is removed from the production equipment before the wet clean commences. Cheese contaminated water passes through catch pits and into the drains. The drain is filtered for grease and solid deposits by the fat traps (1100L each). These are emptied and cleaned every 3 months.</p> <p>There is an expansion tank in-line after the inspection chamber on the Special product Development (SPD) fat trap. This holds fat and grease if the fat trap became overloaded.</p> <p>There is no diversion tank at the grating hall fat trap location. The operator confirms they have sandbags and rope located in a shed at</p>

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
			the front perimeter of the site. The purpose of these is to block off the drains leaving the site in the event of a flood or if fire water had to be used. They can also be used if the fat trap overloaded. They would be dropped into the inspection chamber or at the drain access point further along, which would prevent any significant discharge to the sewer.
12	<p>Emissions to water – treatment</p> <p>In order to reduce emissions to water, BAT is to use an appropriate combination of the techniques given below.</p> <p>Preliminary, primary and general treatment</p> <p>(a) Equalisation</p> <p>(b) Neutralisation</p> <p>(c) Physical separate (eg screens, sieves, primary settlement tanks etc)</p> <p>Aerobic and/or anaerobic treatment (secondary treatment)</p> <p>(d) Aerobic and/or anaerobic treatment (eg activated sludge, aerobic lagoon etc)</p> <p>(e) Nitrification and/or denitrification</p> <p>(f) Partial nitrification - anaerobic ammonium oxidation</p> <p>Phosphorus recovery and/or removal</p> <p>(g) Phosphorus recovery as struvite</p> <p>(h) Precipitation</p> <p>(i) Enhanced biological phosphorus removal</p> <p>Final solids removal</p> <p>(j) Coagulation and flocculation</p> <p>(k) Sedimentation</p> <p>(l) Filtration (eg sand filtration, microfiltration, ultrafiltration)</p> <p>(m) Flotation</p>	CC	<p>The operator has provided information to support compliance with BATc 12. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 12.</p> <p>Effluent treatment is not undertaken onsite however given the site discharges effluent only once per week under Trade Effluent Consent to sewer this is considered acceptable.</p>
13	<p>Noise management plan</p> <p>In order to prevent or, where that is not practicable, to reduce noise emissions, BAT is to set up, implement and regularly review a noise management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements:</p>	N/A	A noise management plan is only required where noise nuisance at sensitive receptors is expected or has been substantiated. There have been no substantiated noise nuisance

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<ul style="list-style-type: none"> - a protocol containing actions and timelines; - a protocol for conducting noise emissions monitoring; - a protocol for response to identified noise events, eg complaints; - a noise reduction programme designed to identify the source(s), to measure/estimate noise and vibration exposure, to characterise the contributions of the sources and to implement prevention and/or reduction measures. 		<p>from the site therefore an NMP is not a requirement for this site.</p> <p>We are satisfied that BATc 13 is not applicable to this site.</p>
14	<p>Noise management</p> <p>In order to prevent or, where that is not practicable, to reduce noise emissions, BAT is to use one or a combination of the techniques given below.</p> <p>(a) Appropriate location of equipment and buildings</p> <p>(b) Operational measures</p> <p>(c) Low-noise equipment</p> <p>(d) Noise control equipment</p> <p>(e) Noise abatement</p>	CC	<p>The operator has provided information to support compliance with BATc 14. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 14.</p> <p>The operator confirms production machinery is located within insulated production halls and a planned preventive maintenance schedule is in place for all equipment.</p>
15	<p>Odour Management</p> <p>In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to set up, implement and regularly review an odour management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements:</p> <ul style="list-style-type: none"> - a protocol containing actions and timelines; - a protocol for conducting odour monitoring. - a protocol for response to identified odour incidents eg complaints; - an odour prevention and reduction programme designed to identify the source(s); to measure/estimate odour exposure: to characterise the contributions of the sources; and to implement prevention and/or reduction measures. 	N/A	<p>An odour management plan is only required where odour nuisance at sensitive receptors is expected or has been substantiated. There has been no substantiated odour nuisance from the site therefore an OMP is not a requirement for this site.</p> <p>We are satisfied that BATc 15 is not applicable to this site.</p>
DAIRY SECTOR BAT CONCLUSIONS (BAT 21-23)			
21	Energy efficiency – Dairy Sector	N/A	<p>We are satisfied that BATc 21 is not applicable to this Installation. The Operator has confirmed that none of the techniques described by BATc 21 are used at this installation.</p>

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement																
	<p>In order to increase energy efficiency, BAT is to use an appropriate combination of the techniques specified in BAT 6 and of the techniques given below.</p> <table border="1" data-bbox="293 323 1122 850"> <thead> <tr> <th data-bbox="293 323 533 355">Technique</th> <th data-bbox="533 323 1122 355">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="293 355 533 419">(a) Partial milk homogenisation</td> <td data-bbox="533 355 1122 419">The cream is homogenised together with a small proportion of skimmed milk. The size of the homogeniser can be significantly reduced, leading to energy savings.</td> </tr> <tr> <td data-bbox="293 419 533 483">(b) Energy-efficient homogeniser</td> <td data-bbox="533 419 1122 483">The homogeniser's working pressure is reduced through optimised design and thus the associated electrical energy needed to drive the system is also reduced.</td> </tr> <tr> <td data-bbox="293 483 533 547">(c) Use of continuous pasteurisers</td> <td data-bbox="533 483 1122 547">Flow-through heat exchangers are used (e.g. tubular, plate and frame). The pasteurisation time is much shorter than that of batch systems.</td> </tr> <tr> <td data-bbox="293 547 533 611">(d) Regenerative heat exchange in pasteurisation</td> <td data-bbox="533 547 1122 611">The incoming milk is preheated by the hot milk leaving the pasteurisation section.</td> </tr> <tr> <td data-bbox="293 611 533 707">(e) Ultra-high-temperature (UHT) processing of milk without intermediate pasteurisation</td> <td data-bbox="533 611 1122 707">UHT milk is produced in one step from raw milk, thus avoiding the energy needed for pasteurisation.</td> </tr> <tr> <td data-bbox="293 707 533 770">(f) Multi-stage drying in powder production</td> <td data-bbox="533 707 1122 770">A spray-drying process is used in combination with a downstream dryer, e.g. fluidised bed dryer.</td> </tr> <tr> <td data-bbox="293 770 533 850">(g) Precooling of ice-water</td> <td data-bbox="533 770 1122 850">When ice-water is used, the returning ice-water is pre-cooled (e.g. with a plate heat exchanger), prior to final cooling in an accumulating ice-water tank with a coil evaporator.</td> </tr> </tbody> </table> <p>Applicable in addition to BAT6</p>	Technique	Description	(a) Partial milk homogenisation	The cream is homogenised together with a small proportion of skimmed milk. The size of the homogeniser can be significantly reduced, leading to energy savings.	(b) Energy-efficient homogeniser	The homogeniser's working pressure is reduced through optimised design and thus the associated electrical energy needed to drive the system is also reduced.	(c) Use of continuous pasteurisers	Flow-through heat exchangers are used (e.g. tubular, plate and frame). The pasteurisation time is much shorter than that of batch systems.	(d) Regenerative heat exchange in pasteurisation	The incoming milk is preheated by the hot milk leaving the pasteurisation section.	(e) Ultra-high-temperature (UHT) processing of milk without intermediate pasteurisation	UHT milk is produced in one step from raw milk, thus avoiding the energy needed for pasteurisation.	(f) Multi-stage drying in powder production	A spray-drying process is used in combination with a downstream dryer, e.g. fluidised bed dryer.	(g) Precooling of ice-water	When ice-water is used, the returning ice-water is pre-cooled (e.g. with a plate heat exchanger), prior to final cooling in an accumulating ice-water tank with a coil evaporator.		
Technique	Description																		
(a) Partial milk homogenisation	The cream is homogenised together with a small proportion of skimmed milk. The size of the homogeniser can be significantly reduced, leading to energy savings.																		
(b) Energy-efficient homogeniser	The homogeniser's working pressure is reduced through optimised design and thus the associated electrical energy needed to drive the system is also reduced.																		
(c) Use of continuous pasteurisers	Flow-through heat exchangers are used (e.g. tubular, plate and frame). The pasteurisation time is much shorter than that of batch systems.																		
(d) Regenerative heat exchange in pasteurisation	The incoming milk is preheated by the hot milk leaving the pasteurisation section.																		
(e) Ultra-high-temperature (UHT) processing of milk without intermediate pasteurisation	UHT milk is produced in one step from raw milk, thus avoiding the energy needed for pasteurisation.																		
(f) Multi-stage drying in powder production	A spray-drying process is used in combination with a downstream dryer, e.g. fluidised bed dryer.																		
(g) Precooling of ice-water	When ice-water is used, the returning ice-water is pre-cooled (e.g. with a plate heat exchanger), prior to final cooling in an accumulating ice-water tank with a coil evaporator.																		

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement																				
22	<p>In order to reduce the quantity of waste sent for disposal, BAT is to use one or a combination of the techniques given below.</p> <table border="1" data-bbox="286 360 1189 995"> <thead> <tr> <th data-bbox="286 360 539 403">Technique</th> <th data-bbox="539 360 1189 403">Description</th> </tr> </thead> <tbody> <tr> <td colspan="2" data-bbox="286 403 1189 443"><i>Techniques related to the use of centrifuges</i></td> </tr> <tr> <td data-bbox="286 443 539 515">(a) Optimised operation of centrifuges</td> <td data-bbox="539 443 1189 515">Operation of centrifuges according to their specifications to minimise the rejection of product.</td> </tr> <tr> <td colspan="2" data-bbox="286 515 1189 555"><i>Techniques related to butter production</i></td> </tr> <tr> <td data-bbox="286 555 539 643">(b) Rinsing of the cream heater with skimmed milk or water</td> <td data-bbox="539 555 1189 643">Rinsing of the cream heater with skimmed milk or water which is then recovered and reused, before the cleaning operations.</td> </tr> <tr> <td colspan="2" data-bbox="286 643 1189 683"><i>Techniques related to ice cream production</i></td> </tr> <tr> <td data-bbox="286 683 539 754">(c) Continuous freezing of ice cream</td> <td data-bbox="539 683 1189 754">Continuous freezing of ice cream using optimised start-up procedures and control loops that reduce the frequency of stoppages.</td> </tr> <tr> <td colspan="2" data-bbox="286 754 1189 794"><i>Techniques related to cheese production</i></td> </tr> <tr> <td data-bbox="286 794 539 882">(d) Minimisation of the generation of acid whey</td> <td data-bbox="539 794 1189 882">Whey from the manufacture of acid-type cheeses (e.g. cottage cheese, quark and mozzarella) is processed as quickly as possible to reduce the formation of lactic acid.</td> </tr> <tr> <td data-bbox="286 882 539 995">(e) Recovery and use of whey</td> <td data-bbox="539 882 1189 995">Whey is recovered (if necessary using techniques such as evaporation or membrane filtration) and used, e.g. to produce whey powder, demineralised whey powder, whey protein concentrates or lactose. Whey and whey concentrates can also be used as animal feed or as a carbon source in a biogas plant.</td> </tr> </tbody> </table>	Technique	Description	<i>Techniques related to the use of centrifuges</i>		(a) Optimised operation of centrifuges	Operation of centrifuges according to their specifications to minimise the rejection of product.	<i>Techniques related to butter production</i>		(b) Rinsing of the cream heater with skimmed milk or water	Rinsing of the cream heater with skimmed milk or water which is then recovered and reused, before the cleaning operations.	<i>Techniques related to ice cream production</i>		(c) Continuous freezing of ice cream	Continuous freezing of ice cream using optimised start-up procedures and control loops that reduce the frequency of stoppages.	<i>Techniques related to cheese production</i>		(d) Minimisation of the generation of acid whey	Whey from the manufacture of acid-type cheeses (e.g. cottage cheese, quark and mozzarella) is processed as quickly as possible to reduce the formation of lactic acid.	(e) Recovery and use of whey	Whey is recovered (if necessary using techniques such as evaporation or membrane filtration) and used, e.g. to produce whey powder, demineralised whey powder, whey protein concentrates or lactose. Whey and whey concentrates can also be used as animal feed or as a carbon source in a biogas plant.	N/A	We are satisfied that BATc 22 is not applicable to this Installation. The Operator has confirmed that none of the techniques described by BATc 22 are used at this installation.
Technique	Description																						
<i>Techniques related to the use of centrifuges</i>																							
(a) Optimised operation of centrifuges	Operation of centrifuges according to their specifications to minimise the rejection of product.																						
<i>Techniques related to butter production</i>																							
(b) Rinsing of the cream heater with skimmed milk or water	Rinsing of the cream heater with skimmed milk or water which is then recovered and reused, before the cleaning operations.																						
<i>Techniques related to ice cream production</i>																							
(c) Continuous freezing of ice cream	Continuous freezing of ice cream using optimised start-up procedures and control loops that reduce the frequency of stoppages.																						
<i>Techniques related to cheese production</i>																							
(d) Minimisation of the generation of acid whey	Whey from the manufacture of acid-type cheeses (e.g. cottage cheese, quark and mozzarella) is processed as quickly as possible to reduce the formation of lactic acid.																						
(e) Recovery and use of whey	Whey is recovered (if necessary using techniques such as evaporation or membrane filtration) and used, e.g. to produce whey powder, demineralised whey powder, whey protein concentrates or lactose. Whey and whey concentrates can also be used as animal feed or as a carbon source in a biogas plant.																						
23	<p>In order to reduce channelled dust emissions to air from drying, BAT is to use one or a combination of the techniques given below.</p> <table border="1" data-bbox="275 1106 1171 1398"> <thead> <tr> <th data-bbox="275 1106 495 1161">Technique</th> <th data-bbox="495 1106 730 1161">Description</th> <th data-bbox="730 1106 1171 1161">Applicability</th> </tr> </thead> <tbody> <tr> <td data-bbox="275 1161 495 1249">(a) Bag filter</td> <td data-bbox="495 1161 730 1398" rowspan="3">See Section 14.2 Page 34 of the Bref</td> <td data-bbox="730 1161 1171 1249">May not be applicable to the abatement of sticky dust.</td> </tr> <tr> <td data-bbox="275 1249 495 1305">(b) Cyclone</td> <td data-bbox="730 1249 1171 1305">Generally applicable.</td> </tr> <tr> <td data-bbox="275 1305 495 1398">(c) Wet scrubber</td> <td data-bbox="730 1305 1171 1398"></td> </tr> </tbody> </table> <p>The associated monitoring is given in BAT 5.</p>	Technique	Description	Applicability	(a) Bag filter	See Section 14.2 Page 34 of the Bref	May not be applicable to the abatement of sticky dust.	(b) Cyclone	Generally applicable.	(c) Wet scrubber		N/A	We are satisfied that BATc 23 is not applicable to this Installation. The Operator has confirmed that no drying operations as described by BATc 23 are undertaken at this installation.										
Technique	Description	Applicability																					
(a) Bag filter	See Section 14.2 Page 34 of the Bref	May not be applicable to the abatement of sticky dust.																					
(b) Cyclone		Generally applicable.																					
(c) Wet scrubber																							

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement												
23	<p>BAT-associated emission level (BAT-AEL) for channelled dust emissions to air from drying.</p> <table border="1" data-bbox="277 322 1173 545"> <thead> <tr> <th>Parameter</th> <th>Description</th> <th>BAT-AEL (average over the sampling period)</th> </tr> </thead> <tbody> <tr> <td>Dust</td> <td>Mg/Nm³</td> <td><2-10 ⁽¹⁾</td> </tr> </tbody> </table> <p>(1) The upper end of the range is 20 mg/Nm³ for drying of demineralised whey powder, casein and lactose.</p>	Parameter	Description	BAT-AEL (average over the sampling period)	Dust	Mg/Nm ³	<2-10 ⁽¹⁾								
Parameter	Description	BAT-AEL (average over the sampling period)													
Dust	Mg/Nm ³	<2-10 ⁽¹⁾													
Dairy Sector Environmental Performance Levels															
EPL	<p>Environmental Performance Level – Energy consumption for the dairy sector</p> <table border="1" data-bbox="277 715 1229 1040"> <thead> <tr> <th>Main product (at least 80 % of the production)</th> <th>Unit</th> <th>Specific energy consumption (yearly average)</th> </tr> </thead> <tbody> <tr> <td>Market milk</td> <td rowspan="4" style="text-align: center;">MWh/tonne of raw materials</td> <td>0.1-0.6</td> </tr> <tr> <td>Cheese</td> <td>0.10-0.22 ⁽¹⁾</td> </tr> <tr> <td>Powder</td> <td>0.2-0.5</td> </tr> <tr> <td>Fermented milk</td> <td>0.2-1.6</td> </tr> </tbody> </table> <p>(1) The specific energy consumption level may not apply when raw materials other than milk are used.</p>	Main product (at least 80 % of the production)	Unit	Specific energy consumption (yearly average)	Market milk	MWh/tonne of raw materials	0.1-0.6	Cheese	0.10-0.22 ⁽¹⁾	Powder	0.2-0.5	Fermented milk	0.2-1.6	N/A	<p>The operator has provided information to support compliance with the energy efficiency EPL. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with energy efficiency for the dairy sector.</p> <p>The operator has provided information confirming their total energy use for 2021 was 1721MWh. The tonnes of products produced was 14839 = 0.116MW/tonne.</p> <p>This is within the target range of 0.10-0.22 MWh/tonne however the site does not manufacture cheese. They receive readymade cheese which they grate and slice into packages. The EPL therefore does not directly apply but is a useful marker of energy performance.</p>
Main product (at least 80 % of the production)	Unit	Specific energy consumption (yearly average)													
Market milk	MWh/tonne of raw materials	0.1-0.6													
Cheese		0.10-0.22 ⁽¹⁾													
Powder		0.2-0.5													
Fermented milk		0.2-1.6													

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement										
EPL	<p>Environmental Performance Level – Specific waste water discharge for the dairy sector</p> <table border="1" data-bbox="277 325 1232 533"> <thead> <tr> <th data-bbox="277 325 595 395">Main product (at least 80 % of the production)</th> <th data-bbox="595 325 913 395">Unit</th> <th data-bbox="913 325 1232 395">Specific waste water discharge (yearly average)</th> </tr> </thead> <tbody> <tr> <td data-bbox="277 395 595 443">Market milk</td> <td data-bbox="595 395 913 533" rowspan="3">m³/tonne of raw materials</td> <td data-bbox="913 395 1232 443">0.3 - 3.0</td> </tr> <tr> <td data-bbox="277 443 595 491">Cheese</td> <td data-bbox="913 443 1232 491">0.75 - 2.5</td> </tr> <tr> <td data-bbox="277 491 595 533">Powder</td> <td data-bbox="913 491 1232 533">1.2 – 2.7</td> </tr> </tbody> </table>	Main product (at least 80 % of the production)	Unit	Specific waste water discharge (yearly average)	Market milk	m ³ /tonne of raw materials	0.3 - 3.0	Cheese	0.75 - 2.5	Powder	1.2 – 2.7	N/A	<p>The operator has provided information to support compliance with the waste water discharge EPL. We have assessed the information provided and we are not satisfied that the operator has demonstrated compliance with waste water EPL for the dairy sector.</p> <p>The operator does not record effluent discharge. Water usage is calculated from their meter readings - volume minus welfare allowance (949m³pa) within their consent to discharge. The figures below are stated are for 2021.</p> <p>6374.94 - 949 = 5425.94m³</p> <p>5425.94 m³ / 14839 = 0.365 m³ / tonne</p> <p>This is out of range for cheese manufacture, however as stated above the EPL does not directly apply as the site does not manufacture cheese. As such, there are limited opportunities to recycle water.</p>
	Main product (at least 80 % of the production)	Unit	Specific waste water discharge (yearly average)										
	Market milk	m ³ /tonne of raw materials	0.3 - 3.0										
	Cheese		0.75 - 2.5										
Powder	1.2 – 2.7												

Annex 2: Review and assessment of changes that are not part of the BAT Conclusions derived permit review.

Updating permit during permit review consolidation

- Activity name
- Introductory note
- Site plan
- Table S1.1 overhaul
 - Activity Reference (AR) renumbering
 - Updated listed activities.
 - Addition of production capacity
 - Directly associated activities (DAAs) standardisation

We have updated permit conditions to those in the current generic permit template as a part of permit consolidation. The conditions will provide the same level of protection as those in the previous permit.

Production/Capacity Threshold

The Environment Agency is looking to draw a “line in the sand” for permitted production capacity; a common understanding between the Operator and regulator for the emissions associated with a (maximum) level of production, whereby the maximum emissions have been demonstrated as causing no significant environmental impact.

We have included a permitted production level (capacity) within table S1.1 of the permit for the section 6.8 listed activity and we need to be confident that the level of emissions associated with this production level have been demonstrated to be acceptable.

The Operator has completed a H1 assessment of emissions for typical figures of production at the time of permitting.

Emissions to Air

We asked the operator to list all emission points to air from the installation in the Regulation 61 notice. And to provide a site plan indicating the locations of all air emission points.

The operator has provided an up-to-date air emission plan.

Implementing the requirements of the Medium Combustion Plant Directive

For the existing combustion plant with a rated thermal input less than 1 MW we will not be including any emission limit values or monitoring requirements within the permit, unless any site-specific conditions require us to do this.

The operator confirmed the only combustion source on site is a hot water boiler used for domestic purposes with a thermal input of 0.267MWth

Emissions to Water and implementing the requirements of the Water Framework Directive

We asked the Operator to provide information on all emissions to water at the installation in the Regulation 61 Notice as follows;

- Identify any effluents which discharge directly to surface or groundwater;
- Provide an assessment of volume and quality, including results of any monitoring data available;
- and for any discharges to water / soakaway whether a recent assessment of the feasibility of connection to sewer has been carried out.

The operator has previously provided assessments for all emissions to water at the installation. The operator declares there has been no change to activities and subsequent effluents generated at the installation since this risk assessment was taken. Consequently, we agree that the original risk assessments remain valid at this time.

Soil & groundwater risk assessment (baseline report)

The IED requires that the operator of any IED installation using, producing or releasing “relevant hazardous substances” (RHS) shall, having regarded the possibility that they might cause pollution of soil and groundwater, submit a “baseline report” with its permit application. The baseline report is an important reference document in the assessment of contamination that might arise during the operational lifetime of the regulated facility and at cessation of activities. It must enable a quantified comparison to be made between the baseline and the state of the site at surrender.

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

The Operator submitted a site condition report [Dairygold Site Condition Report 2018] The site condition report included a report on the baseline conditions as required by Article 22. We reviewed that report and considered that it adequately described the condition of the soil and groundwater at that time.

As part of the SCR the Operator has accepted ‘zero contamination’ beneath the site. This means that when the Operator applies to surrender the Permit, any contamination by substances used at, produced or released from the facility would be considered to have resulted from the operation of the installation. This is in accordance with the Environment Agency Guidance H5 – Site Condition Report.

Hazardous Substances

Hazardous substances are those defined in Article 3 of Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures.

The operator has provided a short risk assessment on the hazardous substances stored and used at the installation. The risk assessment was a stage 1-3 assessment as detailed within EC Commission Guidance 2014/C 136/03.

The stage 1 assessment identified the hazardous substances used / stored on site. The stage 2 assessment identified if hazardous substances are capable of causing pollution. If they are capable of causing pollution, they are then termed Relevant Hazardous Substances (RHS). The Stage 3 assessment identified if pollution prevention measures are fit for purpose in areas where hazardous substances are used / stored. This includes drains as well.

The outcomes of the three-stage assessment identified that pollution of soil and/or ground water to be unlikely.

Climate Change Adaptation

The operator has considered if the site is at risk of impacts from adverse weather (flooding, unavailability of land for land spreading, prolonged dry weather / drought).

The operator has stated that the installation is not likely to be or has previously not been affected by climate change.

Containment

We asked the Operator via the Regulation 61 Notice to provide details of the each above ground tanks which contain potentially polluting liquids at the site, including tanks associated with the effluent treatment process where applicable.

The Operator provided details of all tanks;

- Tank reference/name
- Contents
- Capacity (litres)
- Location
- Construction material(s) of each tank
- The bunding specification including
 - Whether the tank is banded
 - If the bund is shared with other tanks
 - The capacity of the bund
 - The bund capacity as % of tank capacity
 - Construction material of the bund
 - Whether the bund has a drain point
 - Whether any pipes penetrate the bund wall
- Details of overfill prevention
- Drainage arrangements outside of banded areas
- Tank filling/emptying mitigation measures (drips/splashes)
- Leak detection measures
- Details of when last bund integrity test was carried out
- Maintenance measures in place for tank and bund (inspections)
- How the bund is emptied

- Details of tertiary containment

and whether the onsite tanks currently meet the relevant standard in the Ciria “Containment systems for the prevention of pollution (C736)” report.

We reviewed the information provided by the operator. We are satisfied that the existing tanks and containment measures on site meet the standards set out in CIRIA C736.

Annex 3: Improvement Conditions

Based on the information in the Operator's Regulation 61 Notice response and our own records of the capability and performance of the installation at this site, we consider that we need to set improvement conditions so that the outcome of the techniques detailed in the BAT Conclusions are achieved by the installation. These improvement conditions are set out below - justifications for them is provided at the relevant section of the decision document (Annex 1 or Annex 2).

Previous improvement conditions marked as complete in the previous permit.

Superseded Improvement Conditions – Removed from permit as marked as “complete”	
Reference	Improvement Condition
IC1	The operator shall submit to the Environment Agency details of the proposed secondary containment measures for the glycol tank, and a timescale to complete the work for approval in writing by the Environment Agency. The measure shall be in accordance with the requirements of CIRIA C736 and demonstrate the operator is able to meet permit condition 3.2.3. The operator shall implement the changes and to the timescales agreed by the Environment Agency.
IC2	The operator shall submit to the Environment Agency details of the proposed secondary containment measures for the diesel tank, and a timescale to complete the work for approval in writing by the Environment Agency. The measure shall be in accordance with the requirements of CIRIA C736 and demonstrate the operator is able to meet permit condition 3.2.3. The operator shall implement the changes and to the timescales agreed by the Environment Agency.
IC3	The operator shall review exterior surfacing of the site and submit to the Environment Agency details and a timescale to complete any required maintenance for approval in writing by the Environment Agency. The operator shall implement the changes and to the timescales agreed by the Environment Agency.

The following improvement conditions have added to the permit as a result of the variation.

Improvement programme requirements		
Reference	Reason for inclusion	Justification of deadline
IC4	The operator shall use refrigerants without ozone depletion potential and with a low global warming potential (GWP) in accordance with BAT 9 from the Food, Drink and Milk Industries BATCs. To demonstrate compliance against BAT 9, the operator shall produce a plan for the onsite refrigerant system(s) at the installation. The plan is to	3 months from date of issue or as agreed in writing by the Environment Agency

	<p>be assessed by the Environment Agency and shall be incorporated within the existing environmental management system.</p> <p>The plan should include, but not be limited to, the following:</p> <ul style="list-style-type: none">• Where practicable, retro filling systems containing high GWP refrigerants e.g. R-404A with lower GWP alternatives as soon as possible.• An action log with timescales, for replacement of end-of-life equipment using refrigerants with the lowest practicable GWP.	
--	--	--