

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/BV8008IQ
The Operator is: Meadow Foods Limited
The Installation is: Rough Hill Farm
This Variation Notice number is: EPR/BV8008IQ/V004

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 24/03/2022 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 24/07/2022.

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 4, 6(a), 9, and AELs. The operator does not currently comply with the requirements of BATc 4, 6(a), 9, and AELs. In relation to this/these BAT Conclusion(s), the operator has committed compliance by 4 December 2023. We have therefore included Improvement Conditions 12, 13, and 14 in the Consolidated Variation Notice to ensure that the requirements of the BAT Conclusions are delivered before 4 December 2023.

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 30/01/2023 regarding installation capacity, BATcs 1, 4, 6, 9, 10, 11, RHS, cooling towers, underground structures, site plan and main activity description. A copy of the further information request was placed on our public register. In addition to the response(s) to our further information request(s), we received additional information during the determination from the Operator relating to a Clarifications request via email received on 10/03/2023. The email contained answers to questions regarding the Installation's capacity, BATc 3, 6, 11, AELs, ETP, and containment. We made a copy of this information available to the public in the same way as the responses to our information request.

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 a EMS externally accredited to the ISO14001 standard.</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 has submitted evidence of:</p> <ul style="list-style-type: none"> • Production processes • Water usage • Wastewater quantity and quality • Characteristics of the waste gas streams • Energy consumption and usage • Appropriate monitoring strategy
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>The Operator has stated that it is taking measurements of key process at inflow and outflow of the treated effluent prior to discharge to Balderton Brook.</p>
4	<p>Monitoring emissions to water to the required frequencies and standards.</p> <p>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</p>	FC	<p>The operator has provided information to support compliance with BATc 4. We have assessed the information provided and we are</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
	not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.		<p>not satisfied that the operator has demonstrated compliance with BATc 4.</p> <p>The Operator is currently monitoring:</p> <ul style="list-style-type: none"> • Flow rate, BOD, Cl⁻, ammoniacal nitrogen, pH, SS, TSS, COD. <p>The Operator is currently not monitoring:</p> <ul style="list-style-type: none"> • TP & TN <p>We consider that the operator will be future compliant with BATc 4. Improvement condition 12 has been included in the permit to achieve compliance (see Annex 3).</p>
5	<p>Monitoring channelled emissions to air to the required frequencies and standards.</p> <p>BAT is to monitor channelled emissions to air with at least the frequency given and in accordance with EN standards.</p>	NA	We are satisfied that BATc 5 is not applicable to this Installation, as no drying is undertaken at the site, as such there are no channelled emissions to air associated with this installation.
6	<p>Energy Efficiency</p> <p>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>	FC	<p>The operator has provided information to support compliance with BATc 6. We have assessed the information provided and we are not satisfied that the operator has demonstrated compliance with BATc 6.</p> <p>The Operator has declared:</p> <ul style="list-style-type: none"> • burner regulation and control; • energy-efficient motors • variable speed drives • LED lighting; • optimising steam distribution systems; • preheating feed water • use of economisers • process control systems • reducing compressed air system leaks • reducing heat losses by insulation; • use of solar energy.

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			<p>However, the Operator did not provide evidence of having an Energy Efficiency Plan.</p> <p>We consider that the operator will be future compliant with BATc 6(a). Improvement condition 12 has been included in the permit to achieve compliance (see Annex 3).</p>
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> <p>(a) water recycling and/or reuse (b) Optimisation of water flow (c) Optimisation of water nozzles and hoses (d) Segregation of water streams</p> <p>Techniques related to cleaning operations:</p> <p>(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</p>	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 range of techniques used are:</p> <ul style="list-style-type: none"> • Water recycling • Optimisation of water flow • CIP optimisation • High-pressure cleaning • Low-pressure foam • Cleaning equipment as soon as possible.
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> <p>(a) Proper selection of cleaning chemicals and/or disinfectants (b) Reuse of cleaning chemicals in cleaning-in-place (CIP) (c) Dry cleaning (d) Optimised design and construction of equipment and process areas</p>	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> <p>The operator declared that:</p> <ul style="list-style-type: none"> • Selection of chemicals and detergents is monitored by a technical team • Caustic detergents are reused • Automated CIP processes to optimise water use efficiency

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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 Operator is using the following high GWP gases:</p> <ul style="list-style-type: none"> • R134A - butter chillers 1 and 2, and dairy chillers 1 and 2 • R410A – dairy chiller and Butter chiller 3 • R404A – cold-stores 1 and 2, butter cold-stores 1 and 2, AMF 1 Copland and Dorin <p>We consider that the operator will be future compliant with BATc 9. Improvement condition 13 has been included in the permit to achieve compliance (see Annex 3).</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 is sending the resulting sludge from ETP for off-site anaerobic digestion through a third party.</p>
11	<p>Waste water buffer storage</p> <p>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>The operator has declared the following:</p> <ul style="list-style-type: none"> • Use of sluice gates • Effluent flood defence lagoon with 4 days-worth of effluent storage capacity

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			<ul style="list-style-type: none"> • Extra capacity offered through balancing tank adding an extra 1 day of effluent holding prior to treatment
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>The operator is using:</p> <ul style="list-style-type: none"> • Equalisation • Physical separation • Aerobic and anaerobic treatment • Nitrification/ denitrification • Filtration • Flocculation
12	<p>Emissions to water – treatment</p> <p>BAT-associated emission levels (BAT-AELs) for direct emissions to a receiving water body</p>	FC	<p>The operator has provided information to support compliance with BAT-AELs. We have assessed the information provided and we are not satisfied that the operator has demonstrated compliance with BAT-AELs.</p> <p>The operator declared:</p> <ul style="list-style-type: none"> • COD – 61.7 mg/l • TSS – 12 mg/l

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										
	<table border="1" data-bbox="282 256 1211 459"> <thead> <tr> <th>Parameter</th> <th>BAT-AEL (1) (2) (daily average)</th> </tr> </thead> <tbody> <tr> <td>Chemical oxygen demand (COD) (3) (4)</td> <td>25-100 mg/l (5)</td> </tr> <tr> <td>Total suspended solids (TSS)</td> <td>4-50 mg/l (6)</td> </tr> <tr> <td>Total nitrogen (TN)</td> <td>2-20 mg/l (7) (8)</td> </tr> <tr> <td>Total phosphorus (TP)</td> <td>0,2-2 mg/l (9)</td> </tr> </tbody> </table> <p data-bbox="282 528 703 555">Note: 125mg/l COD for dairy sites</p> <p data-bbox="282 568 647 595">Note: 4mg/l TP for dairy sites</p>	Parameter	BAT-AEL (1) (2) (daily average)	Chemical oxygen demand (COD) (3) (4)	25-100 mg/l (5)	Total suspended solids (TSS)	4-50 mg/l (6)	Total nitrogen (TN)	2-20 mg/l (7) (8)	Total phosphorus (TP)	0,2-2 mg/l (9)		<p data-bbox="1525 252 2040 308">TP and TN are not currently measured; this has been addressed through IC12.</p> <p data-bbox="1525 320 2069 440">Because there are no associate limits in the current permit, we consider setting these at the upper limit in the consolidated permit, as follows:</p> <ul data-bbox="1570 453 1816 544" style="list-style-type: none"> • COD – 125 mg/l • TN – 20 mg/l • TP – 4 mg/l <p data-bbox="1525 557 2002 612">TSS will be set to 29 mg/l as currently limited in the existing permit.</p> <p data-bbox="1525 625 2078 745">We consider that the operator will be future compliant with BAT-AELs. Improvement condition 14 has been included in the permit to achieve compliance (see Annex 3).</p>
Parameter	BAT-AEL (1) (2) (daily average)												
Chemical oxygen demand (COD) (3) (4)	25-100 mg/l (5)												
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13	<p data-bbox="282 767 584 794">Noise management plan</p> <p data-bbox="282 807 1211 927">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> <ul data-bbox="282 940 1211 1139" 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. 	NA	<p data-bbox="1525 767 2078 823">We are satisfied that BATc 13 is not applicable to this Installation.</p> <p data-bbox="1525 836 2069 1019">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 from the site therefore an NMP is not a requirement for this site.</p>										
14	<p data-bbox="282 1166 524 1193">Noise management</p> <p data-bbox="282 1206 1200 1262">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> <ul data-bbox="282 1275 882 1453" style="list-style-type: none"> (a) Appropriate location of equipment and buildings (b) Operational measures (c) Low-noise equipment (d) Noise control equipment (e) Noise abatement 	CC	<p data-bbox="1525 1166 2069 1318">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 data-bbox="1525 1331 1783 1358">The operator is using:</p> <ul data-bbox="1570 1370 1995 1398" style="list-style-type: none"> • noise reduction barriers/fencing 										

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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. 	CC	<p>The operator has provided information to support compliance with BATc 15. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 15.</p> <p>The site has an approved OMP which forms part of the permits Operating Techniques Tables S1.2 and operates within the confines of the site plan.</p>																								
DAIRY SECTOR BAT CONCLUSIONS (BAT 21-23)																											
21	<p>Energy efficiency – Dairy Sector</p> <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="293 821 1122 1348"> <thead> <tr> <th data-bbox="293 821 344 858">Technique</th> <th data-bbox="344 821 528 858"></th> <th data-bbox="528 821 1122 858">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="293 858 344 919">(a)</td> <td data-bbox="344 858 528 919">Partial milk homogenisation</td> <td data-bbox="528 858 1122 919">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="293 919 344 979">(b)</td> <td data-bbox="344 919 528 979">Energy-efficient homogeniser</td> <td data-bbox="528 919 1122 979">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="293 979 344 1040">(c)</td> <td data-bbox="344 979 528 1040">Use of continuous pasteurisers</td> <td data-bbox="528 979 1122 1040">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 1040 344 1101">(d)</td> <td data-bbox="344 1040 528 1101">Regenerative heat exchange in pasteurisation</td> <td data-bbox="528 1040 1122 1101">The incoming milk is preheated by the hot milk leaving the pasteurisation section.</td> </tr> <tr> <td data-bbox="293 1101 344 1161">(e)</td> <td data-bbox="344 1101 528 1161">Ultra-high-temperature (UHT) processing of milk without intermediate pasteurisation</td> <td data-bbox="528 1101 1122 1161">UHT milk is produced in one step from raw milk, thus avoiding the energy needed for pasteurisation.</td> </tr> <tr> <td data-bbox="293 1161 344 1222">(f)</td> <td data-bbox="344 1161 528 1222">Multi-stage drying in powder production</td> <td data-bbox="528 1161 1122 1222">A spray-drying process is used in combination with a downstream dryer, e.g. fluidised bed dryer.</td> </tr> <tr> <td data-bbox="293 1222 344 1283">(g)</td> <td data-bbox="344 1222 528 1283">Precooling of ice-water</td> <td data-bbox="528 1222 1122 1283">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>	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.	CC	<p>The operator has provided information to support compliance with BATc 21. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 21.</p> <p>The techniques used are:</p> <ul style="list-style-type: none"> • continuous pasteurisers • regenerative heat exchange • precooling of ice-water
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.																									
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(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																				
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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.																					
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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="275 331 1171 555"> <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> <tr> <td colspan="3">(1) The upper end of the range is 20 mg/Nm³ for drying of demineralised whey powder, casein and lactose.</td> </tr> </tbody> </table>	Parameter	Description	BAT-AEL (average over the sampling period)	Dust	Mg/Nm ³	<2-10 ⁽¹⁾	(1) The upper end of the range is 20 mg/Nm ³ for drying of demineralised whey powder, casein and lactose.			NA	We are satisfied that BAT 23 AEL is not applicable to this Installation as no drying is undertaken at the site, as such there are no channelled emissions to air associated with this installation.						
Parameter	Description	BAT-AEL (average over the sampling period)																
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Main product (at least 80 % of the production)	Unit	Specific energy consumption (yearly average)																
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EPL	<p>Environmental Performance Level – Specific waste water discharge for the dairy sector</p> <table border="1" data-bbox="275 1157 1229 1369"> <thead> <tr> <th>Main product (at least 80 % of the production)</th> <th>Unit</th> <th>Specific waste water discharge (yearly average)</th> </tr> </thead> <tbody> <tr> <td>Market milk</td> <td rowspan="3">m³/tonne of raw materials</td> <td>0.3 - 3.0</td> </tr> <tr> <td>Cheese</td> <td>0.75 - 2.5</td> </tr> <tr> <td>Powder</td> <td>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	CC	<p>The operator has provided information to support compliance with BATc EPL. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc EPL.</p> <p>The Operator has reported a value of 1.24 m³ of wastewater discharge per tonne of raw milk input which is within the EPL range for Market Milk.</p>					
Main product (at least 80 % of the production)	Unit	Specific waste water discharge (yearly average)																
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Annex 2: Review and assessment of changes that are not part of the BAT Conclusions derived permit review

Updating permit during permit review consolidation

- Introductory note updated
- Revised site/emission point 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.

The existing H1 assessment of particulate emissions to air remains valid for the revised capacity threshold now placed within table S1.1 of the permit.

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

Existing Medium Combustion Plant (1MW-50MW)

We asked the Operator to provide information on all combustion plant on site in the Regulation 61 Notice as follows:

- Number of combustion plant (CHP engines, back-up generators, boilers);
- Size of combustion plant – rated thermal input (MWth)
- Date each combustion plant came into operation

The Operator provided the information in the table below:

Boilers

1. Rated thermal input (MW) of the medium combustion plant.	11.2 MWth
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Boiler 1 (dairy): 2 MWth Boiler 2 (dairy): 2 MWth Boiler 1 (butter): 3.6 MWth Boiler 2 (butter): 3.6 MWth
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	All boilers use 100% Natural Gas
4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is unknown, proof of the fact that the operation started before 20 December 2018.	Boiler 1 (dairy): January 1995 Boiler 2 (dairy): January 1995 Boiler 1 (butter): February 1999 Boiler 2 (butter): February 1999

We have reviewed the information provided and we consider that the declared combustion plant qualify as “existing” medium combustion plant.

For existing MCP with a rated thermal input of less than or equal to 5 MW, the emission limit values set out in tables 1 and 3 of Part 1 of Annex II MCPD shall apply from 1 January 2030. Boilers 1 and 2 are limited to 500 hours and therefore the MCP limits do not apply.

We have included the appropriate emission limit values for existing medium combustion plant as part of this permit review. See Table S3.1 in the permit. We have also included a new condition 3.1.4 within the permit which specifies the monitoring requirements for the combustion plant in accordance with the MCPD.

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 summary report which referenced the site condition report and baseline report. We have reviewed the information and we consider that it adequately describes the current condition of the soil and groundwater. Consequently, we are satisfied that the baseline conditions have not changed.

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 identified the installation as likely to be or has been affected by flooding, prolonged dry weather or drought, which we consider to be a severe weather event.

The operator has not submitted a climate change adaptation plan, which considers, as a minimum the impact of severe weather on the operations within the installation. Although a flood plan is said to have been prepared, this has not been submitted as part of the Reg.61 Response Tool, and the effects of drought or prolonged dry weather on the installation's ability to continue discharging effluent in low flow conditions has not been considered.

We have included an improvement condition into the permit (IC15) to request a climate change adaptation plan is submitted by the operator for approval from the Environment Agency.

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 bunded
 - 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 bunded 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 in writing to the Agency, a summary report concerning the Effluent Treatment Plant upgrading programme. The report shall detail what works have been undertaken and are still outstanding as identified in the MSA report submitted as part of the Application. The report shall include the proposed timescale for completion of all the necessary works.
IC2	The Operator shall conduct an assessment into the effectiveness of the noise reduction measures implemented on the 14th December 2005 in support of the Application. The assessment shall detail the actual reduction (in dB) that has occurred as a result of the reduction measures, and how this has reduced the overall impact of noise from the site. Upon completion, a report shall be submitted to the Agency in writing, summarising the findings of the assessment, any additional improvements to be made and a timetable for implementing these improvements.
IC3	The Operator shall conduct a review of the current monitoring methods and frequencies in place for the parameters identified in tables 2.2.5 and 2.10.1, having regard to Agency Technical Guidance Note M18.
IC4	The Operator shall sample and analyse the process effluent input to the effluent treatment plant and the discharge from W1 to Balderton Brook for the presence of mercury and its compounds, having regard for Agency Guidance M18. The analysis shall be carried out on daily composite samples (made up from samples taken for every 50m ³ discharged), with the discharge to W1 being sampled 24 hours after the input sample. The results of the analysis shall be forwarded to the Agency in order to verify compliance with the emission limit set in table 2.2.5, and to demonstrate the mercury removal efficiency of the treatment plant.

IC5	<p>The Operator shall review the effectiveness of the pollution prevention measures in place throughout the Installation, having regard to Section 2.2.5 of Sector Guidance Note S6.13. This shall include, but not be limited to:</p> <ul style="list-style-type: none"> -The provision of secondary containment for the raw milk silos, protein storage tanks, permeate storage silos, cream tanks and skimmed milk storage silos -The condition of the hardstanding around the effluent treatment plant. -Dairy CIP Chemical Storage -Casein Chemical Storage -Glycol storage tank -Waste storage <p>A report detailing the outcome of the review shall be submitted in writing to the Agency, along with timescales for implementation for any improvements identified.</p>
IC6	<p>The Operator shall develop an odour management plan, which shall consider, but not be limited to, the odour emissions from the on-site Effluent Treatment Plant. The odour management plan shall be prepared having regard to Agency Guidance Note H4.</p>
IC7	<p>The Operator shall develop a written accident management plan having regard to the requirements set out in Section 2.8 of Agency Technical Guidance Note IPPC S6.13, and shall submit the plan to the Agency for approval.</p>
IC8	<p>The Operator shall undertake an investigation into the use of chloride in the production, cleaning and effluent treatment processes. The investigation shall include the following:</p> <ul style="list-style-type: none"> -Methods available for removing chloride from the waste stream -An assessment into alternatives available to the use of chloride based raw materials, or where this is not practicable, reduce the amount of chloride entering the waste stream. <p>A report detailing the outcome of the investigation shall be submitted in writing to the Agency for approval, along with timescales for the implementation of any improvements identified.</p>
IC9	<p>The Operator shall develop a Site Closure Plan having regard to the requirements set out in Section 2.11 of the Agency Guidance Note IPPC S6.13. Upon completion of the plan, a summary of the document shall be submitted to the Agency in writing.</p>
IC10	<p>The Operator shall develop and implement a formalised Environmental Management System, having regard for section 2.3 of the Agency's Sector Guidance Note S6.13.</p>
IC11	<p>The Operator shall assess the impact of the casein plant effluent on the emissions from the Installation at point W1. The assessment shall consider the loading from the casein plant in terms of volume, COD, suspended solids and Ammonia, compared to the rest of the installation, along with any limiting factors that may affect the treatment of the effluent. A report detailing the finding of the assessment shall be submitted to the Agency in writing.</p>

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
IC12	<p>The operator shall submit, for approval by Environment Agency, a report setting out progress to achieving the 'Narrative' BAT where BAT is currently not achieved, but will be achieved before 4 December 2023. The report shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> 1) Methodology for achieving BAT 2) Associated targets /timelines for reaching compliance by 4 December 2023 3) Any alterations to the initial plan (in progress reports). <p>The report shall address the BAT Conclusions for Food, Drink and Milk Industries with respect to BAT 4, 6(a) and 9. Refer to BAT Conclusions for a full description of the BAT requirement.</p>	04/12/2023
IC13	<p>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.</p> <p>To demonstrate compliance against BAT 9, the operator shall develop a replacement plan for the refrigerant system(s) at the installation. This shall be incorporated within the existing environmental management system by the specified date.</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. 	04/12/2023
IC14	<p>The operator shall submit, for approval by the Environment Agency, a report setting out progress to achieving the BAT conclusion AELs where a derogation has been applied for and granted. The report shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> 1) Current performance against the BAT-AELs. 2) Methodology for reaching the BAT-AELs. 3) Associated targets / timelines for reaching compliance by 04/12/2023 time limited date in granted derogation for emissions to water. 4) Any alterations to the initial plan (in progress reports). 	04/12/2023

	<p>The report shall address the BAT Conclusions for Food, Drink and Milk industries with respect to the following:</p> <ul style="list-style-type: none"> • BAT 12 Table 1 (compliance with BAT-AELs for direct discharges to a receiving water body) 	
IC15	<p>The operator shall submit as climate change adaptation plan to the Environment Agency for approval.</p> <p>The plan shall include, but not be limited to:</p> <ul style="list-style-type: none"> • Details of how the installation has or could be affected by severe weather; • The scale of the impact of severe weather on the operations within the installation; • An action plan and timetable for any improvements to be made to minimise the impact of severe weather at the installation. <p>The Operator shall implement any necessary improvements to a timetable agreed in writing with the Environment Agency.</p>	<p>12 months from permit issue, or other date as agreed in writing with the Environment Agency</p>