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/BQ1824IV
The Operator is:	Wyke Farmhouse Cheese Company Limited
The Installation is:	Wyke Farmhouse Cheese
This Variation Notice number is:	EPR/BQ1824IV/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. It also provides a justification for the inclusion of any specific conditions in the permit that are in addition to those included in our generic permit template.

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 20/07/2022.

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.

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	**Environmental Management System - Improve overall environmental performance.** Implement an EMS that incorporates all the features as described within BATc 1.	**CC**	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. The operator has a EMS externally accredited to the ISO14001 standard.
2	**EMS Inventory of inputs & outputs. Increase resource efficiency and reduce emissions.** 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.	**CC**	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. The EMS is externally accredited to the ISO 14001 standard.
3	**Monitoring key process parameters at key locations for emissions to water.** 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).	**CC**	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. The Operator is monitoring pH, BOD, COD, phosphate, orthophosphate, iron, ammonia, flow rate, temperature SS.
4	**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.	**FC**	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. The Operator is monitoring pH, BOD, COD, phosphate, orthophosphate, iron, ammonia, flow rate, temperature SS.

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			The operator required a reduced frequency of monitoring for COD, TSS and TN based on their current monitoring regime. The BATc state that *"If the emission levels are proven to be sufficiently stable, a lower monitoring frequency can be adopted but in any case at least once every month."* At this stage we do not have sufficient evidence to support this, and have therefore included the requirements for monitoring as per the BATc's. This will be reviewed as part of compliance.
5	**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 [refer to BAT5 table in BATc] and in accordance with EN standards.	**NA**	We are satisfied that BATc 5 is not applicable to this Installation, as dust is only potential parameter applicable to the dairy sector and there is no drying activity.
6	**Energy Efficiency** In order to increase energy efficiency, BAT is to use an energy efficiency plan (BAT 6a) and an appropriate combination of the common techniques listed in technique 6b within the table in the BATc.	**CC**	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. The operator is using the following techniques on site: • Renewable energy from CHP electricity – cogeneration • Circa 50% of the electricity requirement for the dairy is provided by the on-site CHP engine utilising biogas from the nearby Wyke AD Plant. • Variable speed motors and pumps

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
			• Variable speed inverters • Heat exchange throughout process • LED lighting • Leak tagging programme for compressed air systems, water and steam (and product). • Insulation of all pipework transferring heat / cold • Multiple effect evaporator • Timed processes e.g. agitator use reduced
7	**Water and wastewater minimisation** 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. [for detail of each technique, refer BAT 7 table in BATc] (a) water recycling and/or reuse (b) Optimisation of water flow (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	**CC**	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. Waste water minimisation is achieved through: • Recovery of cleaning water • Key water streams are sub-metered. • Automated processes ensure optimum flow control using valves. • All hoses have spray guns and trigger controls. • Segregated clean and dirty drainage systems. Clean roof water is segregated where possible. However, if there is pipework on the roof, then it is designated dirty in case of cross contamination • Product pipework cleaning

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
			• via CIP set on either a caustic or acid wash. This is dependent on product and the piece of plant that is being cleaned along with the wash schedule. • When silos and tanks are cleaned, spray balls are used to increase the water spraying pressure to the contact surface. • Raw milk CIP set – conductivity and • temperature. Caustic and acid strength • measured as a percentage. • Main CIP set (cheese dairy) - conductivity, • temperature, flow rate and pressure. • Caustic and acid strength measured as a • percentage and conductivity. • Separator CIP set (liquid processing) - • temperature, flow rate, Caustic and acid • strength measured as a percentage. • Butter dairy CIP set – temperature. • All parameters are recorded on SCADA. • Manual chemical strength checks • undertaken at every CIP if not automatically • logged.

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
			• All CIP's undergo quarterly validation to • check they are working effectively. • Zone 1 (product contact) swabs undertaken • quarterly. • CIPs are scheduled at certain intervals • depending on production runs. • Every product run is also undergoes • microbiological testing to ensure that CIPs • are effective. • Cleaning chemical fogging of rooms is used in some departments after production. • The design and construction of equipment and process areas is optimised to assist cleaning where possible. • There is a cleaning schedule in place. Equipment is when off production, ready for next production run.
8	**Prevent or reduce the use of harmful substances** 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. (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 [for detail of each technique, refer BAT 8 table in BATc]	**CC**	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. Control and use of harmful chemicals is carried out by: • Proper selection of chemicals • Each CIP set has recirculation steps so that where possible

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			chemical is returned for reuse. Process monitoring within the CIP set determines if additional chemical is required • The design and construction of equipment and process areas is optimised to assist cleaning where possible.
9	**Refrigerants** 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.	**CC**	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. The installation also uses refrigerants likes R134a, R410, and R448a. Previously used refrigerants with a higher GWP greater than 2,500 have been replaced with lower GWP refrigerants as above. Glycol circuits are used to keep raw materials and products cold to mitigate risk of freezing. Glycol is cooled by the refrigerants in the chillers. There is no other viable option for the production process.
10	**Resource efficiency** In order to increase resource efficiency, BAT is to use one or a combination of the techniques given below: (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	**CC**	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.

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
	(f) Use of waste water for land spreading		a) Anaerobic digestion is utilised for the treatment and recovery (off-site) of the following waste streams: - high strength waste from the dairy processes; - residue whey permeate; and - sludges from the effluent treatment plant. b) The residues are used as feedstocks in the off-site anaerobic digestion plant. c) High Strength Waste is separated from multiple sources around the dairy. These include the separation of high strength dairy wastes from CIP pre-rinses, separator de-sludges any rejected waste product from the production process. d) N/A e) Not applicable as phosphorus content is below 5mg/l f) Waste water is not routinely land spread However, as part of contingency plan in case of issues with the effluent treatment plant, Wyke do have a SR2010No4 mobile plant land spreading permit and deployments in place for spreading of liquid dairy effluent waste and effluent sludge to land for agricultural benefit.
11	**Waste water buffer storage** In order to prevent uncontrolled emissions to water, BAT is to provide an appropriate buffer storage capacity for waste water.	**CC**	The operator has provided information to support compliance with BATc 11. We have assessed the information provided

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			and we are satisfied that the operator has demonstrated compliance with BATc 11. The operator has in place: • Contingency plan • Appropriate size of effluent treatment process • A new bioreactor has been commissioned.
12	**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 (a) Equalisation (b) Neutralisation (c) Physical separate (eg screens, sieves, primary settlement tanks etc) 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 nitration - 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 [for detail of each technique, refer BAT 12 table 1]	**CC**	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. The operator is using onsite wastewater treatment involving: • Equalisation • Neutralisation • Physical separation • Aerobic treatment • Nitrification • Flocculation • Filtration
12	**Emissions to water – treatment** **BAT-associated emission levels (BAT-AELs) for direct emissions to a receiving water body**	**FC**	The operator has provided information to support future compliance with BATc 12 AELs. We have assessed the information

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><tr><th>Parameter</th><th>BAT-AEL (1) (2) (daily average)</th></tr><tr><td>Chemical oxygen demand (COD) (3) (4)</td><td>25-100 mg/l (5)</td></tr><tr><td>Total suspended solids (TSS)</td><td>4-50 mg/l (6)</td></tr><tr><td>Total nitrogen (TN)</td><td>2-20 mg/l (7) (8)</td></tr><tr><td>Total phosphorus (TP)</td><td>0,2-2 mg/l (9)</td></tr></table> **Note: 125mg/l COD for dairy sites** **Note: 4mg/l TP for dairy sites**		provided and we are satisfied that the operator has demonstrated future compliance with BATc 12 The future dated requirements are incorporated into the permit in Table S2.2. For TN, we have assigned the ELV as a daily mass emission limit, as an interim measure, and included IP13 for the operator to complete infrastructure improvements to allow them to meet the mg/l BAT-AEL.
13	**Noise management plan** 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: - 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. Note: BAT13 is only applicable where a noise nuisance at sensitive receptors is expected and/or has been substantiated.	**NA**	We are satisfied that BATc 13 is not applicable to this Installation. The production of a Noise Management Plan is only applicable to cases where a noise nuisance at sensitive receptors is expected and/or has been substantiated.
14	**Noise management** 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. (a) Appropriate location of equipment and buildings (b) Operational measures (c) Low-noise equipment (d) Noise control equipment	**CC**	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.

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	(e) Noise abatement [for detail of each technique, refer BAT 14 table in BATCs]		The cooling towers are located at rear of site with fans projected away from sensitive receptors (which lie to the north). The natural gas boilers and the standby generator are situated within a building which acts to reduce noise emissions. Operational measures to reduce noise emissions include: • Planned preventative maintenance of plant and equipment. • Only trained staff are able to operate equipment. • There is a 5mph speed limit on site. • Doors are kept closed on rooms with higher noise levels during normal operations to reduce external noise emissions.
15	**Odour Management** 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: - 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. BAT 15 is only applicable to cases where an odour nuisance at sensitive receptors is expected and/or has been substantiated.	**NA**	We are satisfied that BATc 15 is not applicable to this Installation. The production of an Odour Management Plan is only applicable to cases where odour nuisance at sensitive receptors is expected and/or has been substantiated (BAT 15).
	DAIRY SECTOR BAT CONCLUSIONS (BAT 21-23)		
21	**Energy efficiency – Dairy Sector**	**CC**	The operator has provided information to support compliance with BATc 21. We

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
	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. 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 precooled (e.g. with a plate heat exchanger), prior to final cooling in an accumulating ice-water tank with a coil evaporator. Applicable in addition to BAT6		have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 21. The operator has provided the following information: All pasteurisers are continuous. All pasteurisers use regenerative heat when heating and cooling product. UHT milk is not produced on site. There is no powder production.

<table>
<tr><th>BATC No.</th><th>Summary of BAT Conclusion requirement for Food, Drink and Milk Industries</th><th>Status
NA/ CC / FC / NC</th><th>Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement</th></tr>
<tr><td>22</td><td>In order to reduce the quantity of waste sent for disposal, BAT is to use one or a combination of the techniques given below.

<table>
<tr><th colspan="2">Technique</th><th>Description</th></tr>
<tr><td colspan="3">Techniques related to the use of centrifuges</td></tr>
<tr><td>(a)</td><td>Optimised operation of centrifuges</td><td>Operation of centrifuges according to their specifications to minimise the rejection of product.</td></tr>
<tr><td colspan="3">Techniques related to butter production</td></tr>
<tr><td>(b)</td><td>Rinsing of the cream heater with skimmed milk or water</td><td>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="3">Techniques related to ice cream production</td></tr>
<tr><td>(c)</td><td>Continuous freezing of ice cream</td><td>Continuous freezing of ice cream using optimised start-up procedures and control loops that reduce the frequency of stoppages.</td></tr>
<tr><td colspan="3">Techniques related to cheese production</td></tr>
<tr><td>(d)</td><td>Minimisation of the generation of acid whey</td><td>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>(e)</td><td>Recovery and use of whey</td><td>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>
</table>
</td><td>CC</td><td>The operator has provided information to support compliance with BATc 22. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 22.

Separator de-sludges are pumped to the High Strength Waste Tank. These are minimised through wastage audits of these processes.

The cream heater is rinsed with water to recover the cream. This is sent to the butter dairy meltdown tank for recovery. When the cream heater is cleaned, the first prerinse is sent for recovery to the high strength waste silo.

Whey is recovered through evaporation and membrane filtration. Whey cream is separated out for butter manufacture. Whey undergoes ultrafiltration to produce whey protein concentrate. Whey permeate from the ultrafiltration process is sent for energy recovery at the off-site AD Plant. The evaporation of products such as whey and whey protein concentrate also takes place.</td></tr>
<tr><td>23</td><td>In order to reduce channelled dust emissions to air from drying, BAT is to use one or a combination of the techniques given below.

<table>
<tr><th colspan="2">Technique</th><th>Description</th><th>Applicability</th></tr>
<tr><td>(a)</td><td>Bag filter</td><td></td><td>May not be applicable to the abatement of sticky dust.</td></tr>
</table>
</td><td>NA</td><td>We are satisfied that BATc 23 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.</td></tr>
</table>

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	(b) Cyclone; (c) Wet scrubber — See Section 14.2 Page 34 of the Bref — Generally applicable. The associated monitoring is given in BAT 5.		
23	BAT-associated emission level (BAT-AEL) for channelled dust emissions to air from drying Parameter: Dust; Description: Mg/Nm^3; BAT-AEL (average over the sampling period): <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 BATc 23 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
Dairy Sector Environmental Performance Levels			
EPL	**Environmental Performance Level – Energy consumption for the dairy sector** 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 — MWh/tonne of raw materials — 0.10-0.22 (1) Powder — MWh/tonne of raw materials — 0.2-0.5 Fermented milk — MWh/tonne of raw materials — 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 that EPL is not applicable to this Installation. Milk concentrate and cream account for only 75% of raw materials. We are satisfied that the EPL for energy consumption is not applicable to this Installation, the proportion of milk produced at the site is less than 80% over the overall production. Total product includes cheese, skim concentrate, whey protein concentrate, butter and cream and the figure for 2021 was 0.92MWh/tonne of total products. We are satisfied with the operators approach in addition to their demonstration of BAT for BATc6.

<table>
<tr><th>BATC No.</th><th>Summary of BAT Conclusion requirement for Food, Drink and Milk Industries</th><th>Status
NA/ CC / FC / NC</th><th>Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement</th></tr>
<tr><td>EPL</td><td>Environmental Performance Level – Specific waste water discharge for the dairy sector
<table>
<tr><td>Main product (at least 80 % of the production)</td><td>Unit</td><td>Specific waste water discharge (yearly average)</td></tr>
<tr><td>Market milk</td><td rowspan="3">m^3/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>
</table></td><td>NA</td><td>We are satisfied that EPL is not applicable to this Installation.

We are satisfied that the EPL for specific water discharge is not applicable to this Installation, the proportion of cheese produced at the site is less than 80% over the overall production.

However, the operator has demonstrated compliance with BATc7.</td></tr>
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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
- 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.	Boiler 1: 9.4MWth Boiler 2: 9.4MWth
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Boilers
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 1: Mar 2018 Boiler 2: 2016

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

For existing medium combustion plant 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.

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 site condition report during the original application received on 12/08/2005 (and a copy supplied in the Regulation 61 response). The site condition report included a report on the baseline conditions as required by Article 22. We reviewed that report and considered that it adequately described the condition of the soil and groundwater at that time.

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 not identified any hazardous substances used / stored at the installation.

The operator has confirmed there has been no change in the hazardous substances used, their capability of causing pollution and/or the pollution prevention measures at the installation since the risk assessment was submitted on 24/03/2023. Consequently, we are satisfied there has been no change to the assessment of risk for hazardous substances.

Climate Change Adaptation

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

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

Containment

We asked the Operator vis 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 appliable.

The Operator provided details of all tanks;

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

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

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

Annex 3: Improvement Conditions

Previous improvement conditions deemed complete, so removed from permit:

IC1	The Operator shall undertake a risk assessment of the tanks that contain liquids whose spillage could be harmful to the environment. The assessment will take into account the requirements of section 2.2.5 of the Agency Guidance Note IPPC S6.13, October 2003. A written report summarising the findings shall be submitted to the Agency. A timescale for implementation of any improvements shall be submitted to the Agency for approval.	Complete
IC2	The Operator shall undertake an assessment of subsurface structures and their potential to cause fugitive emissions to surface water and ground water. The assessment will take into account the requirements of section 2.2.5 of the Agency Guidance Note IPPC S6.13, October 2003. A written report summarising the findings shall be submitted to the Agency. A timescale for the implementation of any improvements shall be submitted to the Agency for approval.	Complete
IC3	The Operator shall undertake an assessment of the surfacing and containment measures on site. The assessment will take into account the requirements of section 2.2.5 of the Agency Guidance Note IPPC S6.13, October 2003. A written report summarising the findings shall be submitted to the Agency. A timescale for the implementation of any improvements shall be submitted to the Agency for approval.	Complete
IC4	The Operator shall develop and implement a documented system of environmental management techniques, having regard to the Agency Guidance Note IPPC S6.13 Section 2.3, October 2003.	Complete
IC5	The Operator shall implement a written planned preventative maintenance schedule for all plant whose failure could lead to impact on the environment including, but not limited to: ▪ Boilers ▪ Effluent treatment plant ▪ Monitoring equipment ▪ Bunding and pipework The Operator shall have regard to the Sector Guidance Note IPPC 6.13, October 2003, Section 2.3. A written report summarising the key elements of the plan shall be submitted to the Agency for approval.	Complete
IC6	The Operator shall undertake a written review of the techniques used to monitor operational performance of the effluent treatment plant including, but not limited to: ▪ Monitored parameters ▪ Monitoring techniques, ▪ Manual and automated control systems ▪ Alarm systems The results of the review and a timescale for improvements shall be submitted to the Agency in writing for approval.	Complete
IC7	The Operator shall provide a report in writing to the Agency detailing the current monitoring method used to determine	Complete

	effluent flow at release point W1. The monitoring method shall be submitted for approval to the Agency.	
IC8	The Operator shall assess the method for effluent flow as agreed in IC7 with the requirements given in the MCERTS standard 'Minimum requirements for the self-monitoring of effluent flow' version 2, Aug 2004. A written report shall be provided to the Agency detailing how this standard is to be achieved and shall include time scales for implementation.	Complete
IC9	The Operator shall undertake a written assessment of the current measurement of pH on release point W1, including an evaluation of implementing the performance standards given in the MCERTS document 'Continuous Water Monitoring Equipment Part 2, v1 February 2003'. The assessment, identifying improvements and a timetable for their implementation, shall be submitted to the Agency for approval.	Complete
IC10	The Operator shall assess the methods available to undertake representative sampling and monitoring of BOD, suspended solids, ammonia as N, phosphates as PO_4 and free chlorine as Cl_2 from release point W1. A written report shall be submitted to the Agency for approval identifying improvements and a timetable for implementation.	Complete
IC11	The Operator shall develop a written accident management plan having regard to the requirements set out in Section 2.8 of the Agency technical guidance note IPPC S6.13, October 2003, and shall submit the plan in writing to the Agency for approval.	Complete
IC12	Following commissioning of the ETP, the Operator shall carry out an assessment of the impact of phosphate emissions to water using monitoring data. A report on the assessment shall be made to the Environment Agency. The results of the assessment shall be used to propose an emission limit value for phosphate to be agreed in writing by the Environment Agency.	Complete

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).

Improvement programme requirements		
Reference	**Reason for inclusion**	**Justification of deadline**
IP13	The Operator shall undertake a programme of infrastructure improvements to ensure that the relevant BAT-AEL "concentration in volume" limit for Total Nitrogen can be achieved, with the mass emission limit in place as an interim measure.	24 months from permit issue (01/12/2023)