

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/NP3638NN
The Operator is: Arla Foods Limited
The Installation is: Taw Valley Creamery
This Variation Notice number is: EPR/NP3638NN/V005

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 22/07/2022.

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) and BAT-AELs to air and water. The operator does not currently comply with the requirements of BATc 4, 6(a) and BAT-AELs. In relation to these BAT Conclusions, the operator has committed compliance by 4 December 2023. We have therefore included Improvement Conditions 19, 20 and 21 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 13/02/2023 regarding installation capacity, EMS ISO certificate, BATcs 4, 6, 9, 11, 12, AELs, 23, MCPs, uncontaminated surface water, updated site plan, RHS, description of activity and product lines. A copy of the further information request was placed on our public register.

3 The legal framework

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

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

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

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

Annex 1: decision checklist regarding relevant BAT Conclusions

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

There are 37 BAT Conclusions.

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

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

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

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

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

NA – Not Applicable

CC – Currently Compliant

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

NC – Not Compliant

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
GENERAL BAT CONCLUSIONS (BAT 1-15)			
1	<p>Environmental Management System - Improve overall environmental performance.</p> <p>Implement an EMS that incorporates all the features as described within BATc 1.</p>	CC	<p>The operator has provided information to support compliance with BATc 1. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 1.</p> <p>The operator has 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 declared use of:</p> <ul style="list-style-type: none"> • Simplified process flow • Process-integrated techniques to improve performance • Detailed knowledge of water consumption and usage • Monitoring of pH, temperature, COD, N species, P. • Waste gas characteristics • Information of energy and raw materials usage, and resource efficiency improvement
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:</p> <ul style="list-style-type: none"> • Continuous monitoring of flow, pH, and temperature of the final outfall

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
			<ul style="list-style-type: none"> Recording mean concentrations of COD, nitrogen species, phosphorous and conductivity
4	<p>Monitoring emissions to water to the required frequencies and standards. BAT is to monitor emissions to water with at least the frequency given [refer to BAT 4 table in BATc] and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.</p>	FC	<p>The operator has provided information to support compliance with BATc 4. We have assessed the information provided and we are not satisfied that the operator has demonstrated compliance with BATc 4.</p> <p>The Operator declared monitoring of:</p> <ul style="list-style-type: none"> COD, TP, TSS, BOD, Cl. <p>However, TN is not currently monitored. The document provided (Test Methods) in support of Reg.61 compliance statement describes the monitoring methodology via spectrophotometry and market available test kits but no actual test results have been provided.</p> <p>We consider that the operator will be future compliant with BATc 4 requirement to monitor TN. Improvement condition 19 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. BAT is to monitor channelled emissions to air with at least the frequency given and in accordance with EN standards.</p>	CC	<p>The operator has provided information to support compliance with BATc 5. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 5.</p> <p>The Operator declared:</p> <ul style="list-style-type: none"> PM from drier is monitored annually by MCERTS accredited contractor Monitoring standard used – EN 13284-1 Filtration of PM through bag filters
6	Energy Efficiency	FC	<p>The operator has provided information to support compliance with BATc 6. 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>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>		<p>not satisfied that the operator has demonstrated compliance with BATc 6.</p> <p>The Operator declared that is using:</p> <ul style="list-style-type: none"> • Burner regulation and control • Cogeneration • Energy efficient motors • Heat recovery with heat exchangers • Use of LED lighting • Boiler blowdown minimisation • Process control systems • Reduction of compressed air leaks • Variable speed drives • Multiple effect evaporation • Use of PV panels <p>The Operator declared that it does not currently have an Energy Efficiency Plan (EEP). While we appreciate the Operator's commitment to achieve its own targets, the existence of EEP components embedded in some of the site operational instructions, and self-reported achievements in reducing energy consumption, a stand-alone EEP is a requirement under this BATc. Furthermore, a consolidated EEP gives a better overview and agency for those responsible with its implementation.</p> <p>We consider that the operator will be future compliant with BATc 6(a). Improvement condition 19 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</p> <p>(b) Optimisation of water flow</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 following techniques are used:</p> <ul style="list-style-type: none"> • Water recycling and reuse

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	(c) Optimisation of water nozzles and hoses (d) Segregation of water streams Techniques related to cleaning operations: (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		<ul style="list-style-type: none"> • Optimisation of water flow • Optimisation of water nozzles and hoses • Segregation of water streams • Dry cleaning where appropriate • High-pressure cleaning when required • Optimisation through CIP • Low-pressure foam used for cleaning • Optimised design and construction of equipment • Cleaning 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 following techniques are used:</p> <ul style="list-style-type: none"> • Proper selection of cleaning chemicals • Reuse of cleaning chemicals in CIP • Dry cleaning • Optimised design and construction of equipment
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 declared that a number of cold stores and fridges contain gases with GWP >1400, as shown:</p> <ul style="list-style-type: none"> • R134A (GWP – 1430) – MVI chiller, Rapid chillers 1, 2, 3, and 4. • R437A (GWP – 1805) – Cold store plant room systems 1, 2, 3, and 7

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
			We consider that the operator will be future compliant with BATc 9. Improvement condition 20 has been included in the permit to achieve compliance (see Annex 3).
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:</p> <ul style="list-style-type: none"> • Use of residue • Segregation of waste and food waste • Land spreading via a third party
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 not satisfied that the operator has demonstrated compliance with BATc 11.</p> <p>The Operator declared that a 70 m³ emergency storage tank exists on the site and ETP lagoons are capable of containing up to 48 hours' worth of effluent.</p> <p>In the event of contamination of surface water and/or spillage events, the site drainage system will discharge to ETP. The automated monitoring consists of observing the following parameters:</p> <ul style="list-style-type: none"> • pH, conductivity, and temperature.
12	<p>Emissions to water – treatment In order to reduce emissions to water, BAT is to use an appropriate combination of the techniques given below. Preliminary, primary and general treatment</p> <ul style="list-style-type: none"> (a) Equalisation (b) Neutralisation (c) Physical separate (eg screens, sieves, primary settlement tanks etc) 	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 declared:</p> <ul style="list-style-type: none"> • Physical separation of fats and debris • Aerobic treatment in aerated lagoon

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										
	Aerobic and/or anaerobic treatment (secondary treatment) (d) Aerobic and/or anaerobic treatment (eg activated sludge, aerobic lagoon etc) (e) Nitification and/or denitrification (f) Partial nitrification - anaerobic ammonium oxidation Phosphorus recovery and/or removal (g) Phosphorus recovery as struvite (h) Precipitation (i) Enhanced biological phosphorus removal Final solids removal (j) Coagulation and flocculation (k) Sedimentation (l) Filtration (eg sand filtration, microfiltration, ultrafiltration) (m) Flotation		<ul style="list-style-type: none"> • Nitrification • Partial nitrification • Phosphorous removal through precipitation and sludge removal • Flocculation of dewatered sludge • Sedimentation • Filtration 										
12	<p>Emissions to water – treatment BAT-associated emission levels (BAT-AELs) for direct emissions to a receiving water body</p> <table border="1" data-bbox="282 922 1211 1121"> <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>Note: 125mg/l COD for dairy sites 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 (°)	FC	<p>The operator has provided information to support compliance with BATc AELs. We have assessed the information provided and we are not satisfied that the operator has demonstrated compliance with BATc AELs.</p> <p>The values reported are:</p> <ul style="list-style-type: none"> • COD – 22.9 mg/l • TSS – 6.4 mg/l • TP – 0.6 mg/l • Cl- - 792 mg/l <p>TN not currently monitored; this is addressed through IC19.</p> <p>However, this BATc introduces new AELs, therefore the following upper limits will be applied in the consolidated permit, as follows:</p> <ul style="list-style-type: none"> • COD – 125 mg/l • TN – 20 mg/l <p>The following limits will be retained from existing permit:</p> <ul style="list-style-type: none"> • TSS – 14 mg/l
Parameter	BAT-AEL (°) (°) (daily average)												
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Total phosphorus (TP)	0,2-2 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
			<ul style="list-style-type: none"> • TP – 2 mg/l • Cl- no limit • BOD – 9 mg/l • Ammoniacal nitrogen – 5 mg/l • pH – 6-9 • Temperature – 30 °C • Discharge volume – 2500 m³/day <p>We consider that the operator will be future compliant with BATc AELs. Improvement condition 21 has been included in the permit to achieve compliance (see Annex 3).</p>
13	<p>Noise management plan</p> <p>In order to prevent or, where that is not practicable, to reduce noise emissions, BAT is to set up, implement and regularly review a noise management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements:</p> <ul style="list-style-type: none"> - a protocol containing actions and timelines; - a protocol for conducting noise emissions monitoring; - a protocol for response to identified noise events, eg complaints; - a noise reduction programme designed to identify the source(s), to measure/estimate noise and vibration exposure, to characterise the contributions of the sources and to implement prevention and/or reduction measures. 	NA	<p>We are satisfied that BATc 13 is not applicable to this Installation.</p> <p>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>There have been noise complaints in the past but, as the area officer observed, this is not an issue anymore.</p>
14	<p>Noise management</p> <p>In order to prevent or, where that is not practicable, to reduce noise emissions, BAT is to use one or a combination of the techniques given below.</p> <ul 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>The operator has provided information to support compliance with BATc 14. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 14.</p> <p>The techniques used by the Operator are:</p> <ul style="list-style-type: none"> • Appropriate location of equipment • Operational measures identified through PPM and external audits
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</p>	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</p>

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	<p>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. 		<p>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.</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="293 715 1122 1241"> <thead> <tr> <th data-bbox="293 715 533 746">Technique</th> <th data-bbox="533 715 1122 746">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="293 746 533 810">(a) Partial milk homogenisation</td> <td data-bbox="533 746 1122 810">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="293 810 533 874">(b) Energy-efficient homogeniser</td> <td data-bbox="533 810 1122 874">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="293 874 533 938">(c) Use of continuous pasteurisers</td> <td data-bbox="533 874 1122 938">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="293 938 533 1002">(d) Regenerative heat exchange in pasteurisation</td> <td data-bbox="533 938 1122 1002">The incoming milk is preheated by the hot milk leaving the pasteurisation section.</td> </tr> <tr> <td data-bbox="293 1002 533 1098">(e) Ultra-high-temperature (UHT) processing of milk without intermediate pasteurisation</td> <td data-bbox="533 1002 1122 1098">UHT milk is produced in one step from raw milk, thus avoiding the energy needed for pasteurisation.</td> </tr> <tr> <td data-bbox="293 1098 533 1161">(f) Multi-stage drying in powder production</td> <td data-bbox="533 1098 1122 1161">A spray-drying process is used in combination with a downstream dryer, e.g. fluidised bed dryer.</td> </tr> <tr> <td data-bbox="293 1161 533 1241">(g) Precooling of ice-water</td> <td data-bbox="533 1161 1122 1241">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>Techniques used are:</p> <ul style="list-style-type: none"> • Use of continuous pasteurisers • Multi-stage drying
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(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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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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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/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(s) below:

Combined heat and power (CHP) engines

1. Rated thermal input (MW) of the medium combustion plant.	4.6 MWth
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	CHP – 6.1 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.	July 2021

Boilers

1. Rated thermal input (MW) of the medium combustion plant.	22.2 MWth
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Boiler 1: 10.9 MWth Boiler 2: 11.3 MWth
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	All boilers run on 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: September 2021 Boiler 2: June 2005

We have reviewed the information provided and we consider that the declared combustion plant Boiler 2 qualify as “existing” medium combustion plant. Boiler 1 and the CHP are considered “new” medium combustion plants.

For existing medium combustion plant, Boiler 2, with a rated thermal input greater than 5 MW, the emission limit values set out in tables 2 and 3 of Part 1 of Annex II MCPD shall apply from 1 January 2025.

For the “new” MCPs, Boiler 1 and CHP, the emission limit values are those included in the existing permit. For Boiler 1, the MCPD Annex II, Table 2 – ‘Emission limit values (mg/Nm³) for new engines and gas turbines’ will be included in the consolidated permit.

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. In 2018 there have been a containment loss of whey protein concentrated resulted from the frozen valves in extremely low temperatures. Although the Installation has treated discharge to water, the effect of prolonged drought or dry weather has not been considered, including the how the effluent treatment plant will operate in such conditions or devise a contingency plan for land spreading of sludge. We consider these to be a severe weather events.

The Operator has considered some climate change adaptation (CCA) actions and included them in the 'business continuity plan' but there is no consolidated CCA plan encompassing all measures considered.

The operator is required to submit a suitable climate change adaptation plan for the installation. We have included an improvement condition into the permit (IC22) 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 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 the Area Officer site visit, and subsequent Site Report dated 08/03/2022, concerns have been raised in relation to the piping works integrity under winter operating conditions that resulted in the past, February 2018, in valves being frozen, leading to loss of whey protein concentrate.

At the same time, the above mentioned report raised concerns in relation to the ETP’s primary and secondary containment measures used at this site, especially the lagoon liner that have been laid approximately 50 years ago and could be past of their original efficiency in preventing seepage. The ETP does not have balancing capabilities of influent entering the water treatment process. Because the milk silos and raw material storage, not banded, discharge to ETP in case of accidental discharge, given the small 70m³ buffering capacity compared with the discharge daily flow, there is a risk of overloading the ETP.

Considering the Operator’s own statement of being at risk of flooding, the past loss of containment because of frozen equipment, and concerns raised in the Site Report, we consider that an assessment of the current primary and secondary containment measures adequacy need to be reviewed.

We have set improvement conditions in the permit to address the deficiencies in the existing tanks and containment measures on site (IC23). 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	The Operator shall insure that all hoses are fitted with automatic shut-off trigger spray guns.
IC2	The Operator shall provide to the Agency a report in writing demonstrating how the installation complies with the Oil Storage Regulations 2001.
IC3	The Operator shall provide a report in writing to the Agency detailing the current monitoring method used to determine effluent flow at W, having regard to EN, ISO and BS standards. The monitoring method shall be agreed in writing with the Agency.
IC4	The Operator shall investigate options for reducing the emissions of the whey powder from the dryers and shall propose a timetable, to be agreed with the Agency, for the implementation of the agreed measures together with appropriate monitoring. This review shall examine which techniques constitute BAT and shall include a cost-benefit analysis where appropriate.
IC5	The Operator shall undertake a full survey of the energy use within the installation in order to identify opportunities for energy saving and shall submit a timetable of improvements in writing for the approval by the Agency.
IC6	The Operator shall provide a report in writing to the Agency on the feasibility of reusing surplus condensate from the whey drying process.
IC7	The Operator shall undertake an assessment of subsurface structures and their potential to cause fugitive emissions to surface water and groundwater. The Assessment shall take account of the requirements of Section 2.2.5 of the Agency Guidance Note IPPC S6.13, October 2003. A written report summarising the finding shall be submitted to the Agency. A timetable for the implementation of any improvements shall be agreed with the Agency.
IC8	The Operator shall replace or repair the liner of the final settlement lagoon to the satisfaction of the Agency.
IC9	The Operator shall repair all cracked and damaged areas of the hardstanding to the satisfaction of the Agency.
IC10	The Operator shall assess the current method for effluent flow monitoring as agreed in IP3 against the requirement given in MCERTS standard 'Minimum requirements for the self-monitoring of effluent flow' version 2, August 2004. A written report shall be provided to the Agency detailing how this standard is to be achieved and shall include timescales for implementation.

IC11	The Operator shall investigate measures to reduce the phosphate levels in the discharge from the effluent treatment plant to a limit of 2 mg/l total phosphorous, expressed as P, and shall implement such proposals as are agreed by the Agency.
IC12	The Operator shall demonstrate to the Agency in a written report that its proposed dewatering plant constitutes BAT for the installation and shall install the plant to a timescale agreed with the Agency.
IC13	The Operator shall review alternative disposal options for the rising of the sink in the ETP hut currently discharged to a soakaway at emission point WL1 and shall implement an alternative measure by agreement with the Agency.
IC14	The Operator shall investigate the potential for the use of renewable energy sources at the installations and shall implement such measures as appear to be cost-effective to a timescale to be agreed with the Agency.
IC15	The operator will carry out the first monitoring of emission points A3 and A7 (in accordance with the conditions described in table S3.1) within 4 months of the new combustion plant coming into operation.
IC16	On completion of commissioning, the operator will provide a certificate from the manufacturer / installer of the combustion plant control system on the maximum combined thermal input of the total system. Note - any proposed subsequent changes to the level of protection in the control system shall be notified to the Environment Agency in advance in accordance with condition 4.3.3.
IC17	The operator shall carry out a review of information and reports concerning the condition of the site against the requirements of Commission Guidance document (2014/C 136/03), and Environment Agency Guidance H5. The operator will submit a report of the review which shows that it meets the requirements of Article 22(2) of the IED for baseline reports.
IC18	The operator shall carry out a risk assessment in order to establish whether and if so at what frequency monitoring of groundwater and soil should occur, see Article 16 of the IED and condition 3.1.3. The risk assessment shall consider which pollutants should be monitored and at what locations based on the information contained in the baseline report. The risk assessment will need to be approved by the Environment Agency.

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

Improvement programme requirements		
Reference	Reason for inclusion	Justification of deadline
IC19	The operator shall submit, for approval by Environment Agency, a report setting out progress to achieving the 'Narrative' BAT is currently not achieved, but will be achieved before 4 December 2023. The report shall include, but not be limited to, the following: 1) Methodology for achieving BAT	04/12/2023

	<p>2) Associated targets /timelines for reaching compliance by 4 December 2023</p> <p>3) Any alterations to the initial plan (in progress reports). The report shall address the BAT Conclusions for Food, Drink and Milk Industries with respect to BAT 4 and 6. Refer to BAT Conclusions for a full description of the BAT requirement.</p>	
IC20	<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
IC21	<p>The operator shall submit, for approval by the Environment Agency, a report setting out progress to achieving the Best Available Techniques Conclusion Associated Emission Levels (BAT-AELs) 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) Current performance against the BAT-AELs. 2) Methodology for reaching the BAT-AELs. 3) Associated targets /timelines for reaching compliance by 4 December 2023. 4) 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 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). • BAT 23 Table 10 (compliance with BAT-AEL for channelled dust emissions to air from drying). 	04/12/2023
IC22	<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; 	12 months from permit issue

	<ul style="list-style-type: none"> • 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>	
IC23	<p>The Operator shall undertake a survey of the site effluent treatment plant (ETP) and milk silos primary, secondary and tertiary containment and review measures against relevant standard including:</p> <ul style="list-style-type: none"> • CIRIA Containment systems for the prevention of pollution (C736) – Secondary, tertiary and other measures for industrial and commercial premises, • EEMUA 159 - Above ground flat bottomed storage tanks <p>The operator shall submit a written report to the Environment Agency approval which outlines the results of the survey and the review of standard and provide details of</p> <ul style="list-style-type: none"> • current 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.</p>	12 months from permit issue