

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/NP3532SU
The Operator is: Yeo Valley Farms (Production) Limited
The Installation is: Lag Farm Dairy
This Variation Notice number is: EPR/NP3532SU/V007

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 have no reason to consider that the Operator will not be able to comply with the techniques and standards described in the BAT Conclusions.

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 12/06/2023 regarding BATc 8, 9, 12, 21: production threshold, hazardous substances, and containment. A response to our further information request was received on 26/06/2023 and 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.</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 EMS is externally accredited to the ISO 14001 standard. The operator is also signatory to the Waste & Resource Action Programme (WRAP).</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>The Operator is continuously monitoring at the Effluent Treatment Plant (ETP) outlet daily values for:</p> <ul style="list-style-type: none"> • Volume, composite, raw effluent load, pH, ammoniacal nitrogen, loss to effluent, ortho-phosphate, odour, mould and chlorine
4	<p>Monitoring emissions to water to the required frequencies and standards.</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
	<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 not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.</p>		<p>not satisfied that the operator has demonstrated compliance with BATc 4.</p> <p>The operator is currently monitoring the following parameters as per their current permit:</p> <ul style="list-style-type: none"> • Flow, Biochemical Oxygen Demand (BOD), ammoniacal nitrogen, Suspended Solids (SS), Potential Hydrogen (pH), Chemical Oxygen Demand (COD) <p>The operator is not monitoring:</p> <ul style="list-style-type: none"> • Total Nitrogen (TN) and Total Phosphorus (TP) <p>The operator uses a traffic light system to alert staff to any result approaching discharge consent limits. A sampling procedure is in place for all stages of the manufacturing process and actions in place to be taken in the event of an out of specification effluent test result. Final testing is in accordance with ISO and Standing Committee of Analysts (SCA) Blue Book Methods.</p> <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 with BATc 4 (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	<p>We are satisfied that BATc 5 is not applicable to this Installation.</p> <p>Drying processes are not used in this installation however, the operator does carry out boiler combustion checks on a 6 monthly basis.</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
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>	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>An energy efficiency plan has been provided and the operator is using the following techniques:</p> <ul style="list-style-type: none"> • Burner regulation and control on 2 natural gas fired steam boilers • Investigating feasibility of combined heat & power to generate electricity on site and recover heat for hot water cleaning • Using IE3 motor for power ratings from 0.75 kW up to 375 kW or an IE2 motor plus frequency inverter • Recovering heat from refrigeration condensers to heat water for Clean-In-Place (CIP) cleaning • Replacing fluorescent lighting with LED • Optimised steam distribution system • New steam boiler fitted with economiser • Process and utility plant controlled using either SCADA or PLC • Compressed air leak checks carried out as part of condition monitoring • Replacing pipework insulation with new where required • Variable Speed Drive (VSD) drives fitted to electric motors where possible • 5% of electricity generated on site via locally installed photovoltaics (PV)

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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 operator is using the following techniques:</p> <ul style="list-style-type: none"> • Water recycling and/or reuse • Optimisation of water flow • Optimisation of water nozzles and hoses • Segregation of water streams • Pigging system for pipes • CIP • Low-pressure foam and/or gel cleaning • Optimised design and construction of equipment and process areas • Cleaning of 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>	FC	<p>The operator has provided information to support compliance with BATc 8. We have assessed the information provided and we are not satisfied that the operator has demonstrated compliance with BATc 8.</p> <p>The Operator is in the process of identifying less harmful alternatives and declares to be compliant by 04/12/2023.</p> <p>We consider that the operator will be future compliant with BATc 8. Improvement Condition 12 has been included in the permit to achieve compliance with BATc 8 (see Annex 3).</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</p>	CC	<p>The operator has provided information to support compliance with BATc 9. 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
	refrigerants without ozone depletion potential and with a low global warming potential.		<p>satisfied that the operator has demonstrated compliance with BATc 9.</p> <p>The operator declared:</p> <ul style="list-style-type: none"> • All hydrochlorofluorocarbons (HCFC) gases and R404A (a blended hydrofluorocarbon (HFC) refrigerant) systems have been swapped out with lower Global warming potential (GWP) gas R407A in all areas of production and storage. • Commitment to phase out HCF gases and move to natural refrigerants from 2030 or before. • The operator has already moved to either CO₂ or ammonia on recently installed units.
10	<p>Resource efficiency In order to increase resource efficiency, BAT is to use one or a combination of the techniques given below:</p> <ul style="list-style-type: none"> (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 	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 using the following techniques:</p> <ul style="list-style-type: none"> • Off-site anaerobic digestion • Off-site use of waste water for land spreading.
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>The Operator declared that:</p> <ul style="list-style-type: none"> • Storm water drains to 2 puddled clay lagoons with a combined volume of 250 m³. • Second lagoon overflows to an open ditch which drains to Blagdon lake.

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			<ul style="list-style-type: none"> In the event of a contaminant entering storm drains, a system of 4 sluice gates is in place and activated to prevent the contaminant reaching the lagoons. The containment backs up into a collection sump and manually transferred back to the effluent plant for containment and treatment. If these methods fail the contents of the lagoons would be tankered away.
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 the following techniques:</p> <ul style="list-style-type: none"> On-site ETP is a combination of Dissolved Air Flotation (DAF) and biological treatment followed by 10 micron filtration Equalisation Neutralisation Physical separation Aerobic treatment Denitrification Partial nitrification Phosphorus recovery as struvite Coagulation and flocculation Filtration Flotation
12	<p>Emissions to water – treatment</p> <p>BAT-associated emission levels (BAT-AELs) for direct emissions to a receiving water body</p>	CC	<p>The operator has provided information to support compliance with BATc 12 (BAT-AELs). We have assessed the information provided and we are satisfied that the operator has</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										
	<table border="1" data-bbox="282 296 1211 499"> <thead> <tr> <th>Parameter</th> <th>BAT-AEL (?) (?) (daily average)</th> </tr> </thead> <tbody> <tr> <td>Chemical oxygen demand (COD) (?) (?)</td> <td>25-100 mg/l (?)</td> </tr> <tr> <td>Total suspended solids (TSS)</td> <td>4-50 mg/l (?)</td> </tr> <tr> <td>Total nitrogen (TN)</td> <td>2-20 mg/l (?) (?)</td> </tr> <tr> <td>Total phosphorus (TP)</td> <td>0,2-2 mg/l (?)</td> </tr> </tbody> </table> <p data-bbox="282 568 701 596">Note: 125mg/l COD for dairy sites</p> <p data-bbox="282 608 645 636">Note: 4mg/l TP for dairy sites</p>	Parameter	BAT-AEL (?) (?) (daily average)	Chemical oxygen demand (COD) (?) (?)	25-100 mg/l (?)	Total suspended solids (TSS)	4-50 mg/l (?)	Total nitrogen (TN)	2-20 mg/l (?) (?)	Total phosphorus (TP)	0,2-2 mg/l (?)		<p data-bbox="1525 248 2074 309">demonstrated compliance with BATc 12 (BAT-AELs).</p> <p data-bbox="1525 320 1995 381">The operator has declared the following emissions:</p> <ul data-bbox="1570 392 2063 608" style="list-style-type: none"> • COD ≤ 24 mg/l, with a limit set to 50 mg/l • TSS ≤ 4 mg/l, with a limit set to 20 mg/l • TN ≤ 5 mg/l, with a limit set to 5mg/ltr • TP ≤ 0.21 mg/l, with a limit set to 1mg/l as an annual average <p data-bbox="1525 619 2051 679">The declared emissions levels are below the BAT-AEL range.</p>
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13	<p data-bbox="282 699 584 727">Noise management plan</p> <p data-bbox="282 738 1211 858">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="282 869 1211 1075" 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 699 2074 759">We are satisfied that BATc 13 is not applicable to this Installation.</p> <p data-bbox="1525 770 2074 954">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> <p data-bbox="1525 965 2074 1075">Nevertheless, the site is voluntarily using a noise management plan, not assessed or approved by the Environment Agency, that is part of the EMS.</p>										
14	<p data-bbox="282 1102 524 1131">Noise management</p> <p data-bbox="282 1142 1200 1203">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> <ol data-bbox="282 1214 882 1398" style="list-style-type: none"> Appropriate location of equipment and buildings Operational measures Low-noise equipment Noise control equipment Noise abatement 	CC	<p data-bbox="1525 1102 2074 1254">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 1265 1939 1326">The Operator is using the following techniques:</p> <ul data-bbox="1570 1337 2074 1457" style="list-style-type: none"> • Appropriate location of equipment and buildings • Operational measures • Low-noise equipment 										

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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. 	NA	<p>We are satisfied that BATc 15 is not applicable to this Installation.</p> <p>An odour management plan is only required where odour nuisance at sensitive receptors is expected or has been substantiated. There have been no substantiated odour nuisance from the site therefore an OMP is not a requirement for this site. There have been no substantiated odour complaints for this site.</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="293 922 1122 1445"> <thead> <tr> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>(a) Partial milk homogenisation</td> <td>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>(b) Energy-efficient homogeniser</td> <td>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>(c) Use of continuous pasteurisers</td> <td>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>(d) Regenerative heat exchange in pasteurisation</td> <td>The incoming milk is preheated by the hot milk leaving the pasteurisation section.</td> </tr> <tr> <td>(e) Ultra-high-temperature (UHT) processing of milk without intermediate pasteurisation</td> <td>UHT milk is produced in one step from raw milk, thus avoiding the energy needed for pasteurisation.</td> </tr> <tr> <td>(f) Multi-stage drying in powder production</td> <td>A spray-drying process is used in combination with a downstream dryer, e.g. fluidised bed dryer.</td> </tr> <tr> <td>(g) Precooling of ice-water</td> <td>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 operator is using:</p> <ul style="list-style-type: none"> Partial milk homogenisation Energy-efficient homogeniser Use of continuous pasteurisers Regenerative heat exchange in pasteurisation Ultra-high-temperature (UHT) processing of milk without intermediate pasteurisation
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(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																				
	Applicable in addition to BAT6																						
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="286 416 1189 1050"> <thead> <tr> <th data-bbox="286 416 539 459">Technique</th> <th data-bbox="539 416 1189 459">Description</th> </tr> </thead> <tbody> <tr> <td colspan="2" data-bbox="286 467 1189 499"><i>Techniques related to the use of centrifuges</i></td> </tr> <tr> <td data-bbox="286 507 338 563">(a)</td> <td data-bbox="338 507 1189 563">Optimised operation of centrifuges Operation of centrifuges according to their specifications to minimise the rejection of product.</td> </tr> <tr> <td colspan="2" data-bbox="286 571 1189 603"><i>Techniques related to butter production</i></td> </tr> <tr> <td data-bbox="286 611 338 699">(b)</td> <td data-bbox="338 611 1189 699">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.</td> </tr> <tr> <td colspan="2" data-bbox="286 707 1189 738"><i>Techniques related to ice cream production</i></td> </tr> <tr> <td data-bbox="286 746 338 802">(c)</td> <td data-bbox="338 746 1189 802">Continuous freezing of ice cream 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="286 810 1189 842"><i>Techniques related to cheese production</i></td> </tr> <tr> <td data-bbox="286 850 338 938">(d)</td> <td data-bbox="338 850 1189 938">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.</td> </tr> <tr> <td data-bbox="286 946 338 1050">(e)</td> <td data-bbox="338 946 1189 1050">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.</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.	NA	<p>We are satisfied the 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.</p> <p>However the operator does have policies in place to minimise waste such as using pigging to apply 'best before' to replace 'use by' dates. Surplus product is compacted, packaged and sent as animal feed to third parties. There is also waste segregation from point sources to allow recovery of heavy solids.</p>
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Technique	Description	Applicability																					
(a)	Bag filter	See Section 14.2 Page 34 of the Bref																					
(b)	Cyclone																						
(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															
	The associated monitoring is given in BAT 5.																	
23	BAT-associated emission level (BAT-AEL) for channelled dust emissions to air from drying <table border="1" data-bbox="277 392 1173 612"> <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-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.						
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Dairy Sector Environmental Performance Levels																		
EPL	Environmental Performance Level – Energy consumption for the dairy sector <table border="1" data-bbox="277 794 1232 1123"> <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">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> <tr> <td colspan="3">(1) The specific energy consumption level may not apply when raw materials other than milk are used.</td> </tr> </tbody> </table>	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	(1) The specific energy consumption level may not apply when raw materials other than milk are used.			NA	We are satisfied this BAT-EPL is not applicable to this Installation. The proportion of any raw materials listed in this table does not reach the 80% threshold.
Main product (at least 80 % of the production)	Unit	Specific energy consumption (yearly average)																
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EPL	Environmental Performance Level – Specific waste water discharge for the dairy sector <table border="1" data-bbox="277 1219 1232 1426"> <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	NA	We are satisfied that BAT-EPL Specific Wastewater Discharge is not applicable to this Installation, as none of the main products represent minimum of 80% of production.					
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
- 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 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.

Whilst the volume of raw milk permitted at the site has increased since the previous variation we are satisfied that the associated risks have not changed, due to the effluent treatment plant capacity being assessed when originally permitted.

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(s) below:

Boilers

1. Rated thermal input (MW) of the medium combustion plant.	Combined capacity: 11.3 MWth
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Boiler 3: 4.9 MWth Boiler 4: 6.4 MWth
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	Natural Gas 100%
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 3: July 2001 Boiler 4: July 2019

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

For new medium combustion plant with a rated thermal input greater than 5 MW (Boiler 4), the emission limit values set out in tables 2 and 3 of Part 1 of Annex II MCPD shall apply from the date of permit issue. 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.

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 risk assessment which includes a description of the condition of the site and a consideration of the possibility of soil and groundwater contamination at the installation. No site baseline condition was included in the submission.

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 / groundwater to be possible and monitoring is required for these hazardous substances.

The operator is required to submit a relevant hazardous substances monitoring plan for review to the Environment Agency via improvement condition (IC13).

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 unavailability of land for land spreading of waste/ prolonged dry weather/ drought which we consider to be a severe weather event.

The operator has submitted a climate change adaptation plan, which considers, as a minimum the impact of severe weather on the operations within the installation.

We consider the climate change adaptation plan to be appropriate for the installation.

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 and their findings. We are not satisfied that the existing tanks and containment measures on site meet the standards set out in CIRIA C736.

Following a site inspection carried out in July 2022, it was observed that the ETP does not have a bund and areas around the tanks are laid to gravel. The aeration tank is <500m to Blagdon Lake. The primary containment and transfer pipework need to be examined to an approved standard as currently there is no examination scheme in place. Similarly, secondary containment needs to be asset to CIRIA C736.

We have set improvement conditions in the permit to address the deficiencies in the existing tanks and containment measures on site (IC14). See Improvement condition(s) in Annex 3 of this decision document.

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 to IC7	-- Complete
IC8	The operator shall submit a written report to the Environment Agency addressing the findings of the Blagdon Study. As an outcome of the Blagdon Study, the Environment Agency may need to reassess the emissions to water from Lag Farm Dairy and update the emission limit values in Table S3.2 accordingly. The operator’s report shall include a review of their actual operational monitoring results from the effluent treatment plant and identify whether any improvements are required, with proposed timescales. The notification requirements of condition 2.4.2 shall be deemed to have been complied with on submission of the report.
IC9	The operator shall submit a written report to the Environment Agency for approval, following a review of all site drainage and containment at the installation. The report should review the appropriate measures for the management of subsurface structures, sumps, bunds and storage vessels as well as the requirements for surfaces on your site and include a timetable for any improvements or maintenance. The notification requirements of condition 2.4.2 shall be deemed to have been complied with on submission of the report.
IC10	The operator shall submit a written report to the Environment Agency. The report shall contain the results of a review to quantify the effluent load and volume for each of the process areas at the installation. The review shall attempt to identify the ongoing demand on the effluent treatment plant and any opportunities for resource efficiency including water reuse and water reduction. This is to ensure the optimum operation of the effluent treatment plant and should include reference

	<p>to the best available techniques (BAT) in sections 1.3 and 1.4 of EPR6.13 guidance for the dairy and milk processing sector. The results of this review shall be submitted to the Environment Agency, including dates for the implementation of any individual measures identified for improvement (including consideration of the installation of MCERTS composite sampling on W1).</p> <p>The notification requirements of condition 2.4.2 will be deemed to have been complied with on submission of the report.</p>
IC11	<p>The operator shall submit a written report to the Environment Agency for approval. The report shall investigate measures to reduce phosphorus emissions in line with the requirements of the Water Framework Directive (200/60/EC) and include details of the necessary improvement works and timescales for their completion. The notification requirements of condition 2.4.2 will be deemed to have been complied with on submission of the report.</p>

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

Improvement programme requirements		
Reference	Reason for inclusion	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 and 8.</p> <p>Refer to BAT Conclusions for a full description of the BAT requirement.</p>	04/12/2023
IC13	<p>The operator shall produce a monitoring plan detailing how the management of relevant hazardous substances which did not screen out as low risk, based on the RHS baseline assessment, will be maintained and monitored to mitigate the risks of pollution. The plan shall be submitted for approval. The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	04/12/2023

IC14	<p>The Operator shall undertake a comprehensive review and assessment of the primary containment provisions onsite for tanks, pipework and associated primary containment infrastructure, by a suitably qualified person, against the relevant standards (such as EEMUA 159).</p> <p>The operator shall submit a written report to the Environment Agency for approval which outlines the results of the review and provides details of:</p> <ul style="list-style-type: none"> • current primary containment measures • any deficiencies identified in comparison to relevant standards • improvements proposed • time scale for implementation of improvements. <p>The operator shall implement the proposed improvements in line with the timescales agreed by the Environment Agency, and incorporate an ongoing routine inspection and maintenance programme as part the EMS.</p>	12 months from permit issue (10/08/2023)
IC15	<p>The Operator shall undertake a comprehensive review and assessment of the secondary and tertiary containment provisions onsite, by a suitably qualified person, against the relevant standards (such as CIRIA C736).</p> <p>The operator shall submit a written report to the Environment Agency for approval which outlines the results of the review and provides details of:</p> <ul style="list-style-type: none"> • current secondary/tertiary containment measures • any deficiencies identified in comparison to relevant standards • improvements proposed • time scale for implementation of improvements. <p>The operator shall implement the proposed improvements in line with the timescales agreed by the Environment Agency, and incorporate an ongoing routine inspection and maintenance programme as part the EMS.</p>	12 months from permit issue (10/08/2023)